International Journal of Evaluation and Research in Education (IJERE)
Vol. 15, No. 3, June 2026, pp. 1963~1970
ISSN: 2252-8822, DOI: 10.11591/ijere.v15i3.39033

Student satisfaction in student affairs management: the role of cross-functional cooperation in Hainan, China

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Article Info

Article history:

Received Feb 9, 2026
Revised Mar 16, 2026
Accepted Mar 29, 2026

Keywords:

Cross-functional cooperation
Hainan Province
Service gaps
Service quality
Student affairs management
Student satisfaction

ABSTRACT

Student affairs management (SAM) is increasingly expected to deliver timely, coherent, and student-centered services, yet satisfaction remains uneven in Chinese universities because students experience SAM as an integrated system rather than isolated units. This study asks whether cross-functional cooperation (CFC) explains how service quality, service gaps, and students' psychological and engagement factors translate into satisfaction with SAM in Hainan Province, China. Using a cross-sectional survey of 250 undergraduate and postgraduate students from ten public and private universities, the study applies partial least squares–structural equation modeling (PLS-SEM) with 5,000-sample bootstrapping to test direct and mediating effects. Results show that CFC is the strongest predictor of satisfaction (β=0.419, $p<0.001$). Service gaps reduce satisfaction (β=−0.217, $p<0.001$), while psychological and engagement factors increase satisfaction (β=0.206, $p<0.001$). Service quality has no direct effect but operates through CFC, indicating that coordination is required to convert service inputs into positive experiences. The findings highlight governance reforms that institutionalize cross-department coordination, shared case management, and gap monitoring to improve SAM effectiveness under Hainan's reform context.

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1. INTRODUCTION

Student affairs services play an important role in shaping students' learning experiences, social integration, and adjustment to university life. Through academic advising, administrative support, welfare services, and campus engagement, these functions influence students' perceptions of institutional care, responsiveness, and fairness. Accordingly, student satisfaction has become an important indicator of institutional effectiveness and service performance in higher education [1], [2].

In China, rising expectations from students, parents, and policymakers have increased pressure on universities to provide transparent procedures, timely support, and student-centered administrative services. As a result, student affairs management (SAM) has evolved beyond routine administration to include advising, welfare support, student development, and cross-unit coordination [3], [4]. Previous studies have mainly examined service quality as a key determinant of student satisfaction, often treating university administrative units as separate operational entities [1], [2], [5], [6]. However, this view does not fully reflect students' actual experiences, as they often interact with multiple offices simultaneously for registration, financial aid, accommodation, counselling, and academic support. Poor coordination across these units can lead to delays, inconsistent information, duplicated procedures, and unclear communication, reducing

satisfaction even when individual staff perform adequately [2], [3]. This suggests that student satisfaction depends not only on frontline service quality but also on how effectively departments work together as an integrated service system. Another important issue in SAM is the presence of service gaps, which arise when students' expectations do not match actual service delivery. These gaps may stem from weaknesses in service design, communication, operational procedures, and internal coordination [7], [8]. In universities, they are reflected in slow approvals, fragmented procedures, and inconsistencies between promised and delivered services, all of which weaken trust and reduce satisfaction [4], [7].

Cross-functional cooperation (CFC) has therefore emerged as a critical organizational mechanism in higher education administration. Through interdepartmental collaboration, shared information, and coordinated problem-solving, it helps university units pursue common service goals and deliver more coherent support to students [9], [10]. Strong coordination reduces duplication, improves service continuity, and enhances responsiveness, whereas weak coordination reinforces siloed operations and fragmented service delivery [3], [10]. At the same time, students' psychological and engagement factors should not be overlooked. Students who feel involved, supported, and psychologically connected to university processes are more likely to view administrative services positively and report higher satisfaction. These factors may also strengthen the benefits of coordinated services by increasing students' willingness to engage with institutional support systems.

Despite these insights, an important empirical gap remains. Prior studies have largely focused on service quality outcomes or isolated administrative functions, with limited attention to the coordination mechanisms linking departments within SAM. In particular, there is insufficient empirical evidence on whether CFC explains how service quality, service gaps, and psychological and engagement factors influence student satisfaction in integrated university service environments. This gap is especially evident in the Chinese higher education context, where SAM is increasingly expected to support reform, efficiency, and student-centered governance, yet empirical evidence on coordination processes remains limited.

Hainan Province provides a relevant setting for addressing this gap. Universities in Hainan have expanded rapidly while adapting to reforms associated with the Hainan Free Trade Port initiative [11], [12]. These reforms have intensified pressure on higher education institutions to improve administrative efficiency, service integration, and responsiveness to student needs. However, empirical research on SAM in this context remains scarce.

Therefore, this study examines how service quality, service gaps, and psychological and engagement factors influence students' satisfaction with SAM in Hainan Province, China, with CFC as a central mediating mechanism. The study makes three contributions: first, it provides empirical evidence from an underexplored regional context shaped by higher education reform; second, it extends service research by showing that service quality may not directly translate into satisfaction without organizational coordination; and third, it highlights CFC as a core mechanism through which university administrative systems shape student experiences and satisfaction. Accordingly, the following hypotheses are proposed:

- H1: service quality has a positive effect on students' satisfaction with SAM.
- H2: service gaps have a negative effect on students' satisfaction.
- H3: psychological and engagement factors have a positive effect on students' satisfaction with SAM.
- H4: CFC has a positive effect on students' satisfaction with SAM.
- H5: CFC mediates the relationship between service quality and students' satisfaction with SAM.
- H6: CFC mediates the relationship between service gaps and students' satisfaction with SAM.
- H7: CFC mediates the relationship between psychological and engagement factors and students' satisfaction with SAM.

2. RESEARCH METHOD

2.1. Research design

This study adopted a quantitative cross-sectional survey design to investigate factors influencing university students' satisfaction with SAM in Hainan Province, China. Data were collected using a standardized, theory-driven questionnaire that measured service quality, service gaps, psychological and engagement factors, organizational conditions, CFC, and overall student satisfaction. The cross-sectional approach captured students' current perceptions of administrative service performance and responsiveness, enabling comparison with previous higher education studies.

2.2. Participants

The target population consisted of undergraduate students enrolled in public and private universities in Hainan Province, a rapidly developing region influenced by reforms under the Free Trade Port initiative [11], [12]. Individual students served as the unit of analysis, as they are the primary users of student affairs

services [5], [6]. Purposive sampling was applied to ensure participants had sufficient administrative service experience. Only students who had completed at least one academic year were included, following established sampling guidelines [13], [14]. Data were collected via WeChat and the Wenjuanxing online survey platform, which are widely used in Chinese universities [15], [16]. After data screening and cleaning, 250 valid responses were retained. Sample size adequacy was confirmed through a priori power analysis using G*Power [14], which indicated a minimum requirement of 85 respondents. The final sample exceeded this threshold, ensuring sufficient statistical power. Larger sample sizes are recommended for partial least squares–structural equation modeling (PLS-SEM) models with multiple constructs and mediation effects [17], [18].

2.3. Instruments

The research instrument was adapted from validated scales. Service quality was measured using the SERVQUAL framework [7], [17], while service gaps were assessed based on the service gap model [7], [17]. Psychological and engagement factors were grounded in Astin's input–environment–outcome model [19], and CFC was informed by organizational interdependence theory [20]. All items were measured using a 5-point Likert scale ranging from 1=strongly disagree to 5=strongly agree. The use of structured latent constructs and reflective indicators is consistent with prior PLS-SEM research in management and educational studies. Reliability and validity were evaluated through composite reliability, average variance extracted (AVE), and discriminant validity tests [21], [22]. To enhance contextual relevance for higher education, the service quality items were further aligned with recent studies on student experience and educational engagement, as well as with higher education service assessment principles emphasized in SERVPERF, which underscore the importance of administrative responsiveness, academic support, and institutional service efficiency in university settings [23], [24].

2.4. Data analysis

Prior to full deployment, a pilot study was conducted to assess clarity and content validity. Ethical approval was obtained, and informed consent was secured. Participation was voluntary and anonymous. Data analysis began with descriptive statistics, followed by hypothesis testing using PLS-SEM. A two-stage procedure evaluated the measurement and structural models. Mediation and path significance were assessed using bootstrapping with 5,000 resamples. Given the cross-sectional, single-source, self-reported nature of the data, common method bias (CMB) was addressed through both procedural and statistical remedies. Procedurally, survey items were randomized and reverse-coded items were included to reduce response bias. Statistically, Harman's single-factor test was performed. The largest variance explained by a single factor was 28.3%, well below the 50% threshold, suggesting that CMB is unlikely to seriously distort the findings [25].

3. RESULTS AND DISCUSSION

The demographic characteristics of the respondents are presented in Table 1. The sample included 250 respondents, with 55.6% female and 44.4% male. Most were undergraduates (83.2%) and had completed at least one academic year. Participants were fairly distributed across years 1 to 4, with the largest group in year 2 (28.0%). The sample comprised students from private (51.2%) and public (48.8%) universities.

Table 1. Demographic characteristics of respondents (N=250)

Variable	Category	Frequency	Percentage (%)
Gender	Female	139	55.6
	Male	111	44.4
Level of study	Undergraduate	208	83.2
	Postgraduate	42	16.8
Year of study	Year 1	60	24.0
	Year 2	70	28.0
	Year 3	61	24.4
	Year 4	59	23.6
University type	Private	128	51.2
	Public	122	48.8

3.1. Measurement model assessment

The measurement model was evaluated in terms of internal consistency reliability, convergent validity, discriminant validity, and collinearity diagnostics, following established PLS-SEM guidelines [26]. Reliability was assessed using Cronbach's alpha, rho_A (ρA), and composite reliability (ρC). As shown in Table 2, all constructs exceeded the recommended threshold of 0.70, indicating satisfactory internal consistency and acceptable measurement reliability. For convergent validity, the AVE values for

psychological and engagement factors (0.428), service quality (0.416), and service gaps (0.459) were slightly below the conventional threshold of 0.50. However, the composite reliability values for these constructs remained high, ranging from 0.899 to 0.918. Fornell and Larcker [27] noted that high composite reliability may compensate for relatively modest AVE values, while Sarstedt *et al.* [21] and Hair *et al.* [26] further suggested that AVE values between 0.40 and 0.50 can still be considered acceptable when composite reliability is strong. Given that these constructs demonstrated strong composite reliability and satisfactory discriminant validity, as evidenced by heterotrait–monotrait (HTMT) ratios below 0.80, convergent validity was considered adequate for this exploratory study. Collinearity was assessed using the variance inflation factor (VIF) for all indicators. All VIF values ranged between 1.509 and 2.262, well below the conservative threshold of 3.3, indicating no collinearity concerns in the measurement model, as in Table 3.

Table 2. Construct reliability and convergent validity

Construct	Cronbach's alpha	rho_A (ρA)	Composite reliability (ρC)	AVE
CFC	0.832	0.832	0.899	0.748
Psychological and engagement factors	0.905	0.906	0.918	0.428
Service quality	0.900	0.902	0.914	0.416
Service gaps	0.893	0.897	0.910	0.459
Student satisfaction	0.848	0.848	0.908	0.767

Table 3. Discriminant validity assessment using HTMT ratio

Construct	CFC	Psychological and engagement factors	Service quality	Service gaps	Student satisfaction
CFC	—				
Psychological and engagement factors	0.304	—			
Service quality	0.454	0.154	—		
Service gaps	0.419	0.114	0.119	—	
Student satisfaction	0.700	0.351	0.310	0.426	—

3.2. Structural model assessment

The structural model was evaluated by examining path coefficients, statistical significance, model fit, and predictive relationships. Figure 1 shows the conceptual framework and hypotheses. Model fit was assessed using multiple global fit indices, including the standardized root mean square residual (SRMR), d_ULS, d_G, chi-square, and the normed fit index (NFI), in line with recommendations for PLS-SEM evaluation [21], [22], as shown in Table 4.

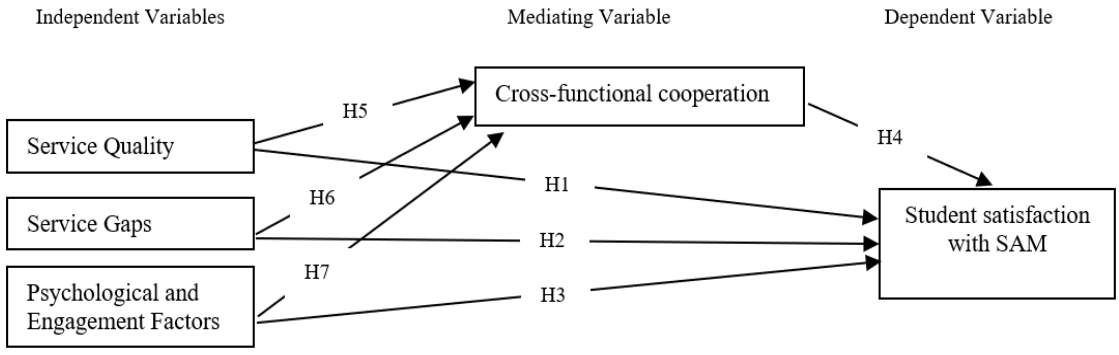

Figure 1. Conceptual framework

Table 4. Model fit indices

Fit index	Saturated model	Estimated model
SRMR	0.063	0.063
d_ULS	4.730	4.730
d_G	1.599	1.599
Chi-square (χ^2)	2077.971	2077.971
NFI	0.669	0.669

The study evaluated model fit using multiple global fit indices. The SRMR value was 0.063 for both saturated and estimated models, indicating acceptable fit. The d_ULS (4.730) and d_G (1.599) values showed no evidence of serious model misspecification. Although the chi-square value (2077.971) was high, it was not emphasized due to its sensitivity to sample size and model complexity in PLS-SEM. The NFI value was 0.669, below the conventional threshold, but this is common in complex predictive models. As Sarstedt *et al*. [21] note, NFI is sensitive to model complexity and sample size, and the SRMR remains the more reliable index for PLS-SEM evaluation. The acceptable SRMR value of 0.063 (below the 0.08 threshold) therefore supports the overall adequacy of the structural model. Additionally, the R^2 values for the endogenous constructs were as follows: CFC (R^2=0.412) and student satisfaction (R^2=0.587), indicating moderate to substantial explanatory power [21]. Effect sizes (f^2) ranged from small to medium across paths, and the predictive relevance (Q^2) assessed via blindfolding exceeded zero for all constructs (CFC:Q^2=0.289; student satisfaction: Q^2=0.422), confirming that the model possesses adequate predictive relevance [26]. Overall, the acceptable SRMR value supports the adequacy of the model.

3.3. Hypothesis testing results

The significance of the hypothesized direct relationships was examined using a bootstrapping procedure with 5,000 resamples, and the results are reported in Table 5. The results indicate that CFC has a strong positive effect on student satisfaction (β=0.419, p<0.001), while psychological and engagement factors also contribute significantly (β=0.206, p<0.001). In contrast, service quality does not have a significant direct effect on satisfaction (β=0.077, p=0.112). Service gaps show a significant negative impact (β=−0.217, p<0.001), indicating that unmet expectations and poor coordination reduce students' satisfaction. Furthermore, mediation analysis confirmed that CFC plays a significant mediating role in the relationships between service quality, service gaps, psychological and engagement factors, and student satisfaction.

Table 5. Direct effects of the structural model

Hypothesis	Structural Path	β (Original sample)	t-value	p-value	Decision
H1	Service quality→student satisfaction	0.077	1.590	0.112	Not supported
H2	Service gaps→student satisfaction	−0.217	4.184	<0.001	Supported
H3	Psychological and engagement factors→student satisfaction	0.206	4.240	<0.001	Supported
H4	CFC→student satisfaction	0.419	7.228	<0.001	Supported

The results demonstrate the central role of CFC in shaping student satisfaction with university affairs services. CFC predominantly mediates the relationship between service quality and satisfaction, indicating that service quality improves satisfaction mainly through enhanced interdepartmental collaboration (β=0.148, p<0.001), supporting Hypothesis 5. It also partially mediates the relationship between service gaps and satisfaction, with a significant negative indirect effect (β=−0.148, p<0.001), confirming Hypothesis 6. In addition, CFC partially mediates the link between psychological and engagement factors and satisfaction, showing a positive indirect effect (β=0.105, p<0.001), supporting Hypothesis 7. As shown in Table 6, variance accounted for (VAF) values further indicate predominant mediation for service quality (VAF=0.66, borderline full mediation) and partial mediation for service gaps (0.41) and psychological and engagement factors (0.34). Overall, the findings highlight that effective interdepartmental collaboration is essential for translating service conditions and student engagement into higher satisfaction. Student satisfaction with SAM was examined in relation to service quality, service gaps, and psychological and engagement factors in Hainan Province, China. The findings support the proposed framework and demonstrate that departmental collaboration is a critical determinant of student satisfaction. Previous studies indicate that students perceive administrative services as integrated systems rather than isolated units [9], [10]. This pattern aligns with organizational interdependence theory, which emphasises coordination among interdependent units in complex organizations [20]. When academic and administrative units collaborate effectively, students report higher levels of trust and satisfaction [4], [23].

Table 6. Mediation effects of CFC

Hypothesis	Indirect effect (β)	t-value	p-value	95% bias-corrected CI	Direct effect (β)	Total effect (β)	VAF	Decision
H5	0.148	5.083	<0.001	[0.097, 0.212]	0.077 (n.s.)	0.225	0.66	Supported
H6	−0.148	4.964	<0.001	[−0.215, −0.096]	−0.217***	−0.365	0.41	Supported
H7	0.105	4.342	<0.001	[0.063, 0.159]	0.206***	0.312	0.34	Supported

Contrary to Hypothesis 1, service quality did not show a significant direct effect on satisfaction. This finding contrasts with earlier studies reporting positive relationships between service quality and satisfaction [2], [5], [6]. Mediation analysis indicates that this relationship operates indirectly through CFC,

suggesting that organizational integration is essential for converting service quality into positive student experiences. This result extends SERVPERF theory by demonstrating that high-quality frontline services alone are insufficient in complex administrative systems.

Consistent with service gap theory, service gaps showed a significant negative relationship with student satisfaction [7]. Fragmented procedures, inconsistent policy interpretation, and poor communication reduce trust and satisfaction even when services are available [4], [8]. These challenges are particularly evident in Chinese universities, where hierarchical governance and siloed structures remain common [3]. Partial mediation further indicates that service gaps weaken satisfaction both directly and indirectly by undermining interdepartmental collaboration. Psychological and engagement factors also demonstrated significant positive direct and indirect effects on student satisfaction, supporting Hypothesis 3. This pattern aligns with Astin's input–environment–outcome model [18], which views students as active participants who interpret institutional environments. Engaged and trusting students evaluate services more positively and interact more actively with administrative units, thereby facilitating smoother coordination across departments [1], [23]. The persistence of direct effects suggests that student attitudes influence satisfaction beyond organizational processes.

The findings have important policy implications for higher education governance in Hainan Province and China. Given Hainan's role as a Free Trade Port and reform pilot zone, provincial authorities should formalize CFC as a core governance mechanism in SAM [28], [29]. Universities should establish integrated student service teams and shared case-management systems to reduce fragmentation and improve service consistency [30], [31]. Policymakers should also strengthen monitoring of service gaps through standardized audits and regular student feedback systems [31], [32]. In addition, digital governance initiatives should prioritize integrated student affairs platforms to support real-time information sharing and coordinated service delivery [33], [34]. At the national level, higher education policy should move beyond department-based evaluation and focus on system-level coordination and student experience outcomes [29], [30]. Recognizing CFC as a core organizational capability within Ministry of Education evaluation frameworks can encourage stronger interdepartmental integration [28], [31]. National policies should also promote student trust and engagement by establishing formal channels for student participation in institutional feedback and consultation [35]–[37].

4. CONCLUSION

This study examined the factors influencing student satisfaction with SAM in universities in Hainan Province, China, with CFC positioned as a mediating organizational mechanism. The findings show that CFC is the strongest predictor of student satisfaction. Service gaps reduce satisfaction, while psychological and engagement factors contribute positively to satisfaction. Service quality does not have a significant direct effect; instead, its influence operates indirectly through CFC. These findings contribute to the higher education literature by showing that student satisfaction in administrative services depends not only on the quality of individual service encounters, but also on the extent to which university departments coordinate their roles and deliver services as an integrated system. This is especially relevant in reform-oriented contexts such as Hainan Province, where universities face growing expectations for efficient, student-centred governance under the Hainan Free Trade Port initiative. Practically, the study suggests that universities should treat CFC as a core organizational capability within SAM. Strengthening interdepartmental coordination, reducing service fragmentation, and improving integrated service delivery are likely to produce more consistent and satisfying student experiences.

This study has several limitations. First, the cross-sectional design captures student perceptions at a single point in time and therefore does not allow causal or longitudinal interpretation. Second, the study relied on self-reported survey data collected from a single source, which may increase the possibility of CMB despite the procedural and statistical remedies applied. Third, the sample was limited to universities in Hainan Province, and the findings should therefore be generalized cautiously to other regions or institutional contexts.

Future research could adopt longitudinal designs to examine how student satisfaction and CFC evolve over time. Comparative studies across provinces, institutional types, or national settings would help test the generalizability of the model. In addition, mixed-method and multi-source approaches could provide deeper insight into how students and administrative staff experience coordination processes in SAM.

FUNDING INFORMATION

Authors state no funding involved.

AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

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C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

ETHICAL APPROVAL

Ethical approval was obtained from the Institutional Review Board of the International College, Rajamangala University of Technology Krungthep, Thailand prior to data collection.

DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author, [SR], upon reasonable request. Due to ethical and privacy considerations, the data are not publicly available.

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