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Student Satisfaction with Art Graduation Courses in Public Universities in Sichuan, China: A Structural Equation Modeling Approach

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Abstract

Purpose: This study examines the determinants of student satisfaction with graduation art creation courses among senior undergraduate students in public universities in Sichuan, China. Drawing on established service quality and student satisfaction frameworks, the study proposes and tests a structural model incorporating Curriculum, Teaching Quality, Service Quality, Service Innovation, Perceived Value, Student Engagement, and Student Satisfaction. A quantitative cross-sectional survey was conducted with 502 final-year students from three public universities selected through two-stage stratified proportional sampling. Data were collected using a structured questionnaire and analyzed using Confirmatory Factor Analysis and Structural Equation Modeling with maximum likelihood estimation. The findings indicate that Curriculum, Teaching Quality, Perceived Value, Student Engagement, and Service Innovation have significant positive direct effects on Student Satisfaction. Notably, Service Quality exerted a significant indirect effect on Student Satisfaction through Perceived Value, rather than a direct effect, with an indirect effect size of 0.066. Among all predictors, Perceived Value emerged as the strongest determinant of overall satisfaction. The findings highlight Perceived Value as a central mediating mechanism through which institutional and instructional factors influence graduating art students' overall educational experience.

Keywords: Student Satisfaction, Perceived Value, Teaching Quality, Student Engagement, Graduation Art Courses

JEL Classification Code: I23, I21, M31, C38

1. Introduction

Higher education institutions are increasingly viewed as integrated service systems, making student satisfaction a key indicator of performance (Elliott & Healy, 2001). This is particularly relevant in art and design education, where graduation art creation courses function as capstone projects. In Sichuan Province, Leshan Normal University, Xihua University, and Sichuan University of Light Chemical Engineering play major roles in training art and design talent. However, resource constraints, inconsistent instruction, limited digital integration, and weak industry alignment may undermine perceived value, engagement, and satisfaction (Easa & Bazzi, 2021). Similar misalignment concerns have been linked to student evaluations in higher education services (Marimon et al., 2019).

The model is grounded in the Stimulus-Organism-Response framework (Mehrabian & Russell, 1974) and supported by Expectation-Confirmation Theory (Oliver, 1980). Service innovation is treated as a signal shaping value perception (Spence, 1973), and service quality draws on SERVQUAL and HEISQUAL (Owlia & Aspinwall, 1996; Parasuraman et al., 1988). Perceived value follows value theory and higher education operationalizations (Hu et al., 2009; Zeithaml, 1988). Student engagement is defined as behavioral, emotional, and cognitive involvement in learning (Fredricks et al., 2004) and remains salient in technology-supported contexts (Pandita & Kiran, 2023).

Although satisfaction determinants are widely studied, integrated evidence on graduation art creation courses in Chinese public universities remains limited (Annamdevula & Bellamkonda, 2016). Prior research also often tests these factors separately rather than in an integrated structural framework (Guolla, 1999). Therefore, this study tests an

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SEM linking Curriculum, Teaching Quality, Service Quality, Service Innovation, Perceived Value, Student Engagement, and Student Satisfaction using survey data from 502 senior students collected in 2024-2025.

2. Literature Review

2.1 Curriculum

Curriculum refers to a deliberately structured program aligning objectives, content, delivery, and assessment (Prideaux, 2003). It is commonly framed as instructional design emphasizing relevance and student-centered learning (Huang et al., 2011), and is also treated as a dimension of higher education service quality through course organization and delivery (Fouladvand et al., 2013). Content relevance and currency are key indicators of educational quality (Sadiq Sohail & Shaikh, 2004), while coherence across courses supports consistent academic experiences (Marimon et al., 2019), making curriculum central to education service delivery (Abbas, 2020). At the program level, curriculum represents planned learning integrating competencies and values (Offorma & Onyia, 2011) and is operationalized through objective clarity, content, and learning outcomes (Tsinidou et al., 2010). It is also framed as academic service aligned with real-world needs (Jain et al., 2013) and linked to teaching quality and skills development (Poon, 2019). Empirically, curriculum is measured via content quality and design coherence (Cheng, 2020); content may relate more strongly to satisfaction than design in technology-integrated contexts (Xia & Lu, 2024). Discipline-specific work emphasizes aligned activities and assessment structures (Tratnik et al., 2019), and curriculum is embedded in HEISQUAL (Owlia & Aspinwall, 1996).

H1: Curriculum has a significant impact on Student Satisfaction.

2.2 Teaching Quality

Teaching Quality refers to instructors' capability to deliver effective learning experiences through pedagogical clarity, subject expertise, responsiveness, empathy, and appropriate technology use. Early work emphasized teaching skills and instructional clarity (Guolla, 1999), while later studies added responsibility, fairness, commitment, and preparedness as determinants of perceived effectiveness (Ko & Chung, 2014). Instructor commitment and readiness further shape students' evaluations of teaching performance (Xiao & Wilkins, 2015). Teaching Quality is now widely conceptualized as a multidimensional construct emphasizing interaction and student-centered learning (Ginns et al., 2007), with engagement-oriented practices and technology integration becoming increasingly important (Gao et al., 2021). Service-oriented and relationship-based interaction has also been highlighted (Rasheed & Rashid, 2024). In higher education service contexts, Teaching Quality is treated as part of perceived service quality, including knowledge, availability, communication effectiveness, empathy, and responsiveness (Fouladvand et al., 2013). Empathy and emotional engagement strengthen institutional evaluations (Khattak et al., 2020), and online contexts emphasize explanation clarity, accessible support, and sustained interaction (Jiménez-Bucarey et al., 2021). Quality frameworks further stress competence, professionalism, and ethical conduct (Latif et al., 2019). Overall, Teaching Quality is expected to enhance Student Satisfaction.

H2: Teaching Quality has a significant impact on Student Satisfaction.

2.3 Service Quality

Service Quality in higher education refers to an institution's ability to meet or exceed students' expectations through academic and non-academic services. SERVQUAL dimensions remain a common foundation (Alves & Raposo, 2010), while higher education applications emphasize teaching support, administrative services, facilities, and interpersonal interactions (Hu et al., 2009). The concept has expanded toward a context-responsive construct reflecting institutional adaptability and service integration (Howat & Assaker, 2013). Service Quality is typically treated as multidimensional, covering interaction, physical environment, and outcome quality (H.-C. Wu, 2014). In university settings, it is often assessed through domains such as teaching-related services, administration, knowledge services, activities, leadership, and continuous improvement (Latif et al., 2019), with later work adding internationalization and linking service quality to satisfaction, loyalty, and motivation (Annamdevula & Bellamkonda, 2016). Scholars also call for culturally and institutionally appropriate models (Gupta & Kaushik, 2018), and a holistic view integrates process, outcome, and support services (Sultan & Yin Wong, 2010). In digital or hybrid learning, Service Quality extends to technological access, user experience, and emotional support (Zhang, 2024). It is frequently positioned as a driver of institutional image and loyalty-related outcomes (Chandra et al., 2019), with related evidence supporting these links (Latif et al., 2019). Recent discussions further emphasize innovation and continuous improvement (Gürbüzer & Acuner, 2025). Overall, Service Quality is expected to strengthen Perceived Value.

H3: Service Quality has a significant impact on Perceived Value.

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2.4 Perceived Value

Perceived Value in higher education refers to students' evaluation of educational benefits relative to monetary, time, and effort costs, consistent with the cost-benefit trade-off view (Zeithaml, 1988). Early studies operationalized Perceived Value as perceived quality relative to tuition and effort (Hu et al., 2009) and identified it as a driver of satisfaction in higher education services (Alves & Raposo, 2010). Later work emphasized service utility based on benefits versus sacrifices (Parahoo & Tamim, 2012) and its context sensitivity within institutional service experiences (Teeroovengadum et al., 2019). Perceived Value is often conceptualized as a holistic construct integrating functional and emotional components (Dlačić et al., 2014) and reflecting evaluations of academic quality, facilities, and service experiences relative to investment (Howat & Assaker, 2013). Value assessments may also include relational support and experiential gains (Del Río-Rama et al., 2021), with evidence highlighting relational benefits in value formation (Habibi & Rasoolimanesh, 2021). In practice-based settings, it captures whether skills and career opportunities justify costs (Zhao et al., 2022), although some perspectives adopt a stricter cost-benefit view (Samudro et al., 2020). Empirical studies further position Perceived Value as a mediator linking service factors to satisfaction outcomes (Howat & Assaker, 2013), and as a predictor of satisfaction and loyalty-related intentions (Hu et al., 2009). Similar evidence supports its role in satisfaction formation (Alves & Raposo, 2010).

H4: Perceived Value has a significant impact on Student Satisfaction.

2.5 Student Engagement

Student Engagement in higher education refers to students' behavioral, emotional, and cognitive involvement in learning. Early research conceptualized engagement as students' time and effort devoted to learning-focused activities and institutional interaction (Carini et al., 2006). Later work defined Student Engagement as a multidimensional construct integrating behavioral participation, emotional commitment, and cognitive investment, and highlighted its sustained nature across learning contexts (Baron & Corbin, 2012).

Recent studies described Student Engagement as active involvement in learning activities and interactions (Fredricks et al., 2004), including technology-mediated participation (Gray & DiLoreto, 2016), and identify it as a key mechanism shaping learning experiences and outcomes (Pandita & Kiran, 2023). Engagement has also been extended to include agentic and volitional dimensions, reflecting students' proactive contributions to learning (Fredricks et al., 2004).

In digital and blended environments, Student Engagement is increasingly central. Evidence shows that engagement predicts satisfaction and continued learning intention in online contexts (She et al., 2021) and remains critical in technology-supported education (Zhang, 2024). In mobile learning, engagement is reflected in participation, effort, interest, enthusiasm, and self-regulated strategies (Karaoğlan Yılmaz, 2022). Overall, Student Engagement represents students' psychological and behavioral investment in learning and is expected to positively influence Student Satisfaction in higher education.

H5: Student Engagement has a significant impact on Student Satisfaction.

2.6 Service Innovation

Service Innovation refers to the introduction and implementation of new or substantially improved service practices, delivery mechanisms, interaction models, or processes that enhance stakeholder value. In higher education, it commonly involves technology integration, innovative pedagogies, upgraded support systems, and adaptive interactions to respond to evolving student needs (Janeiro et al., 2013). Recent studies define Service Innovation as new or improved services and processes that strengthen student experience and institutional performance (Easa & Bazzi, 2021). Empirical evidence shows that innovation can affect engagement, satisfaction, and academic outcomes through both direct and indirect pathways (Wang et al., 2021). Education innovation is also described as applying new ideas and methods to improve teaching quality, learning experience, and organizational effectiveness (Amedome, 2023). Similar work emphasizes the role of managerial and instructional innovation in strengthening institutional capability (Dai, 2022). More recent research situates Service Innovation within digital transformation and open innovation, highlighting personalized learning and enhanced support services as value-creation mechanisms (Gürbüzer & Acuner, 2025). Innovation may also signal institutional quality and contribute to stronger institutional image and student loyalty, particularly under crisis conditions (Easa & Bazzi, 2021). Overall, Service Innovation represents a strategic capability that can shape students' perceptions of institutional quality and learning experience; therefore, it is expected to influence Student Satisfaction.

H6: Service Innovation has a significant impact on Student Satisfaction.

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2.7 Student Satisfaction

Student Satisfaction refers to students' overall evaluation of educational experiences and the extent to which expectations are met (Oliver, 1980). Early studies focused on course and teaching evaluations (Guolla, 1999), while later work emphasized satisfaction as a multidimensional construct spanning academic, administrative, and support services (Annamdevula & Bellamkonda, 2016). Satisfaction is commonly explained through expectation-performance alignment (Marimon et al., 2019) and is recognized as multidimensional across contexts (Tratnik et al., 2019). Empirical research links satisfaction to teaching quality, facilities, administrative support, institutional image, and perceived value (Chandra et al., 2019), and shows that service quality can influence loyalty via satisfaction and perceived value mechanisms (Annamdevula & Bellamkonda, 2016).

In online and blended learning, satisfaction incorporates technical quality and platform experience (Parahoo & Tamim, 2012), including usability and digital engagement (Jiménez-Bucarey et al., 2021). Practice-based settings highlight value judgments about skills and career opportunities (Zhao et al., 2022), while discipline-specific contexts stress curriculum quality, interaction, and personal development (Shih, 2019). Satisfaction is frequently modeled as both an outcome and a mediator linking service factors to loyalty-related outcomes (Latif et al., 2019), strengthening word-of-mouth and engagement pathways (Rasheed & Rashid, 2024) and relating to trust and sustainability-oriented outcomes (Chaudhary & Dey, 2021). Recent work also positions satisfaction within technology and engagement perspectives (Pandita & Kiran, 2023). In this study, Student Satisfaction is specified as a multidimensional dependent construct influenced by Curriculum, Teaching Quality, Service Quality, Service Innovation, Perceived Value, and Student Engagement.

3. Research Methods and Materials

3.1 Research Framework

This study integrates the Stimulus-Organism-Response (S-O-R) model (Mehrabian & Russell, 1974), Expectation Confirmation Theory (Oliver, 1980), Signaling Theory (Spence, 1973), SERVQUAL (Parasuraman et al., 1988), and Perceived Value Theory (Hu et al., 2009; Zeithaml, 1988) to develop the research framework. The study aims to examine how academic and service-related factors influence student satisfaction with graduation art creation courses across three public universities in Sichuan Province—Xihua University, Leshan Normal University, and Sichuan University of Light Chemical Engineering.

The framework incorporates seven variables: Curriculum (CUR), Teaching Quality (TQ), Service Quality (SQ), Service Innovation (SI), Perceived Value (PV), Student Engagement (SE), and Student Satisfaction (SS). In the model, Curriculum, Teaching Quality, Service Quality, Service Innovation, and Student Engagement serve as independent variables. Perceived Value functions as a mediating variable, while Student Satisfaction is the dependent variable. Figure 1 illustrates the conceptual framework of this study.

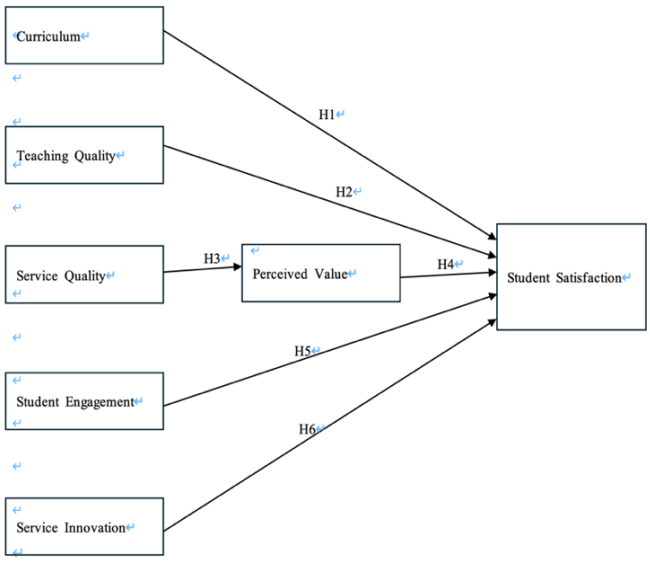

Figure 1: Conceptual Framework

H1: Curriculum has a significant impact on Student Satisfaction.

H2: Teaching Quality has a significant impact on Student Satisfaction.

H3: Service Quality has a significant impact on Perceived Value.

H4: Perceived Value has a significant impact on Student Satisfaction.

H5: Student Engagement has a significant impact on Student Satisfaction.

H6: Service Innovation has a significant impact on Student Satisfaction.

3.2 Research Methodology

This study employed a quantitative survey to examine determinants of Student Satisfaction in graduation art creation courses at public universities in Sichuan Province, China. All measurement items were adopted from validated scales published in prior peer-reviewed literature, and the

questionnaire was pilot-tested to ensure reliability and clarity. Content validity was assessed through expert review by three faculty members in art education. The questionnaire was developed based on SERVQUAL (Parasuraman et al., 1988), Perceived Value Theory (Zeithaml, 1988), Expectation-Confirmation Theory (Oliver, 1980), Signaling Theory (Spence, 1973), and the S-O-R model (Mehrabian & Russell, 1974). Seven constructs were measured: Curriculum (CUR), Teaching Quality (TQ), Service Quality (SQ), Perceived Value (PV), Student Engagement (SE), Service Innovation (SI), and Student Satisfaction (SS), using validated items on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Data were analyzed using SEM, with CFA used to assess reliability and construct validity. Model fit was evaluated using χ^2, RMSEA, SRMR, and related fit indices.

3.3 Population and Sample Size

The target population comprised 995 senior undergraduates enrolled in graduation art creation courses at three public universities in Sichuan Province—Xihua University, Leshan Normal University, and Sichuan University of Light Chemical Engineering—across majors such as Art and Design, Fine Arts, Calligraphy, Animation, and Clothing and Fashion. Following SEM guidance and proportionate sampling principles, the initial target sample size was set at 500. A two-stage stratified proportional allocation was applied (universities as main strata and majors as sub-strata), and rounding adjustments were made to handle decimal allocations while preserving representativeness. As a result, 502 valid responses were obtained. This minor increase over the target sample size does not compromise statistical power and remains consistent with SEM sample size requirements.

3.4 Sampling Technique

This study employed two-stage stratified proportional sampling to ensure proportional representation across the three selected universities. Each university served as a stratum, and participants were selected proportionally according to the size of the student population enrolled in graduation art creation courses.

The sampling units consisted of senior undergraduate students majoring in fine arts, art design, calligraphy, animation, and clothing and fashion design. Data collection was conducted over a two-week period during the 2024-2025 academic year. Participation was voluntary, and ethical standards were maintained throughout the data collection process.

The use of stratified sampling enhanced the representativeness of the sample and minimized sampling bias, thereby strengthening the generalizability of the findings within the defined research scope. The sampling unit details and matching sub-sample proportions are listed in Table 1.

Table 1: Sample Units and Sample Size

University	Target Group	Population	Sample
Leshan Normal University	Graduation Art Creation Courses	334	168
Xihua University		336	170
Sichuan University of Light Chemical Engineering		325	164
Total		995	502

4. Results and Discussion

4.1 Demographic Information

After data collection was completed, invalid questionnaires were filtered out, and 502 valid responses were obtained. Table 2 summarizes the demographic distribution of the respondents across the three selected public universities in Sichuan Province.

Among the 502 respondents, 168 (33.5%) were from Leshan Normal University, 170 (33.9%) were from Xihua University, and 164 (32.7%) were from Sichuan University of Light Chemical Engineering, reflecting proportional representation of the population structure.

By major, students majoring in Art and Design accounted for 304 respondents (60.6%) of the total sample. Students majoring in Fine Arts accounted for 106 respondents (21.1%). Calligraphy students represented 25 respondents (4.9%), Animation students accounted for 37 respondents (7.3%), and Clothing and Fashion students represented 30 respondents (6.0%).

The distribution of respondents across institutions and majors demonstrates that the sample closely mirrors the population composition, thereby ensuring representativeness for subsequent analysis.

Table 2: Demographic Profile

School	Population (School)	Sample (School)	Major (Sub-Stratum)	Population (Major)	Sample (Major)	Percentage
Leshan Normal University	334	168	Art and Design	205	103	20.52%
			Fine Arts	79	40	7.97%
			Calligraphy	50	25	4.98%
Xihua University	336	170	Art and Design	198	100	19.92%
			Fine Arts	65	33	6.57%
			Animation	73	37	7.37%
Sichuan	325	164	Art and	201	101	20.12%

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School	Population (School)	Sample (School)	Major (Sub-Stratum)	Population (Major)	Sample (Major)	Percentage
University of Light Chemical Engineering			Design			
			Fine Arts	65	33	6.57%
			Clothing and Fashion	59	30	5.98%
Total	995			995	502	100.00%

Note: School-level samples were proportionally allocated according to population size. Percentages are adjusted to sum to 100%.

4.2 Confirmatory Factor Analysis (CFA)

Prior to CFA and SEM analysis, preliminary data screening was conducted, including examination of missing values, univariate and multivariate normality, linearity, and multicollinearity. No serious violations of assumptions were detected. Maximum likelihood estimation was used for model estimation.

In this study, confirmatory factor analysis (CFA) was employed to evaluate the measurement accuracy of each construct in the proposed framework. As shown in Table 3, all standardized factor loadings were within acceptable ranges, with item loadings exceeding 0.60 across constructs (ranging from 0.634 to 0.792), indicating satisfactory convergent validity at the indicator level.

In terms of construct reliability, composite reliability (CR) values ranged from **0.733 to 0.886**, all above the recommended threshold of 0.70, demonstrating strong internal consistency. Specifically, CR values were 0.832 for Curriculum, 0.886 for Teaching Quality, 0.733 for Service Quality, 0.801 for Perceived Value, 0.830 for Student Engagement, 0.815 for Service Innovation, and 0.750 for Student Satisfaction (Table 3).

Regarding average variance extracted (AVE), Perceived Value (**AVE = 0.503**), Service Innovation (**AVE = 0.525**), and Student Satisfaction (**AVE = 0.501**) exceeded 0.50, while Curriculum (**AVE = 0.499**), Teaching Quality (**AVE = 0.463**), Service Quality (**AVE = 0.478**), and Student Engagement (**AVE = 0.495**) were slightly below the 0.50 criterion. However, Fornell and Larcker (1981) noted that when CR is sufficiently high, AVE values marginally below 0.50 can still be acceptable, as the construct reliability indicates adequate shared variance captured by the latent construct. Given that all constructs in this study achieved CR values above 0.70, the measurement properties remain acceptable for subsequent SEM analysis.

Detailed CFA results, including Cronbach's alpha, factor loading ranges, CR, and AVE for each construct, are presented in Table 3.

The Goodness of Fit for Measurement model is presented in Table 4. The chi-square to degree of freedom ratio (CMIN/DF) was **1.867**, which is below the recommended threshold of 5.00, indicating an acceptable model fit. The goodness-of-fit index (GFI) reached **0.902**, exceeding the minimum criterion of 0.85, while the adjusted goodness-of-fit index (AGFI) was **0.884**, surpassing the recommended level of 0.80.Furthermore, the root mean square error of approximation (RMSEA) was **0.042**, well below the 0.08 benchmark, suggesting a close fit of the model to the data. Incremental fit indices also demonstrated satisfactory performance, with the comparative fit index (CFI) at **0.937**, the Tucker-Lewis index (TLI) at **0.929**, and the normed fit index (NFI) at **0.874**, all exceeding the recommended value of 0.80.

Table 3: Confirmatory Factor Analysis Results, Composite Reliability (CR) and Average Variance Extracted (AVE)

Variables	Source	Items	Alpha	Loadings	CR	AVE
Curriculum (CUR)	(Sepideh et al., 2013)	5	0.830	0.642-0.752	0.832	0.499
Teaching Quality (TQ)	(Sepideh et al., 2013)	9	0.884	0.636-0.723	0.886	0.463
Service Quality (SQ)	(Clemes et al., 2013)	3	0.757	0.674-0.792	0.733	0.478
Perceived Value (PV)	(Clemes et al., 2013)	4	0.797	0.643-0.787	0.801	0.503
Student Engagement (SE)	(Pandita & Kiran, 2023)	5	0.828	0.634-0.766	0.830	0.495
Service Innovation (SI)	(Dai, 2022)	4	0.804	0.676-0.739	0.815	0.525
Student Satisfaction (SS)	(Clemes et al., 2013)	3	0.758	0.669-0.750	0.750	0.501

Overall, the combination of absolute fit indices, incremental fit indices, and parsimony-adjusted measures collectively indicates that the measurement model achieves an acceptable level of fit and is suitable for subsequent hypothesis testing.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	< 5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	1.867
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.902
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.884
RMSEA	< 0.08 (Pedroso et al., 2016)	0.042
CFI	≥ 0.80 (Bentler, 1990)	0.937
NFI	≥ 0.80 (J.-H. Wu & Wang, 2006)	0.874
TLI	≥ 0.80 (Sharma et al., 2005)	0.929
SRMR	< 0.08 (Hu & Bentler, 1999)	0.051
Model Summary		Acceptable Model Fit

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Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = normalized fit index, CFI = comparative fit index, TLI = Tucker-Lewis index, RMSEA = Root mean square error of approximation, SRMR = Standardized Root Mean Square Residual.

Table 5 presents the results of discriminant validity assessment. According to the Fornell and Larcker (1981) criterion, discriminant validity is established when the square root of the AVE for each construct exceeds its correlations with other constructs.

As shown in Table 5, the diagonal elements represent the square roots of AVE values, which range from 0.680 to 0.724. Specifically, the square root of AVE is 0.706 for Curriculum, 0.680 for Teaching Quality, 0.691 for Service Quality, 0.709 for Perceived Value, 0.703 for Student Engagement, 0.724 for Service Innovation, and 0.707 for Student Satisfaction.

All inter-construct correlations are lower than their corresponding diagonal values. The highest correlation observed is between Curriculum and Teaching Quality (r = 0.468), followed by Curriculum and Student Satisfaction (r = 0.446), and Teaching Quality and Service Quality (r = 0.421). Importantly, no correlation exceeds 0.80, indicating that multicollinearity is not a concern in this study.

Therefore, based on the Fornell-Larcker criterion, the discriminant validity of all constructs in this study is confirmed.

Table 5: Discriminant Validity

	CUR	TQ	SQ	PV	SE	SI	SS
CUR	**0.706**						
TQ	0.468	**0.680**					
SQ	0.341	0.421	**0.691**				
PV	0.318	0.361	0.253	**0.709**			
SE	0.295	0.273	0.283	0.360	**0.703**		
SI	0.322	0.311	0.295	0.351	0.310	**0.724**	
SS	0.446	0.434	0.335	0.434	0.395	0.356	**0.707**

Note: The diagonal values are the square roots of AVE for each cons.

4.3 Structural Equation Model (SEM)

After confirming the measurement model, SEM was conducted using SPSS AMOS 23.0 to test the proposed hypotheses. The structural model shows acceptable fit (Table 6). The CMIN/DF is 2.528, below the recommended cutoff of 5.00 (Awang, 2012). The GFI (0.852) and AGFI (0.828) meet commonly used thresholds for acceptable fit (Sica & Ghisi, 2007). Incremental fit indices are also satisfactory, with NFI = 0.825, CFI = 0.886, and TLI = 0.876, exceeding the 0.80 criterion (Bentler, 1990). The RMSEA is 0.055, below 0.08, indicating a reasonable approximation error (Pedroso et al., 2016). Overall, the results support an adequate structural model fit for subsequent hypothesis testing.

Table 6: Goodness of Fit for Structural Model

Fit Index	Acceptable Values	Statistical Values
CMIN/DF	<5.00(Al-Mamary & Shamsuddin, 2015; Awang, 2012)	2.528
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.852
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.828
NFI	≥ 0.80 (J.-H. Wu & Wang, 2006)	0.825
CFI	≥ 0.80 (Bentler, 1990)	0.886
TLI	≥ 0.80 (Sharma et al., 2005)	0.876
RMSEA	< 0.08 (Pedroso et al., 2016)	0.055
SRMR	< 0.08 (Hu & Bentler, 1999)	0.058
Model Summary		**Acceptable Model Fit**

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = normalized fit index, CFI = comparative fit index, TLI = Tucker-Lewis index, RMSEA = Root mean square error of approximation, SRMR = Standardized Root Mean Square Residual.

The model explained 32.5% of the variance in Perceived Value and 58.7% of the variance in Student Satisfaction, indicating substantial explanatory power.

4.4 Hypothesis Testing Results

Table 7 presents the hypothesis testing results. All six hypotheses are supported at the 0.05 significance level. Among the predictors of Student Satisfaction, Perceived Value exerts the strongest effect, followed by Curriculum, Student Engagement, Teaching Quality, and Service Innovation. Service Quality also significantly influences Perceived Value.

H4 indicates that Perceived Value has the greatest impact on Student Satisfaction (β = 0.294, t = 5.378***). This finding supports Perceived Value Theory (Zeithaml, 1988) and aligns with prior studies highlighting the central role of value perceptions in shaping satisfaction (Alves & Raposo, 2010; Howat & Assaker, 2013).

H1 shows that Curriculum significantly affects Student Satisfaction (β = 0.244, t = 5.336***), consistent with previous research identifying curriculum design as a key determinant of satisfaction (Marimon et al., 2019; Huang et al., 2011).

H5 confirms that Student Engagement positively influences Student Satisfaction (β = 0.220, t = 4.835***), supporting prior evidence on the importance of engagement in satisfaction formation (Fredricks et al., 2016; Pandita & Kiran, 2023).

H2 demonstrates that Teaching Quality significantly impacts Student Satisfaction (β = 0.211, t = 4.606***), in line with earlier findings emphasizing instructional effectiveness as a major predictor of student satisfaction (Guolla, 1999; Ko & Chung, 2014).

H6 reveals that Service Innovation has a positive effect

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on Student Satisfaction (β = 0.149, t = 3.027**), consistent with research suggesting that innovative service practices enhance student experience (Easa & Bazzi, 2021).

Finally, H3 confirms that Service Quality significantly influences Perceived Value (β = 0.225, t = 4.631***), indicating an indirect pathway to Student Satisfaction, as supported by prior studies (Hu et al., 2009; Teeroovengadum et al., 2019).

Overall, the findings demonstrate that Curriculum, Teaching Quality, Service Quality, Perceived Value, Student Engagement, and Service Innovation collectively explain variations in Student Satisfaction, with Perceived Value emerging as the most influential construct in the proposed model.

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	Standar dized path coefficient (β)	t-value	Testing result
H1:Curriculum→Student Satisfaction	0.244	5.336***	Supported
H2:Teaching→Quality Student Satisfaction	0.211	4.606***	Supported
H3:Service Quality→ Perceived Value	0.225	4.631***	Supported
H4:Perceived Value→Student Satisfaction	0.294	5.378***	Supported
H5:Student Engagement→Student Satisfaction	0.220	4.835***	Supported
H6:Service Innovation → Student Satisfaction	0.149	3.027**	Supported

Note: * p < .05; ** p < .01; *** p < .001. Source: Created by the author.

4.5 Mediation Analysis

To test the mediating role of Perceived Value in the relationship between Service Quality and Student Satisfaction, bootstrapping with 5,000 resamples and bias-corrected 95% confidence intervals was employed. The results revealed that Service Quality significantly predicted Perceived Value (β = 0.225, p < 0.001), and Perceived Value significantly predicted Student Satisfaction (β = 0.294, p < 0.001). The indirect effect of Service Quality on Student Satisfaction through Perceived Value was 0.066. Both paths were statistically significant at the p < 0.001 level, indicating that Perceived Value significantly mediates the relationship between Service Quality and Student Satisfaction. Sobel test further confirmed the significance of the mediating effect (z = 3.48, p < 0.001).

5. Conclusions and Recommendation

5.1 Conclusion and Discussion

This study examined the determinants of student satisfaction with graduation art creation courses in public universities in Sichuan Province, China. Drawing upon SERVQUAL, Perceived Value Theory, the S-O-R framework, Expectation-Confirmation Theory, and Signaling Theory, a structural model was developed and empirically tested using survey data from 502 senior students.

The findings confirm that student satisfaction in practice-oriented art education is shaped by multiple academic and service-related dimensions. Curriculum design, teaching quality, student engagement, service innovation, and perceived value directly contribute to satisfaction, while service quality exerts its influence indirectly through perceived value. Among these factors, perceived value emerges as the most influential predictor, highlighting its central role in satisfaction formation.

The prominence of perceived value suggests that students' overall evaluation of the benefits gained from graduation art courses—relative to their time, effort, and resource investment—serves as the primary mechanism driving satisfaction. In project-based and creative learning environments, students assess not only instructional quality but also the holistic return on their academic investment.

Interestingly, Service Quality did not exert a direct effect on Student Satisfaction, but influenced satisfaction entirely through Perceived Value. This finding suggests that basic administrative and facility services may be taken for granted by graduating art students, who evaluate service quality primarily through the lens of value for their creative and professional development. For art students focused on graduation creation outcomes, basic service provisions represent a baseline expectation rather than a differentiating driver of satisfaction; only when services translate into tangible perceived value (e.g., better resources, improved career outcomes) do they enhance satisfaction.This finding reinforces the explanatory power of value-based perspectives in higher education research.

Furthermore, curriculum and teaching quality remain foundational to shaping positive learning experiences. Structured course content, clear objectives, effective supervision, and constructive feedback contribute to strengthening students' perceptions of academic quality. Student engagement further enhances satisfaction by reflecting cognitive, emotional, and behavioral involvement in the creative process. Service innovation also plays a supportive role, indicating that adaptive and innovative institutional practices enhance students' educational experience.

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From a theoretical standpoint, this study contributes to the literature in three ways. First, it integrates academic, service, innovation, and value constructs within a unified structural framework, extending satisfaction research into the context of art-based graduation courses. Second, it empirically confirms the mediating role of perceived value between service quality and satisfaction. Third, it enriches higher education service research by situating satisfaction within a practice-driven and creativity-oriented educational setting.

This study provides a theoretically grounded explanation of value-driven satisfaction formation in graduation art education and offers a structured framework for future research in practice-oriented higher education contexts.

5.2 Recommendations

Based on the empirical findings, several practical implications emerge.

First, enhancing students' Perceived Value (β = 0.294) should be prioritized. Strengthening the alignment between course outcomes and career development needs, expanding exhibition opportunities, improving access to creative resources, and optimizing administrative processes to reduce unnecessary time and effort costs are likely to enhance students' value perceptions and overall satisfaction.

Second, Curriculum refinement (β = 0.244) remains essential. Clear articulation of learning objectives, structured progression of creative projects, and closer integration of industry standards into course design and assessment criteria enhance coherence and professional relevance.

Third, strengthening Student Engagement (β = 0.220) through studio-based learning, peer critique mechanisms, milestone supervision, and public exhibitions fosters sustained motivation and deeper cognitive involvement.

Fourth, continuous enhancement of Teaching Quality (β = 0.211) through supervisory training, structured feedback systems, and differentiated mentoring approaches reinforces students' perceptions of instructional support.

Finally, improving Service Quality (β = 0.225) and promoting Service Innovation (β = 0.149) remain critical institutional priorities. Enhancing administrative responsiveness, upgrading facilities, implementing digital submission and exhibition platforms, and encouraging interdisciplinary collaboration collectively contribute to stronger value perceptions and improved satisfaction outcomes.

5.3 Limitations and Future Research

Despite its contributions, this study has several limitations. The sample was limited to public universities in Sichuan Province, which may affect generalizability. Additionally, the average variance extracted (AVE) values for four constructs (Curriculum, Teaching Quality, Service Quality, and Student Engagement) were slightly below the commonly recommended threshold of .50; however, all composite reliability values were above .70, which is considered acceptable according to Fornell and Larcker (1981). Furthermore, as data were collected from self-report measures at a single time point, common method bias may be a concern, though procedural and statistical remedies were considered.

The cross-sectional research design restricts causal inference and does not capture potential changes in satisfaction across different stages of the graduation creation process. Additionally, the model focused on seven core constructs; other contextual variables such as institutional image, facility conditions, or external industry mentorship may further enhance explanatory power.

Future research may expand sampling to multiple regions and institutional types, adopt longitudinal designs that capture different project milestones (e.g., proposal, midterm, defense), and examine moderating variables such as major type or digital readiness to provide deeper insights into the mechanisms shaping student satisfaction in practice-based higher education contexts.

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