

Brand Trust and Student Loyalty in Higher Education: Mediating Roles of Brand Image, Satisfaction, and Psychological Safety

Dr. Muhammad Aftab

University of Sialkot

Azizul Yadi Yaakop

azizul_yadi@umt.edu.my

Universiti Malaysia Terengganu

Muhammad Mohsin

University of Sahiwal

Aliza Fatima

University of Okara

Research Article

Keywords: Brand trust, Brand image, Student satisfaction, Student loyalty, Psychological safety, Higher education

Posted Date: October 14th, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-11187188/v1>

License:   This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Additional Declarations: No competing interests reported.

Abstract

The institutionalization of trust to student loyalty has not received enough attention, especially in private universities, where students constantly assess institutional performance and educational experiences. This study aims to develop an integrated model explaining how and when institutional brand trust affects student loyalty. Brand trust is an umbrella concept that includes reliability, credibility, benevolence, and integrity, and brand image is a perceptual mechanism, and relational boundary condition is psychological safety. A total of 528 students from eight private universities in Pakistan were chosen to gather data using PLS-SEM. The findings show that student loyalty, brand image, and satisfaction are significantly improved due to brand trust. Moreover, brand image and satisfaction mediate the trust–loyalty relationship, whereas psychological safety strengthens the effects of image and satisfaction on loyalty. Building on the Commitment–Trust Theory, this study illustrates perceptual and experiential processes by which institutional trust facilitates student loyalty in psychologically safe educational contexts.

1. Introduction

Attracting students is only half the challenge for private HEIs, they also have to keep them, build positive relationships and promote positive behaviours after they are enrolled (Yadav et al., 2024). In a competitive higher education market, students can more readily compare institutions, and dissatisfaction can have a more rapid impact on institutional reputation. Loyalty, thus, is strategically relevant as an indicator of students' commitment to stay attached to their university, suggest it to others, and have positive attitude towards university above time (Todea et al., 2022). In recent years, meta-analysis has provided supporting evidence on the determinants of loyalty, including a number of relational and experiential factors, such as satisfaction, which has been found to be a significant antecedent of loyalty (Santini et al., 2024). In the case of private HEIs, the issue of building loyalty is, therefore, an issue of education management—rather than a strictly promotional one. Prior research has established that trust, institutional image and satisfaction are important in shaping student–university relationships. In Pakistan, Latif et al. (2021) exposed that trust and the satisfaction are significant factors in determining student loyalty, and Ali et al. (2024) revealed that the perceived image of the university and satisfaction significantly affect loyalty. Such results reveal what factors are important, but do not explain the dynamics of these factors as much. Trust is also commonly treated as an overall perception, even though students may judge an institution on different grounds (Mohlas et al., 2025). A university may be viewed as reliable in delivering services, credible in communication, benevolent toward student interests, and principled in its decisions. Treating these evaluations as a multidimensional form of institutional brand trust can offer managers more useful diagnostic insight than a single global trust score.

A further limitation concerns the process through which trust may become loyalty. Trust can shape the broader image students form of their institution, while that image can influence how they interpret accumulated academic and service experiences (Carvalho et al., 2010; Bukit et al., 2026). Satisfaction

may then provide the more immediate basis for continued attachment and recommendation. Existing studies have examined several of these relationships separately, and recent evidence continues to support the importance of image and satisfaction for loyalty (Ali et al., 2024; Santini et al., 2024). However, the sequential pathway linking institutional brand trust to brand image, student satisfaction, and ultimately student loyalty remains insufficiently examined. This leaves a mechanism gap: educational managers know that these variables matter, but have less evidence about how favourable institutional relationships develop over time.

The institutional environment may also determine whether positive evaluations translate into loyalty (Seow and Hussain, 2024). Students experience a university not only through formal services and reputation but also through everyday interactions with teachers, administrators, and peers. Psychological safety captures whether individuals feel able to ask questions, express concerns, and participate without fear of embarrassment or negative interpersonal consequences (Edmondson, 1999). Recent higher education research shows that psychological safety supports constructive learning and interaction in student settings (Ratiu et al., 2026). Yet it has rarely been integrated into university branding and student-loyalty models. It therefore remains unclear whether a psychologically safe environment strengthens the extent to which favourable brand image and satisfaction are converted into loyalty.

Addressing these gaps, this study examines students in private HEIs in Punjab, Pakistan. It conceptualizes institutional brand trust through reliability, credibility, benevolence, and integrity; investigates brand image and student satisfaction as mechanisms connecting trust with loyalty; and tests psychological safety as a boundary condition of the brand image–loyalty and satisfaction–loyalty relationships. The study contributes to educational management research by moving beyond isolated predictors toward an integrated explanation of how institutional trust develops into loyalty and when that process becomes stronger. It also offers private university managers a clearer basis for deciding whether improvement efforts should focus on trustworthy institutional conduct, image formation, student experience, or the interpersonal climate in which those experiences occur. This study also contributes by viewing brand trust as a multidimensional construct and analyzing how these dimensions can help HEIs in building brand trust. Lastly, in the Pakistani context, this study provides valuable insights for enhancing brand trust into student loyalty.

Literature Review

Theoretical Underpinning

The Commitment–Trust Theory of Relationship Marketing (Morgan and Hunt, 1994) serves as the main foundation for this study. which argues that enduring relationships develop when exchange partners perceive one another as trustworthy and become willing to sustain the relationship over time. Trust is therefore particularly relevant to higher education, where students maintain prolonged interactions with an institution and continuously evaluate whether it delivers academic and administrative promises, communicates credibly, acts fairly, and demonstrates concern for their interests. In the present study, institutional brand trust is represented through reliability, credibility, benevolence, and integrity, capturing

different manifestations of students' confidence in the university. Relationship marketing theory further suggests that trust does not necessarily translate into relational outcomes through a single direct route; rather, it shapes subsequent evaluations and experiences that strengthen the relationship. Accordingly, brand image represents the perceptual mechanism through which trustworthy institutional conduct develops favourable associations, whereas student satisfaction captures students' experiential evaluation of whether the educational relationship meets their expectations. Prior higher education research supports the centrality of trust and satisfaction in sustaining university loyalty (Latif et al., 2021; Rew et al., 2024), while recent meta-analytic evidence identifies satisfaction as a particularly important antecedent of student loyalty (Santini et al., 2024). The framework is extended by psychological safety, which reflects whether students believe they can raise concerns, ask questions, and participate without interpersonal risk (Edmondson, 1999). Psychological safety is treated here not as an alternative theory of loyalty but as a relational boundary condition: favourable image and satisfaction should translate more strongly into loyalty when students experience an environment that supports voice, respect and open interaction. Emerging evidence from higher education similarly demonstrates the relevance of psychological safety to constructive student interaction and learning processes (Ratiu et al., 2026). Taken together, the framework explains student loyalty as the outcome of relational confidence, favourable institutional perceptions, positive educational experiences and a supportive interpersonal climate, thereby extending commitment–trust logic from conventional exchange relationships to the management of long-term student–institution relationships in private higher education.

2. Hypotheses Development

Institutional brand trust and student loyalty

Students' faith in a university's dependability, credibility, kindness, and adherence to moral standards is reflected in institutional brand trust. Trust reduces uncertainty in a relationship in which students depend on the institution for educational quality, administrative support, and future academic outcomes. When students believe that their university fulfills its commitments and acts consistently, they are more likely to maintain the relationship and recommend the institution to others. Evidence from Pakistan shows that university trust contributes to stronger student loyalty (Latif et al., 2021), while wider higher education research continues to recognize trust as an important relational basis for sustained institutional attachment. Thus, trustworthy institutional conduct should strengthen students' willingness to remain connected with their university. Therefore, it is hypothesized that:

H1. *Institutional brand trust is positively related with the student loyalty.*

Institutional brand trust and brand image

Brand image develops from the beliefs and associations that students accumulate through their interactions with an institution. Trust can shape these associations because confidence in an institution's reliability, credibility, benevolence, and integrity provides students with favorable cues for evaluating the university as a whole. Consistent fulfillment of promises can reinforce perceptions of

institutional competence and reputation, whereas unreliable conduct may weaken the image regardless of promotional claims. Higher education research identifies trust and university image as closely related components of students' institutional evaluations (Latif et al., 2021; Liu, 2024). Accordingly, students who perceive their university as trustworthy should be more likely to develop a favourable overall perception of its brand. Therefore, it is hypothesized that:

H2. *Institutional brand trust is positively Related with the brand image.*

Institutional brand trust and student satisfaction

Student satisfaction represents an evaluation of whether accumulated university experiences meet or exceed expectations. Trust may support this evaluation by reducing uncertainty about institutional decisions and increasing confidence in the delivery of academic and administrative services. Students who regard their institution as dependable, People who are sincere and considerate of their interests are more likely to see their time at university favorably. Latif et al. (2021) demonstrated the importance of both trust and satisfaction in explaining student–university relationships in Pakistan. Although recent evidence suggests that the strength of the trust–satisfaction relationship can vary across educational settings (Liu, 2024), this variation makes further examination particularly relevant. Accordingly, greater institutional brand trust is expected to correspond with stronger student satisfaction. Therefore, it is hypothesized that:

H3. *Institutional brand trust is positively related with student satisfaction.*

Brand image and student loyalty

The favorable brand image provides students with a positive overall representation of their university and can strengthen their willingness to maintain an institutional relationship. Students who associate their university with desirable academic standards, reputation, and institutional characteristics are more likely to speak positively about it and recommend it to others. Recent evidence from higher education supports the relevance of institutional image for student loyalty. Seow and Hussain (2024) demonstrate the importance of institutional image in students' satisfaction and loyalty evaluations, while research in private university settings also links positive brand perceptions with stronger relational outcomes (Osman et al., 2024). Therefore, a stronger university brand image should encourage students to develop greater loyalty toward the institution. Therefore, it is hypothesized that:

H4. *Brand image is positively associated with student loyalty.*

Student satisfaction and student loyalty

Pleased students are more likely to continue supporting an institution because their accumulated experiences provide evidence that the university has met their academic and service expectations. Satisfaction can consequently encourage positive and significant word of mouth, recommendations, and continued institutional attachment. This relationship is strongly supported in higher education research.

Osman et al. (2024) found satisfaction to be an important predictor of loyalty among private university students, while Seow and Hussain (2024) also confirm its role in loyalty formation. More importantly, Santini et al. (2024) found that satisfaction was the biggest predictor of student loyalty in a meta-analysis of 103 studies with over 54,000 students. This evidence supports the expectation that satisfied students will demonstrate stronger loyalty. Therefore, it is hypothesized that:

H5. *Student satisfaction is positively associated with student loyalty.*

Brand image and student satisfaction

Students use institutional image as a cognitive reference when evaluating their university experiences. A favourable image can create positive expectations concerning educational quality, institutional reputation and the value associated with studying at the university. When actual experiences are consistent with these perceptions, students are more likely to evaluate their relationship with the institution positively. Recent empirical evidence supports this connection. Osman et al. (2024) found that brand image positively influenced satisfaction among students of private universities, while Seow and Hussain (2024) demonstrate the continuing relevance of institutional image for satisfaction in higher education. Thus, a positive institutional image is expected to provide a favourable basis from which students evaluate their university experience. Therefore, it is hypothesized that:

H6. *Brand image is positively associated with student satisfaction.*

Mediating role in student satisfaction

Institutional brand trust may contribute to the student loyalty not only directly but also through the evaluations students develop about their university. When students perceive an institution as reliable, credible, benevolent and principled, such confidence can strengthen favourable associations with the university and improve evaluations of their educational experience. Brand image therefore, represents a perceptual mechanism through which trust is translated into a more favourable overall view of the institution, which can subsequently encourage loyalty. Student satisfaction provides a related but distinct experiential mechanism because it reflects students' assessment of whether academic, administrative, and relational experiences meet their expectations. Prior higher education research demonstrates that trust, institutional image, and satisfaction are important components of enduring student–university relationships (Latif et al., 2021; Ali et al., 2024). Evidence also indicates that favourable institutional image and satisfaction contribute to stronger student loyalty (Osman et al., 2024; Santini et al., 2024). Thus, brand image and student satisfaction are expected to operate as complementary pathways through which institutional brand trust is associated with student loyalty. Thus, we propose the following:

H7

Brand Image positively mediates the relationship between Brand Trust and Student Loyalty.

H8

Student Satisfaction positive mediating the relationship between Brand Trust and Student Loyalty.

Moderating role of psychological safety

Psychological safety reflects the extent to which students feel able to express questions, concerns, and ideas without fear of embarrassment or adverse interpersonal consequences (Edmondson, 1999). A favourable brand image may generate stronger loyalty when students experience an institutional environment that also permits open and respectful interaction. Under high psychological safety, positive beliefs about the university are reinforced through day-to-day experiences in which students can participate and communicate without unnecessary interpersonal risk. Recent higher education evidence shows that psychological safety facilitates constructive learning and interaction among students (Ratiu et al., 2026). Conversely, a positive institutional image may translate less strongly into loyalty when the learning environment feels unsupportive. Psychological safety is therefore expected to strengthen the image–loyalty relationship.

Satisfaction reflects students' positive evaluation of their university experiences, but satisfaction may not result in the same level of loyalty under all institutional conditions. Psychological safety can reinforce this conversion by fostering an atmosphere where students feel valued, able to seek support, and comfortable expressing concerns. Such an environment can add relational value to otherwise satisfactory academic and service experiences. Psychological safety has been associated with learning, participation, and effective student interaction in contemporary higher education settings (Ratiu et al., 2026). When psychological safety is low, even satisfied students may experience relational hesitation or distance from the institution. Thus, the loyalty generated by satisfaction should be stronger when students perceive the university environment as psychologically safe.

H9

Psychological safety positively moderates the association between brand image and student loyalty, such that the association is stronger at higher levels of psychological safety.

H10

Psychological safety positively moderates the association between student satisfaction and student loyalty, such that the association is stronger at higher levels of psychological safety.

Theoretical Framework

3. Methodology

Demography

Table 1
Demographic profile of respondents (N = 528)

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	286	54.2
	Female	242	45.8
Age	18–22 years	247	46.8
	23–27 years	203	38.4
	28 years and above	78	14.8
Study level	Graduate	336	63.6
	Postgraduate	192	36.4
Academic discipline	Engineering	142	26.9
	Management	132	25.0
	Computer science	148	28.0
	Natural sciences	106	20.1

Respondent profile.

A total of 528 students from various academic disciplines were used in the final sample. The respondents were fairly balanced between males (54.2%) and females (45.8%). The respondents were mostly 18–27 years old, which is the prime age of students attending graduate and postgraduate institutions. The postgraduate students (36.4%) were represented by graduate students (63.6%). Distribution of representation was also distributed over engineering, management, computer science, and natural sciences, avoiding over-concentration in a single academic field.

Common Method Bias

Common method bias was examined beforehand for testing the structural relationships as the data were collected from a single source and a cross-sectional questionnaire was used. The first unrotated factor obtained from Harman's single factor test accounted for 45.435% of total variance and is still below than 50% criteria. The collinearity diagnostics also indicated values between 1.000 and 3.325 which indicated no serious issues due to multicollinearity. Together with the above findings, there was little threat for common method bias to seriously contaminate the measured relationships (Podsakoff et al. 2003; Kock, 2015).

Research design and sampling strategy

The research design for this study was quantitative and cross-sectional in nature to examine the relationship between brand trust, brand image, students' satisfaction with the HEI, psychological safety

and student loyalty in HEIs. The population consisted of the students of graduate and post graduate level at private universities of Punjab Pakistan who were enrolled in eight universities. Students were sampled using stratified sampling method across the different disciplines of Engineering, Management, Computer Science and Natural Sciences to ensure the representation of students. Eligibility was considered whether students are in an academic tier from private universities or not, who approached in these academic tiers are eligible to join the study. In accordance with the requirement of the Hair et al. (2022) criterion, the final sample met the requirements for model estimation of the proposed PLS-SEM model, as well as the mediation and moderation relationships. G*Power was also used to assess the sample size for its sufficiency. Based on this analysis there was a minimum number of 146 respondents for six predictors, $f^2 = 0.15$, significance level = 0.05 and statistical power = 0.95. This last sample of 528 participants was far more than is required and adequate for this suggested PLS-SEM model. 600 questionnaires were distributed. This meant that 528 questionnaires were used because they were completed and consistent, and there was an 88% response rate. The data were screened and 72 cases were eliminated because there was a large amount of missing data and/or patterns of missing data responses that impacted data quality. The final data usable response rate was 88% (528 complete and usable responses).

Measurement instruments and validation

Data were collected using a structured questionnaire consisting of previously validated and tested measuring scales, adapted from existing research. Each item was rephrased so as to be conceptually the same but more appropriate to the context of higher education. Responses were recorded on a five-point Likert scale, where 1 represented "strongly disagree" and 5 represented "strongly agree." For operationalizing the concept of brand trust, a higher-order concept of dependability, credibility, kindness and integrity was used. The measurement instruments included scales from previous marketing and higher education research that were established. For construct measurement, established scales from various works were used, with things modified to fit the situation. The measurement of the brand trust dimension of credibility was done through the use of the Gurviez and Korchia (2002) scale, which included five items for charity, three things for integrity, and three items for trust. Delgado-Ballester and Munuera-Aleman (2005) provided the four-item dependability measure. Three items proposed by Hennig-Thurau, Langer, and Hansen (2001) were used to gauge students' loyalty. Psychological Safety comes from Edmondson (1999) (5 things). The scale of seven questions suggested by Martínez et al. (2014) was also used for the study of brand image. Seven items were adapted from the measure developed by Kalim et al. (2022) from earlier higher education measures reported by Uddin et al. (2018) and Fares et al. (2014) for measuring student satisfaction. A pilot test of the questionnaire has been carried out with 25 students not included in the research so that the questionnaire can be understood and to facilitate the expression of the items in the instrument before the actual data collection was carried out. Following development of the items, a structured questionnaire was prepared and provided to gather rating of the items from respondents. For the adaptation and pre-test, the wording of items was analyzed to make sure that the wording of the items does not become too different or duplicate the contents being

measured. The meaning of the constructs did not shift to the changes in the context and these were merely made in the university context.

Data collection

In order to assess the readability and clarity of items, the questionnaire was pre-tested with twenty-five learners prior to the main survey. A few expression changes were suggested, which were implemented. After receiving approval from the participating institutes, data collection took place in October and November of 2025. They all gave their consent to participate; their anonymity and confidentiality were guaranteed, and participation in the questionnaire was voluntary. Estimation of the proposed model was performed in the software SmartPLS-4. The PLS algorithm was used with the standard settings for the estimation of the software. The statistical significance was determined through the use of a 2-tailed test and 5% level of significance, using the bootstrapping method with 5000 subsamples. The significance of direct, indirect, and interaction effects was tested by calculating bias-corrected 95% bootstrapped confidence intervals. Based on the suggestions of Hair et al. (2022), the analysis was carried out in two phases using a score-based methodology. Internal consistency, discriminant validity, convergent validity, and indicator reliability were all tested in order to evaluate the measurement model.

To validate the proposed hypotheses, path coefficients, mediation and moderation effects, coefficient of determination (R^2), and overall model fit were calculated. Reliability, credibility, benevolence, and integrity were first-order reflective constructs of the second-order reflective construct of institutional brand trust. The higher-order specification was chosen as the dimensions are separate but related aspects of overall confidence in the institution among students. For the model's simplicity, a two-stage approach was adopted, in which the components of the second-order dimensions were estimated first and then served as indicators for the second-order brand trust construct. It is appropriate procedure to estimate hierarchical constructs in PLS-SEM in the context of preserving the conceptual difference between the lower order dimensions of the construct (Sarstedt et al., 2019; Hair et al., 2022).

Measurement Model

A second-order reflective construct made up of dependability, credibility, honesty, and kindness was used to conceptualize brand trust. Composite mean scores were calculated for each first-order dimension and then utilized as indications of the higher-order construct in accordance with guidelines for hierarchical component modeling. This method maintains the theoretical multidimensionality of brand trust while reducing model complexity (Becker et al., 2012; Hair et al., 2022). The measurement model (Fig. 2) was first evaluated to confirm the reliability and validity of the constructs.

Table 4.1
Outer Model Evaluation

Construct	Items	Values	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Brand Trust	BEN_mean	0.924	0.943	0.943	0.959	0.854
	CRE_mean	0.927				
	INT_mean	0.913				
	REL_mean	0.932				
Brand Image	BRI1	0.973	0.990	0.990	0.991	0.942
	BRI2	0.971				
	BRI3	0.968				
	BRI4	0.973				
	BRI5	0.969				
	BRI6	0.970				
	BRI7	0.972				
Psychological Safety	PS1	0.977	0.987	0.988	0.990	0.950
	PS2	0.976				
	PS3	0.975				
	PS4	0.975				
	PS5	0.971				
Student Loyalty	STL1	0.980	0.980	0.981	0.987	0.962
	STL2	0.982				
	STL3	0.981				
Student Satisfaction	STS1	0.969	0.990	0.990	0.992	0.944
	STS2	0.973				
	STS3	0.973				
	STS4	0.971				
	STS5	0.973				
	STS6	0.969				

Construct	Items	Values	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
	STS7	0.971				
	PS x BRI	1.000				
	PS x STS	1.000				

In a research study, reliability and validity tests (Table 4.1) are very important in determining the quality and accuracy of the measurement model (Hair et al., 2019; Fornell & Larcker, 1981). Reliability is used to assess the internal consistency of items within a construct, and it is measured using Cronbach's alpha and composite reliability (rho_a and rho_c), respectively, which are used to determine whether items within a construct are always measuring the same underlying concept (Hair et al., 2019). Validity and most importantly convergent validity in terms of Average Variance Extracted (AVE) shows the amount of variance explained by the indicators on a construct (Fornell & Larcker, 1981). The acceptable thresholds based on the established methodological guidelines are ≥ 0.70 for reliability and ≥ 0.50 for AVE, which means that the constructs are consistent and measured correctly (Hair et al., 2019).

All constructs in this study (Table 1) have excellent reliability and validity. Brand Trust demonstrates good internal consistency ($\alpha = 0.943$; CR = 0.959) and convergent validity (AVE = 0.854), and all indicators' loadings exceed 0.90. Brand Image also has an extremely great reliability ($\alpha = 0.990$; CR = 0.991) and AVE (0.942), which implies a very robust measurement model. Excellent reliability ($\alpha = 0.987$; CR = 0.990) and very high AVE (0.950) also indicate Psychological Safety. In the same way, Student Loyalty ($\alpha = 0.980$; CR = 0.987; AVE = 0.962) and Student Satisfaction ($\alpha = 0.990$; CR = 0.992; AVE = 0.944) show excellent measurement characteristics with the very high factor loadings. The interaction terms (PS $\times$ BRI and PS $\times$ STS) have loadings of 1.000, as expected in product indicator approaches. Although indicator loadings were high, each item captured a distinct aspect of its respective construct, supporting conceptual rather than redundant measurement. On the whole, the findings show that all constructs are above the recommended thresholds, which means that the measurement model is highly reliable and valid. The measurement model demonstrated strong indicator reliability and convergent validity; however, several loadings and composite reliability estimates were unusually high. Such values may indicate substantial similarity among items within some constructs and therefore warrant caution regarding possible measurement redundancy. Nevertheless, discriminant validity remained satisfactory, with all HTMT values below 0.85, indicating that the substantive constructs remained empirically distinguishable.

Table 4.2
Discriminant Validity Heterotrait-Monotrait Ratio

Constructs	BRI	BRT	PS	STL	STS	PS x BRI	PS x STS
BRI							
BRT	0.720						
PS	0.013	0.019					
STL	0.664	0.628	0.279				
STS	0.695	0.607	0.020	0.634			
PS x BRI	0.013	0.022	0.008	0.164	0.081		
PS x STS	0.082	0.098	0.041	0.138	0.045	0.667	

Discriminant validity (Table 4.2) frees the individual constructs to be different and to measure a different concept (Fornell & Larcker, 1981). It is usually measured against inter-construct correlations, with lower values being a good measure of discriminant validity (Hair et al., 2019). This means that constructs according to the Fornell-Larcker criterion ought not to be highly correlated with one another, and this ensures that each construct measures a unique aspect of the model (Fornell & Larcker, 1981).

The results show that all constructs have acceptable discriminant validity. Brand Image is correlated moderately with Brand Trust (0.720), Student Loyalty (0.664), and Student Satisfaction (0.695). Brand Trust also shows moderate relationships with Student Loyalty (0.628) and Student Satisfaction (0.607). The other constructs show very low correlations with Psychological Safety, and this means that they are very distinct. Student Loyalty and Student Satisfaction have a moderate correlation (0.634) that is acceptable. The interaction terms (PS × BRI and PS × STS) demonstrate that they are not strongly correlated with other variables, which proves the absence of multicollinearity problems. On the whole, the findings indicate that the discriminant validity is achieved.

Structural Model.

The proposed links between the constructs were then examined by evaluating the structural model (Fig. 3).

Table 4.3
Path Coefficient

Hypothesis	Paths	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Result
Hypothesis 1	BRT -> STL	0.252	0.252	0.043	5.893	0.000	Supported
Hypothesis 2	BRT -> BRI	0.696	0.696	0.024	29.303	0.000	Supported
Hypothesis 3	BRT -> STS	0.208	0.209	0.047	4.477	0.000	Supported
Hypothesis 4	BRI -> STL	0.290	0.289	0.045	6.461	0.000	Supported
Hypothesis 5	STS -> STL	0.288	0.288	0.039	7.403	0.000	Supported
Hypothesis 6	BRI -> STS	0.543	0.543	0.040	13.481	0.000	Supported

The path coefficients reflect the strength of the relationship between two constructs in the structural model and the direction of the influence (Hair et al., 2019). Importance of their relationships are determined by the t-value and p-value that indicates whether or not the relationships are supported (Hair et al., 2019). The outcomes of the structural model reveal that all the associations proposed are positive and statistically significant (as seen in Table 4.3). H1, H2, and H3 are supported by the significant effects of Brand Trust (BRT) on Student Loyalty (STL) ($\beta = 0.252$, $t = 5.893$, $p < 0.001$), Brand Image (BRI) ($\beta = 0.696$, $t = 29.303$, $p < 0.001$), and Student Satisfaction (STS) ($\beta = 0.208$, $t = 4.477$, $p < 0.001$). Additionally, Brand Image (BRI) has a substantial impact on Student Satisfaction (STS) ($\beta = 0.543$, $t = 13.481$, $p < 0.001$) and Student Loyalty (STL) ($\beta = 0.290$, $t = 6.461$, $p < 0.001$). confirming H4 and H6. In addition, the influence of Student Satisfaction (STS) to Student Loyalty (STL) was positive, as evidenced by the results of the β value of 0.288, t value of 7.403, and p value of < 0.001 , so that H5 was accepted. On the whole, all hypotheses are validated, which means that there are strong relationships between constructs.

Table 4.4
Specific Indirect Effect

Hypothesis	Paths	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Result
Hypothesis 7	BRT -> BRI -> STL	0.202	0.201	0.033	6.146	0.000	Supported
Hypothesis 8	BRT -> STS -> STL	0.060	0.060	0.016	3.803	0.000	Supported
Hypothesis 9	PS x BRI -> STL	0.104	0.104	0.036	2.880	0.000	Supported
Hypothesis 10	PS x STS -> STL	0.143	0.143	0.035	4.045	0.000	Supported

To assess mediation and moderation effects in the model, the particular indirect effects (Table 4.4) were taken into consideration (Hair et al., 2019). The finding is that each of the indirect effects is positive and statistically significant. Brand Trust (BRT) also indirectly impacts Student Loyalty (STL) through Brand Image (BRI) ($\beta = 0.202$, $t = 6.146$, $p = 0.001$), which proves H7. Equally, it can also be seen that BRT affects STL via Student Satisfaction (STS) ($\beta = 0.060$, $t = 3.803$, $p = 0.001$), which supports H8. Moreover, the moderation effects play an important role. The interaction term PS $\times$ BRI has a significant effect on STL ($\beta = 0.104$, $t = 2.880$, $p < 0.001$), supporting H9, while PS $\times$ STS also significantly influences STL ($\beta = 0.143$, $t = 4.045$, $p < 0.001$), supporting H10. All in all, the results prove both mediation and moderation effects in the model, as Brand Image and Student Satisfaction are the mediators, and Psychological Safety enhances the relationships with Student Loyalty.

Table 4.5
Total Effect

Paths	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
BRT -> BRI	0.696	0.696	0.024	29.303	0.000
BRT -> STL	0.622	0.622	0.028	22.617	0.000
BRT -> STS	0.586	0.586	0.031	18.700	0.000
BRI -> STL	0.446	0.445	0.043	10.458	0.000
BRI -> STS	0.543	0.543	0.040	13.481	0.000
PS -> STL	0.275	0.275	0.030	9.313	0.000
PS x BRI -> STL	0.104	0.104	0.036	2.880	0.004
PS x STS -> STL	0.143	0.143	0.035	4.045	0.000
STS -> STL	0.288	0.288	0.039	7.403	0.000

The importance of total effects is that they include both direct and indirect (mediated) effects, and thus provide a complete picture of the relationships within the model (Hair et al., 2019). They are necessary to realize the real scale of the impact and prevent the underestimation of the relationships functioning via mediators (Hair et al., 2019). All the overall effects (Table 4.5) are positive and significant. Brand Trust (BRT) has a strong total effect on Brand Image (BRI) ($\beta = 0.696$, $t = 29.303$, $p < 0.001$), Student Loyalty (STL) ($\beta = 0.622$, $t = 22.617$, $p < 0.001$), and Student Satisfaction (STS) ($\beta = 0.586$, $t = 18.700$, $p < 0.001$). Brand Image (BRI) also shows a significant total effect on Student Loyalty (STL) ($\beta = 0.446$, $t = 10.458$, $p < 0.001$) and Student Satisfaction (STS) ($\beta = 0.543$, $t = 13.481$, $p < 0.001$). Moreover, Student Loyalty (STL) is largely affected by Psychological Safety (PS) ($\beta = 0.275$, $t = 9.313$, $p < 0.001$). The interaction effects (PS $\times$ BRI and PS $\times$ STS) are noteworthy, as well, pointing to moderation in the model. Furthermore, student satisfaction (STS) is correlated with student loyalty (STL) in this study with the value of $\beta = 0.288$, $t = 7.403$, $p = 0.001$. All in all, the results support the fact that both the direct and indirect relationships have a significant contribution to the explanation of student loyalty, and the Brand Trust, brand image, and student satisfaction play a strong role in the model.

Slope Analysis (Fig. 4)

Because it shows how the connection between the independent and dependent variable changes at different levels of a moderator, the slope analysis (Fig. 4) is important for understanding the moderation effects (Aiken, 1991). It is necessary to visualize and understand the direction and strength of the interaction effects, specifically whether the link will be stronger or weaker under various circumstances (Hair et al., 2019).

The moderation analysis (PS × BRI) is done to test the existence of Psychological Safety (PS) that modifies the strength or direction of the relationship between Brand Image (BRI) and Student Loyalty (STL). Moderation is vital as it aids in knowing when or in what circumstances a relationship can be stronger or weaker. Hair et al. state that moderation analysis in the PLS-SEM allows capturing the effects of interactions and gives a more profound understanding than direct relationships only. The graph shows three levels of Psychological Safety, which are low (− 1 SD), mean, and high (+ 1 SD). A positive slope is observed in all three lines, which means that Brand Image has a positive impact on Student Loyalty at all levels of PS. The steepness of the lines, however, varies. The steepest line is the green line (plus one SD), which indicates that as Psychological Safety is high, the impact of Brand Image on Student Loyalty increases. The blue line (mean) has an intermediate effect, whereas the red line (−1 SD) has the least steepness, which indicates a lower relationship at low Psychological Safety.

This implies that Psychological Safety enhances the association between Brand Image and Student Loyalty. A positive brand image is stronger in terms of creating loyalty in students in an environment where they feel psychologically safe. On the other hand, brand image has a lesser effect on loyalty when the psychological safety is low. On balance, the figure makes the interaction findings in the structural model valid, as it shows a strong positive moderation effect.

The simple-slope analysis indicates that student satisfaction is positively related to student loyalty at all levels of psychological safety. However, the relationship becomes progressively stronger as psychological safety increases, with the steepest slope observed at + 1 SD and the weakest at − 1 SD. This pattern confirms that psychological safety strengthens the satisfaction–loyalty relationship, suggesting that satisfied students are more likely to remain loyal when they feel safe to express concerns, seek support, and interact openly within the institution.

Table 4.6
R-Square

Construct	R-square	R-square adjusted
BRI	0.485	0.484
STL	0.633	0.629
STS	0.495	0.493

R² (Table 4.6) measures the variance explained by the independent variables in the dependent ones or the strength of the structural model (Hair et al., 2019). The higher the R², the more predictive the model. R² values of 0.25, 0.50, and 0.75 are weak, moderate, and strong, respectively, according to Hair et al. (2019).

The findings reveal that the R² of Brand Image (BRI) is 0.485 (adjusted = 0.484), which has a moderate explanatory power. Student Satisfaction (STS) also demonstrates moderate variance explained with an R² of 0.495 (adjusted = 0.493). Student Loyalty (STL) will be the best in terms of the R² value of 0.633

(adjusted = 0.629), indicating a high degree of explanatory power. In general, the model accounts for a significant amount of variance in Student Loyalty and a moderate amount in Brand Image and Student Satisfaction, which is evidence of good predictive performance.

F square

f^2 measures an exogenous construct's contribution to an endogenous construct's R^2 ; values of 0.02, 0.15, and 0.35 indicate small, medium, and large effects, respectively (Cohen, 1988; Hair et al., 2022). It is important because statistical significance alone does not reveal practical impact, whereas f^2 shows whether removing a predictor meaningfully reduces the model's explanatory power

4.7: F square

BRI	BRI	BRT	PS	STL	STS	PS x BRI	PS x STS
				0.090	0.300		
BRT	0.942			0.085	0.044		
PS				0.206			
STL							
STS				0.111			
PS x BRI				0.025			
PS x STS				0.029			

The f^2 results indicate that institutional brand trust had a large effect on brand image ($f^2 = 0.942$), while brand image exerted a moderate effect on student satisfaction ($f^2 = 0.300$). Psychological safety showed a moderate effect on student loyalty ($f^2 = 0.206$). The effects of brand image ($f^2 = 0.090$), brand trust ($f^2 = 0.085$), and student satisfaction ($f^2 = 0.111$) on student loyalty were small. Brand trust had a small effect on student satisfaction ($f^2 = 0.044$), while the interaction effects of psychological safety with brand image ($f^2 = 0.025$) and student satisfaction ($f^2 = 0.029$) were also small but non-trivial.

Q square

To assess the out-of-sample predictive relevance of the model, Q^2 predict compares the accuracy of the model's predictions for endogenous constructs to a simple benchmark. A positive score signifies that there is some predictive ability; a higher positive score results in better predictive ability. This means that Q^2 can be used in conjunction with other explanatory measures, like R^2 , to show how well the model can predict the cases that were not observed (Shmueli et al., 2019; Stone, 1974).

4.8 Q square

BRI	Q²predict	RMSE	MAE
	0.484	0.721	0.595
STL	0.439	0.751	0.619
STS	0.341	0.814	0.667

All endogenous constructs had positive predictive relevance of Q²predict values above zero as indicated by the PLSpredict results. Student loyalty (0.439), student satisfaction (0.341), and brand image (Q²predict = 0.484) had the highest predictive relevance. The lowest RMSE and MAE values were for the brand image (0.721 and 0.595), and the highest were for student satisfaction (0.814 and 0.667). Results indicate that the overall picture is in favor of the model as being out-of-sample predictive relevant to the three endogenous constructs. The amount of predictive performance should, however, be compared with the prediction error of a linear-model performance benchmark.

Table 4.7
Model Fit

SRMR	Saturated model	Estimated model
	0.014	0.017
d_ULS	0.065	0.097
d_G	0.210	0.205
Chi-square	664.737	646.773
NFI	0.975	0.975

The model fit indices are the indices that show the ability of the proposed model to fit the actual data (Hair et al., 2019). These typical indicators are: SRMR, d_ULS, d G, Chi-square, and NFI. Close to unity NFIs and low values of SRMR (less than 0.08) will be a good fit in a model, according to Hair et al. (2019). As seen in this (Table 4.7), the value of the SRMR for the saturated model (0.014) and the estimated model (0.017) is very low and less than the recommended value, which shows an excellent fit. The size of the d ULS (0.065; 0.097) and d G (0.210; 0.205) is small, so there was not much difference between the observed and model-implied correlations. In PLS-SEM, the focus is not on the Chi-square value, so the values are 664.737 and 646.773, which are good. Also, the NFI value (0.975) of the two models is close to one, as it is an indication of a strong overall model fit.

4. Discussion

The purpose of this study was to examine the relationship between institutional brand trust and student loyalty in private higher education institutions and to examine the role of brand image, student satisfaction, and psychological safety in explaining this relationship. The results confirm the proposed model, which explained 63.3% of loyalty variance among students. Overall, the results suggest that

institutional factors do not have a single effect on loyalty, but rather it accumulates over time, through trust, positive perceptions of the institution, positive experiences, and positive interpersonal or supportive relationships. Student loyalty, satisfaction, and brand image were found to be positively correlated with institutional brand trust. Correlation between brand trust and brand image was the highest ($\beta = 0.696$), meaning that the students' trust in the reliability, credibility, benevolence, and integrity of the institute has a significant influence on the students' perception of the institute. It is apparent from this discovery that the University's image is not only generated by advertising and reputation-building activities but also by the evaluations of the students reflecting on the university's actions. This result aligns with the results of past studies in higher education, which found that trust is the one that plays a pivotal role in maintaining students' relationships with the higher education institution (Latif et al., 2021; Rew et al., 2024).

Student satisfaction and loyalty were found to have a positive relationship with brand image. The correlation of image and satisfaction is relatively strong ($\beta = 0.543$), meaning that students with positive image perceptions are more likely to rate their educational experience positively. This result is corroborated by the findings of previous studies that have shown the relationship between university image and satisfaction and loyalty (Ali et al., 2024; Osman et al., 2024). Student satisfaction was also found to be positively related to loyalty ($\beta = 0.288$), supporting the view that good educational and service experiences lead to students' positive behavior in maintaining the relationship of loyalty with their educational institution. This finding aligns with the results of Santini et al. (2024), who found that satisfaction has one of the most important antecedents of student loyalty through meta-analysis.

The mediation results provide an improved understanding of the process of turning trust into loyalty. The indirect effects of student satisfaction on trust–loyalty were significant via brand image ($\beta = 0.060$), and trust–loyalty was also significant, mediated by brand image ($\beta = 0.202$). The results indicated that there was complementary partial mediation as the direct association between trust and loyalty remained, but not as strong as at pre-test. It is likely that the meanings and associations that students bring to a trusted institution will be quite important in the formation of loyalty, and the larger indirect effect through brand image offers some indication of this. Satisfaction, however, provides an alternative pathway to education, suggesting that there are separate effects of institutional confidence and of one's own experiences of education on student loyalty. The results further revealed the effect of the psychological safety construct on the relationship between student loyalty and brand image. Results also showed that the psychological safety construct is one that reinforced the relationship between brand image and student loyalty further. It had a significant interaction effect with brand image ($\beta = 0.104$, $p = 0.004$), and it had a comparatively stronger relationship with satisfaction ($\beta = 0.143$, $p < 0.001$). This indicates that a favorable institutional perception and positive experience are more likely to lead to loyalty if students can ask questions, express concerns, and seek support. It helps to broaden the base of the psychological safety research by making it relevant to student–institution relationships (Edmondson, 1999; Ratiu et al., 2026). It shows that student loyalty can be achieved by ensuring that institutional actions, experiences/perceptions, and student voice align in the environment to create sustainable loyalty.

5.1 Theoretical Implications

This study makes a contribution to the field of educational management research in the following ways. First, it introduces the concept of institutional trust with reliability, credibility, benevolence, and integrity, offering a more in-depth understanding of how students build their trust in their university. Second, the brand image and student satisfaction mediators reveal that trust is related to loyalty both perceptually and experientially. This builds on previous studies, which have tended to focus on these variables individually. Third, psychological safety emerges as an important boundary condition that strengthens the conversion of favourable image and satisfaction into loyalty. By integrating psychological safety with higher education branding, the study connects institutional relationship management with student voice and interpersonal climate. The findings therefore provide a more integrated explanation of student loyalty in private higher education, particularly within an emerging-economy context.

5.2 Practical Implications

The results indicate that it is not only promotional communication that should be used to build loyalty among private university managers, but also institutional behavior. Academic and administrative support, communication, decision and caring for students can enhance trust. Marketing communications should be consistent with students' real-life experiences, as brand image plays a significant role in satisfaction and loyalty. In addition to periodic satisfaction surveys, universities should track satisfaction as students navigate through the entire process from teaching to advising to assessment, digital services, complaints, and more. Last but not least, psychological safety should be included in retention and student engagement initiatives. Confidential feedback systems, available grievance mechanisms, positive classroom interactions, and supportive feedback to students' concerns can facilitate students' willingness to voice their concerns openly with the institution. When these factors of trust, image, satisfaction, and psychological safety align, relationships with students can be stronger and longer-lasting.

Conclusion

The study offers an integrated analysis of student loyalty in private higher education by bringing together aspects of institutional brand trust, brand image, student satisfaction, and psychological safety in one analysis. The results indicate that the positive relationship between institutional brand trust (measured by reliability, credibility, benevolence, and integrity) and student loyalty is direct and indirect via brand image and student satisfaction. However, the student satisfaction was found to be an additional experiential pathway between trust and loyalty, with brand image being the stronger mediator. In addition to strengthening relationships between brand image and student satisfaction, psychological safety also strengthened the relationship between favorability of institutional evaluations and student loyalty, showing that a positive evaluation of the institution is more likely to result in loyalty when students feel confident in their ability to express concerns, seek support, and participate without any risk to others. The study integrates relational, perceptual, experiential, and contextual mechanisms to deepen the

understanding of student loyalty, which is not limited to the traditional service and brand explanations. The results highlight the significance of each of the three dimensions—credible institutional conduct, positive student experiences, and psychologically safe environments—in the establishment of long-lasting student–institution relationships for private university managers. Since this is a cross-sectional design, the conclusions should be looked upon as associations and not cause and effect.

Limitations and Future Research

There are some limitations in this study, and it can be further investigated in future research. First, the data were gathered from students who are studying in eight private universities in the district of Punjab, Pakistan, which might restrict the generalizability of the data to other educational settings. In order to enhance external validity, future studies should include public universities, institutions from various regions, and across-country samples. Secondly, the research in the study was conducted using a cross-sectional research design, and as such, cannot make causal inferences. Longitudinal studies would help in proving the development of trust, satisfaction, and loyalty over time. Third, while this study accounted for brand image, student satisfaction, and psychological safety, there are other factors that may influence differences in student loyalty, such as institutional reputation, service quality, student engagement, perceived value, and university ranking. The integration of these factors could create more comprehensive models of student relationship management in higher education that could be explored in future studies. A few constructs had very high factor loadings and reliability coefficients, which could be due to the similarity of the wording of the indicators. Future research should review the measurement scales in various academic environments and determine if there are more parsimonious sets of items that would be content valid but less redundant.

Declarations

Data Availability Statement

Data will be available when required by the Journal.

Ethical Approval

Written ethical approval was obtained from the Office of Research, Innovation, and Commercialization (ORIC) of the TIMES Institute Pakistan, reference no. TI/ORIC/2025/33, dated 13-11-2025

Availability of supporting data

Data will be available when required by the Journal.

Competing interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

References

1. Aiken LS, West SG, Reno RR (1991) Multiple regression: Testing and interpreting interactions. sage
2. Ali M, Amir H, Ahmed M (2024) The role of university switching costs, perceived service quality, perceived university image and student satisfaction in shaping student loyalty. *J Mark High Educ* 34(1):201–222. 10.1080/08841241.2021.1975184
3. Becker J-M, Klein K, Wuestenfeld M (2012) Hierarchical latent variable models in PLS-SEM: guidelines for using reflective-formative type models. *Long Range Plann* 45:5–6
4. Bukit A, Dewi DK, Darma M, Harahap FSS, Fatmasari A, Silaban DE, INSTITUTIONAL IMAGE, AND STUDENT LOYALTY STRATEGY: INTEGRATION OF INTELLECTUAL PROPERTY LAW AND MARKETING MANAGEMENT PERSPECTIVES AT TJUT NYAK DHEN UNIVERSITY (2026) LEGAL PROTECTION OF BRANDS. *SIBATIK JOURNAL: Jurnal Ilmiah Bidang Sosial Ekonomi Budaya Teknologi Dan Pendidikan* 5(6):3076–3092
5. Carvalho SW, de Oliveira Mota M (2010) The role of trust in creating value and student loyalty in relational exchanges between higher education institutions and their students. *J Mark High Educ* 20(1):145–165. 10.1080/08841241003788201
6. Cohen J (1988) Set correlation and contingency tables. *Applied psychological measurement* 12, no. 4 : 425–434
7. Delgado-Ballester E, Munuera-Alemán JL (2005) Does brand trust matter to brand equity? *J Prod Brand Manage* 14(3):187–196
8. Edmondson A (1999) Psychological safety and learning behavior in work teams. *Adm Sci Q* 44(2):350–383. 10.2307/2666999
9. Fares D, Achour M, Kachkar O (2014) The impact of service quality, student satisfaction, and university reputation on student loyalty: a case study of international students in IIUM, Malaysia, *Proceedings of the 4th International Conference on Global Business Environment (ICGBE-2014)*, pp. 120–125
10. Fornell C, Larcker DF (1981) Evaluating structural equation models with unobservable variables and measurement error. *J Mark Res* 18(1):39–50
11. Gurviez P, Korchia M (2002) Proposition d'une échelle de mesure multidimensionnelle de la confiance dans la marque. *Recherche et Appl en Mark* 17(3):41–61
12. Hair JF, Hult GTM, Ringle CM, Sarstedt M (2022) A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM), 3rd edn. Sage, Thousand Oaks, CA
13. Hair JF, Risher JJ, Sarstedt M, Ringle CM (2019) When to use and how to report the results of PLS-SEM. *Eur Bus Rev* 31(1):2–24

14. Hennig-Thurau T, Langer MF, Hansen U (2001) Modeling and managing student loyalty: an approach based on the concept of relationship quality. *J Service Res* 3(4):331–344
15. Kalim U, Tran PQB, Bibi S, Khamphouvong L (2022) Impact of academic and non-academic service quality on international students' satisfaction in Chinese universities. *J Educ Learn* 11(6):86–95
16. Kock N (2015) Common method bias in PLS-SEM: a full collinearity assessment approach. *Int J e-Collaboration* 11(4):1–10
17. Latif KF, Bunce L, Ahmad MS (2021) How can universities improve student loyalty? The roles of university social responsibility, service quality, and 'customer' satisfaction and trust. *Int J Educational Manage* 35(4):815–829. 10.1108/IJEM-11-2020-0524
18. Liu Y (2024) Factors affecting undergraduate students' satisfaction and loyalty with independent institutions in Sichuan, China. *AU-GSB E-J* 17(2):164–173. 10.14456/auigsbejr.2024.39
19. Martínez P, Pérez A, Del Bosque IR (2014) CSR influence on hotel brand image and loyalty. *Acad Revista Latinoam de Administración* 27(2):267–283
20. Mohlas M, Rahman MA, Dewi ATA, Fikri AR, Adzimah M, Alwahedi AA (2025) The role of digital video content in building perception and trust in Islamic educational institutions. *Educ Sociedad J* 3(2):33–45
21. Morgan RM, Hunt SD (1994) The commitment-trust theory of relationship marketing. *J Mark* 58(3):20–38. 10.1177/002224299405800302
22. Osman AR, Joarder MHR, Hoque MK, Jakowan (2024) Student engagement, brand image and loyalty relationships: the mediating role of student satisfaction. *J Educ e-Learning Res* 11(2):311–321. 10.20448/jeelr.v11i2.5553
23. Podsakoff PM, MacKenzie SB, Lee JY, Podsakoff NP (2003) Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J Appl Psychol* 88(5):879–903
24. Ratiu L, Buzea IM, Rus CL, Otoi C (2026) Beyond the surface: unraveling the relationships between conflict, psychological safety, team learning, and performance in student teams. *Stud High Educ* 51(6):1338–1353. 10.1080/03075079.2025.2509148
25. Rew D, Cha W, Kim J-W, Jung JY (2024) The effects of commitment and trust on the relationship between service quality and university brand loyalty in time of crisis. *J Mark High Educ* 34(2):1198–1219. 10.1080/08841241.2023.2239723
26. Santini FO, da Silva Rocha L, Gattermann Perin M, Ladeira WJ, Akhtar S, Rasul T, Sampaio CH (2024) Factors influencing student loyalty in higher education: a meta-analytic generalization. *J Mark High Educ* 1–21. 10.1080/08841241.2024.2393617
27. Sarstedt M, Hair JF, Cheah J-H, Becker J-M, Ringle CM (2019) How to specify, estimate, and validate higher-order constructs in PLS-SEM. *Australasian Mark J* 27(3):197–211
28. Seow CW, Hussain T (2024) Assessing institutional image's influence on student satisfaction and loyalty in Singapore's higher education: a study on higher learning institution students. *Acta Psychol* 248., Article 104412, 10.1016/j.actpsy.2024.104412

29. Shmueli G, Sarstedt M, Hair JF, Cheah JH, Ting H, Vaithilingam S, Ringle CM (2019) Predictive model assessment in PLS-SEM: guidelines for using PLSpredict. *Eur J Mark* 53(11):2322–2347

30. Stone M (1974) Cross-validation and multinomial prediction. *Biometrika* 61(3):509–515

31. Todea S, Davidescu AA, Pop NA, Stamule T (2022) Determinants of student loyalty in higher education: A structural equation approach for the Bucharest University of economic studies, Romania. *International Journal of Environmental Research and Public Health*, 19(9), p.5527

32. Uddin M, Ali K, Khan MA (2018) Impact of service quality (SQ) on student satisfaction: empirical evidence in the higher education context of emerging economy. *‘Abqari J* 16:31–67

33. Yadav R, Shiva A, Narula S (2024) Exploring private university attractiveness from students’ perspective to ensure sustainable institutes: An empirical investigation from Indian perspective. *Asia-Pacific J Bus Adm* 16(1):170–203

Figures

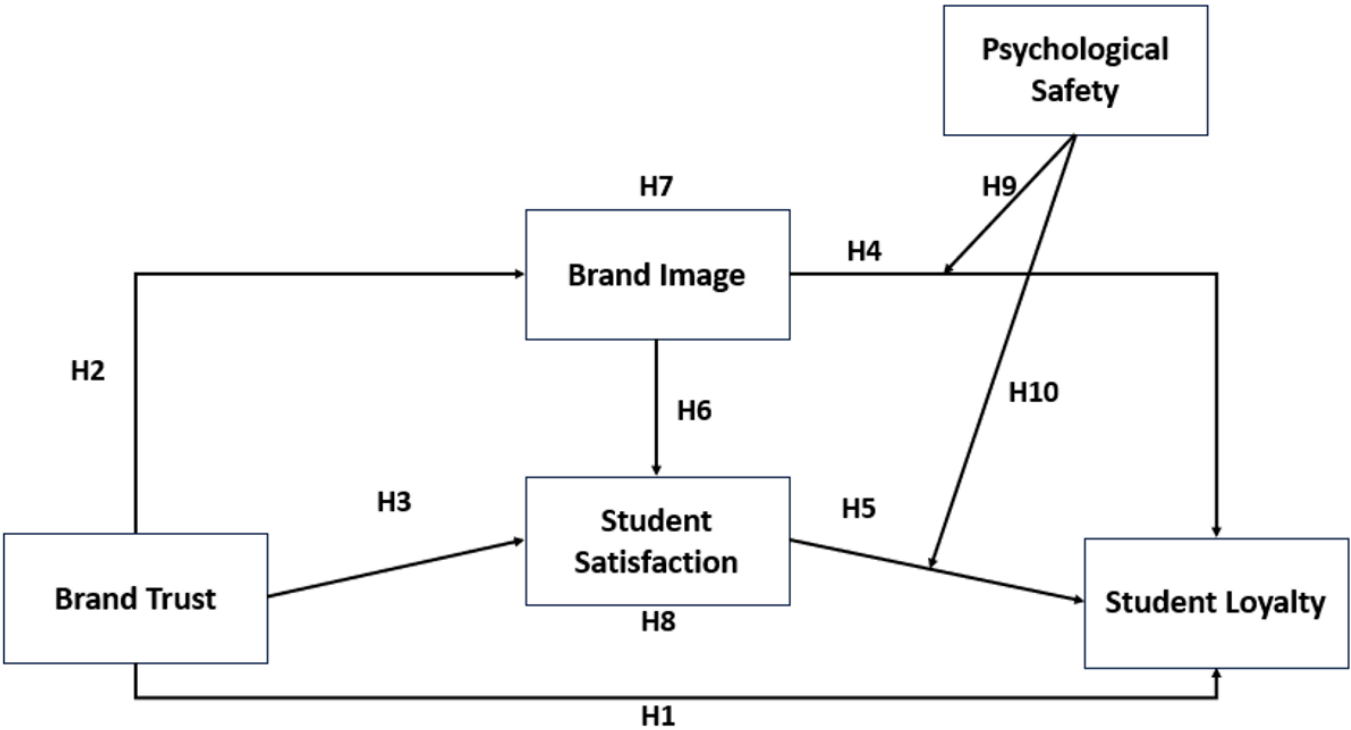


Figure 1

Theoretical Framework

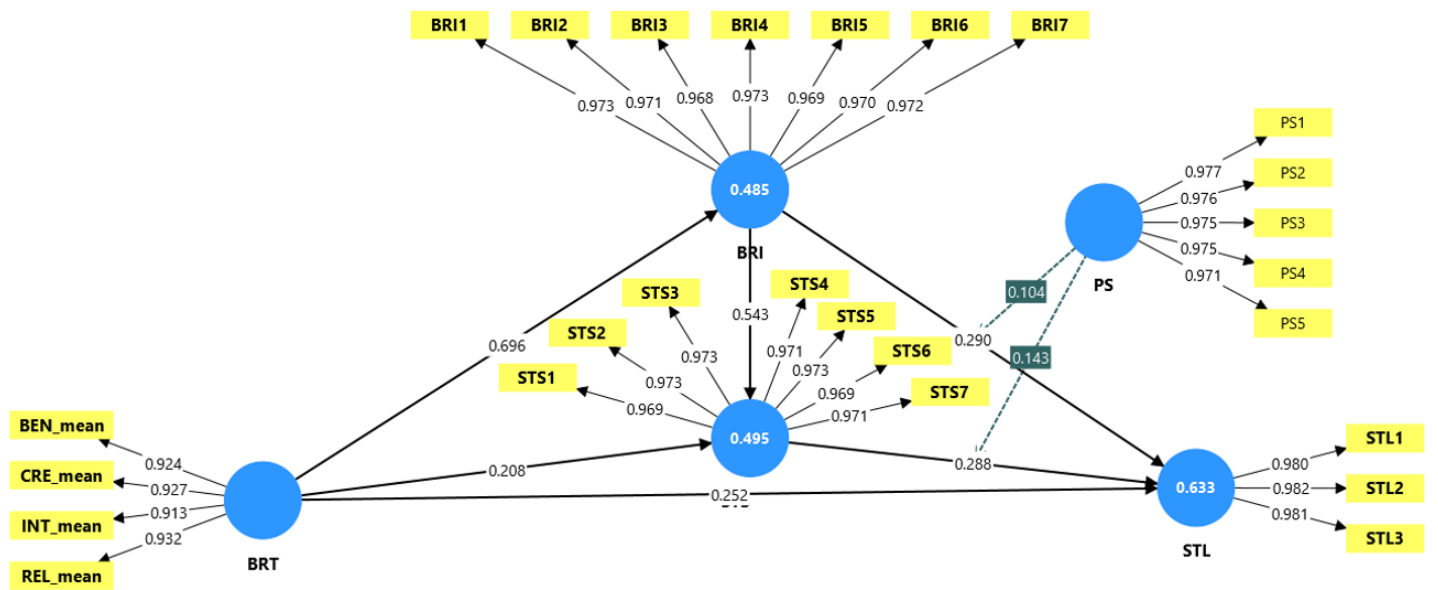


Figure 2

Measurement model using SmartPLS

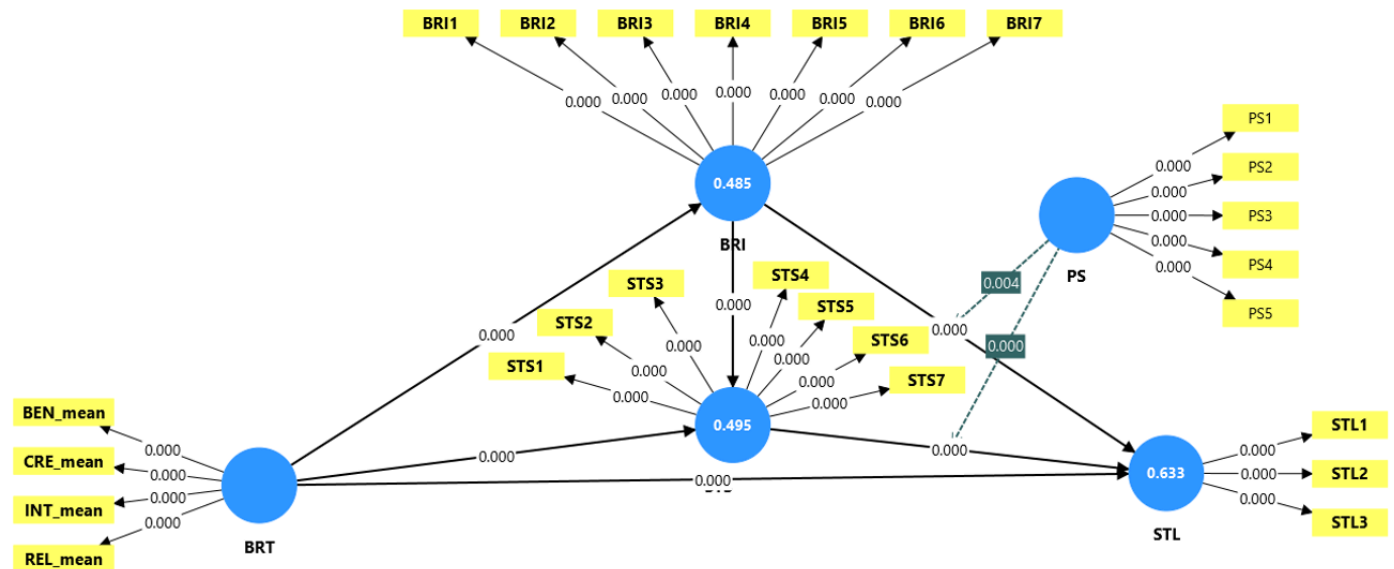


Figure 3

Structural model using Smart PLS

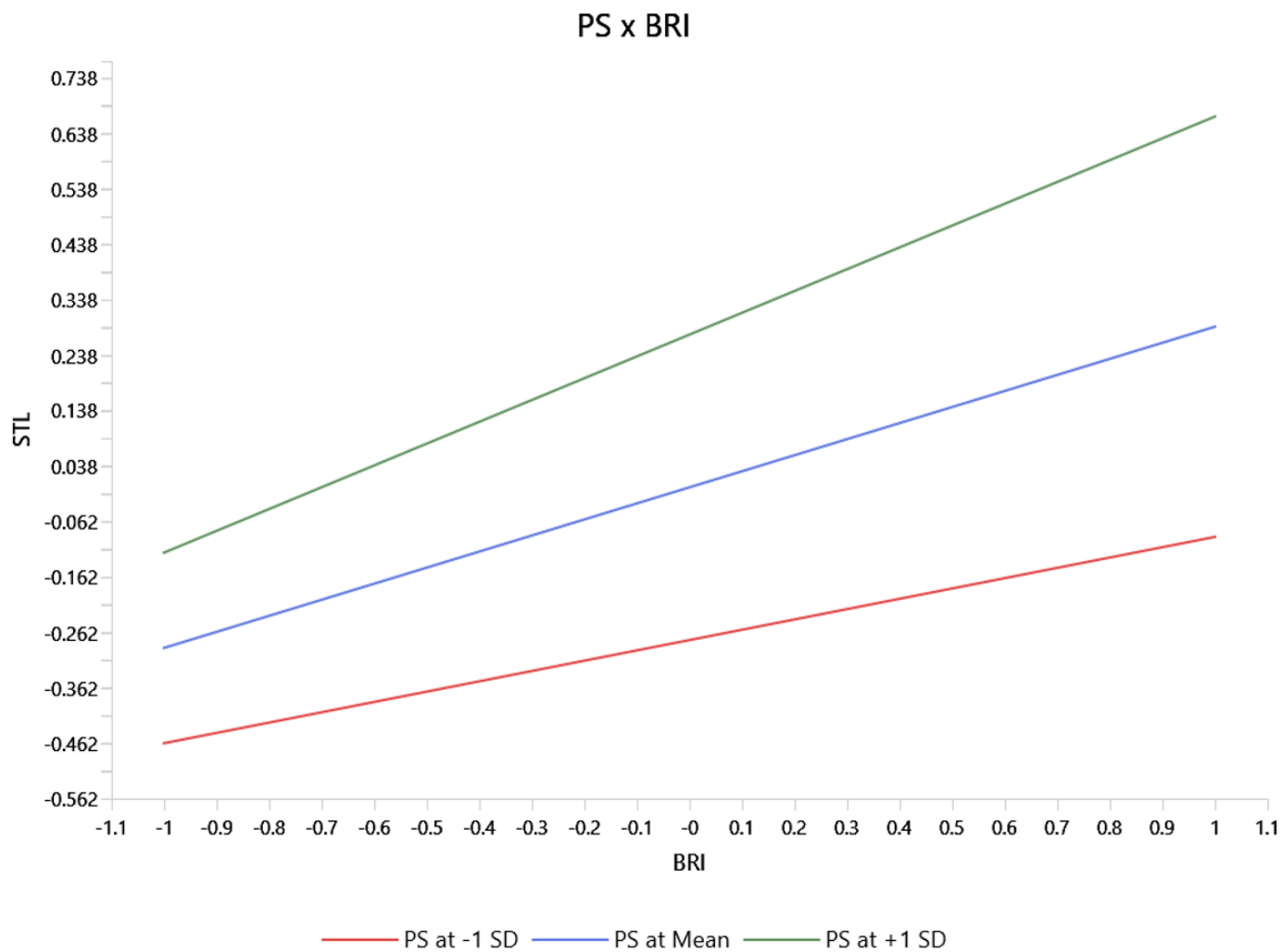


Figure 4

The Author’s work using SmartPLS

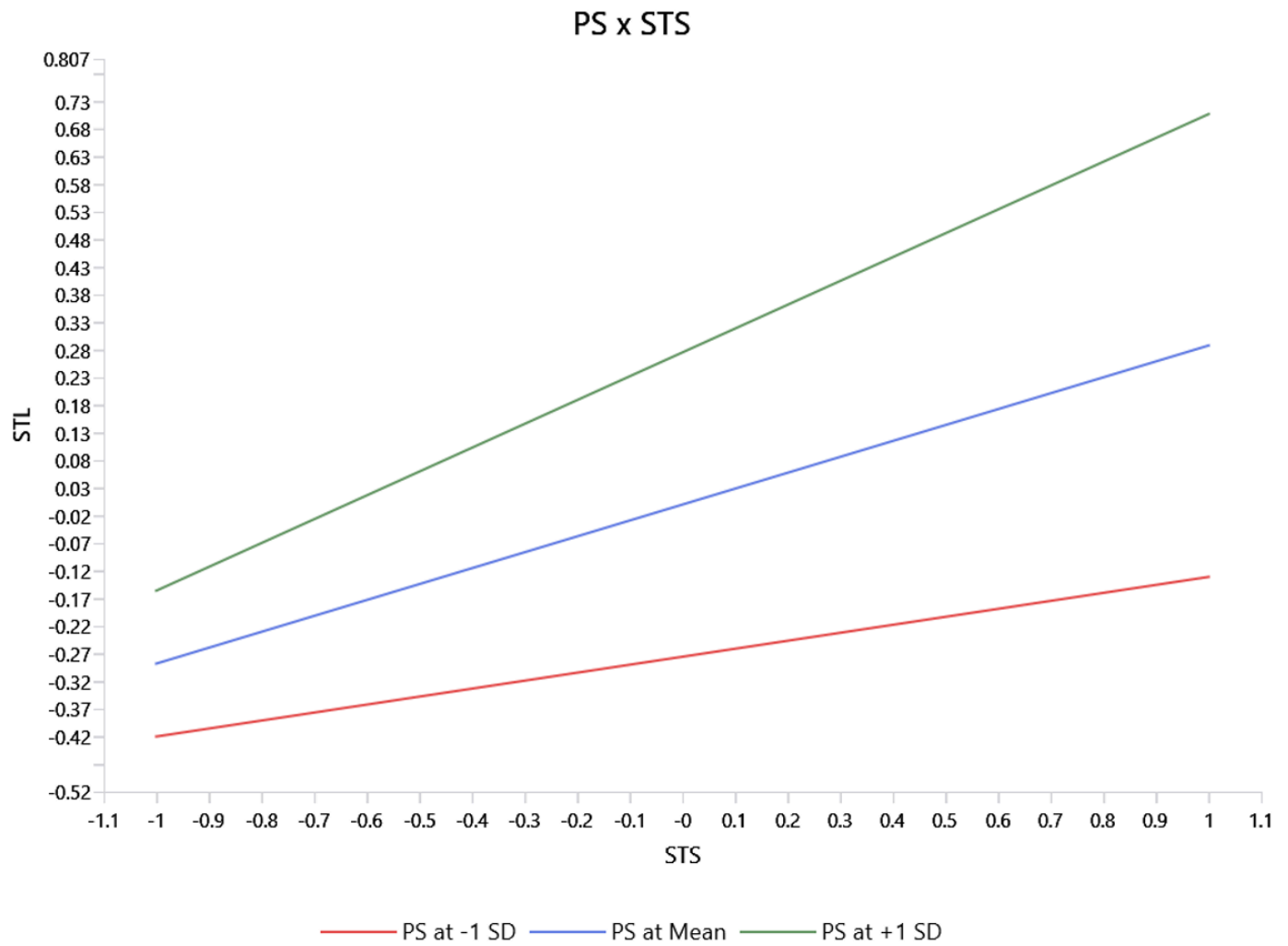


Figure 5

Slope Analysis