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A Strategic Plan to Enhance Students' Satisfaction: A Case of Pre-School Program at a Public Vocational College in Guizhou, China

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Abstract

This study investigates the key factors influencing student satisfaction in a vocational preschool education program in Guizhou, China. Drawing from 311 valid student responses, the research examines the effects of five institutional dimensions: Course Structure, Student Engagement, Academic Aspects Service, Non-Academic Aspects Service, and Educational Facilities. A mixed-methods approach was employed. Quantitative data were analyzed using multiple linear regression and paired-sample t-tests, while qualitative insights were derived from interviews. Results indicated that all five factors had a significant impact on student satisfaction. A Strategic Plan Process, co-developed with instructors and piloted with 30 participants over 12 weeks, led to improved perceptions across all six variables, despite not being formally implemented. Interview findings reinforced these results, highlighting the value of participatory planning in enhancing student engagement and satisfaction. The study suggests that involving students in strategic educational design can improve the perceived quality of institutional services and learning experiences in vocational settings.

Keywords: Course Structure, Student Engagement, Academic Aspects Service, Non-Academic Aspects Service, Educational Facilities, Strategic Plan, Student Satisfaction

Introduction

Background

Vocational education has become a strategic priority in China's education reform, aiming to cultivate practical skills, enhance employability, and promote regional development. Recognized as a crucial link between academic learning and labor market demands, vocational education has received growing national attention. Key policies—such as the Vocational Education Law 1996, the Implementation Directives 2018, and the 13th Five-Year Plan for National Education Development 2019—have emphasized expansion, quality improvement, and alignment with industrial needs (State Council of the People's Republic of China, 2018, 2019).Despite these efforts, aligning vocational programs with students' expectations and labor

market dynamics remains a challenge. As institutions adopt more student-centered models, student satisfaction has emerged as a vital indicator of performance. It reflects the effectiveness of both academic and non-academic services and is shaped by teaching quality, course design, student engagement, and institutional support (Kotler, 2012; Zhai, 2022).

National and Institutional Context

Vocational education in China plays a pivotal role in national strategies to foster skilled talent and promote regional development. Over the past decade, government policies such as the National Vocational Education Reform Implementation Plan (State Council of the People's Republic of China, 2019) have emphasized accessibility, quality, and alignment with labor market demands. These reforms have led to a steady increase in vocational graduates, with numbers rising from 8.82 million in the year 2021 to 10.94 million in the year 2023 (Ministry of Education of the People's Republic of China, 2024). This study focuses on Guiyang Women's Vocational School; a public institution located in Guizhou Province. Established in the year 1985, the school's preschool education program has become one of its most popular majors, currently enrolling over 1,500 students across three grades (Guiyang Women's Vocational School, 2024). Drawing from the researcher's direct teaching experience at the school, the study captures both academic and non-academic factors influencing student satisfaction. As such, the institution offers a meaningful context to investigate how national policies translate into institutional practice and affect student experience in a regional vocational setting.

Identified Issues and SWOT Analysis

Despite the strategic emphasis placed on vocational education in national reforms, institutional evaluations in China often remain superficial, relying heavily on administrative metrics rather than student-centered assessments. Recent scholarship advocates for a shift toward quality management approaches that position students as key stakeholders, whose satisfaction reflects both service quality and institutional effectiveness (Xu et al., 2019). To systematically evaluate the preschool education program at Guiyang Women's Vocational School, a SWOT analysis was conducted. Drawing on semi-structured interviews with faculty and administrators, as well as a review of official documents (Guiyang Women's Vocational School, 2024), the analysis identified five core domains influencing student satisfaction: Course Structure, Student Engagement, Academic Aspects, Non-Academic Aspects, and Educational Facilities. Key strengths included a diverse curriculum, upgraded facilities, and a generally supportive learning environment. However, notable weaknesses were also identified—such as limited student-faculty interaction, outdated instructional content, and a lack of awareness regarding available support services. Opportunities were found in expanding alignment with industry demands and enhancing student-centered services. At the same time, resource limitations and reduced student engagement posed potential threats. This SWOT framework informed the identification of institutional gaps and directly shaped the development of the Strategic Plan, which aimed to address both systemic weaknesses and

students' evolving expectations in vocational education.

Statement of the Problem

While vocational education in China has made notable strides in quality improvement and national policy support, there remains a critical gap in understanding the specific determinants of student satisfaction, particularly in regional vocational colleges. In spite of institutional strengths observed in many programs—including structured curricula, improved teaching facilities, and diversified learning opportunities—student dissatisfaction persists in both academic and non-academic domains (Guiyang Women's Vocational School, 2024).A preliminary SWOT analysis conducted at a public vocational college in Guizhou Province revealed several latent issues: insufficient teacher-student interaction, lack of curriculum innovation, underutilization of support services, and low student engagement levels. These issues suggest systemic weaknesses in aligning educational offerings with students' evolving expectations and the demands of a rapidly transforming labor market. Existing evaluations often rely heavily on administrative indicators and overlook students' direct experiences (Zhai, 2022). As students increasingly assume the role of "consumers" within the education system, their satisfaction serves as a critical indicator of institutional effectiveness. However, limited research has explored how core service dimensions—such as Course Structure, Student Engagement, Academic Aspects Service, Non-Academic Aspects Service, and Educational Facilities—impact satisfaction in the context of Chinese vocational education. Therefore, the problem addressed in this study is the insufficient empirical understanding of how these five key institutional variables influence student satisfaction, especially in the context of preschool education programs in provincial vocational colleges. Without such knowledge, efforts to enhance educational quality may lack precision and responsiveness, thereby limiting both institutional performance and student success.

Research Objectives

This study aimed to examine the key institutional factors that influence student satisfaction in vocational education, using a preschool education program in a public vocational college in Guizhou Province as the focal context. Based on existing theoretical and empirical insights, the research objectives are defined as follows:

1.To determine the significant influence of Course Structure on student satisfaction.

2.To determine the significant influence of Student Engagement on student satisfaction.

3.To determine the significant influence of Academic Aspects Service on student satisfaction.

4.To determine the significant influence of Non-Academic Aspects Service on student satisfaction.

5.To determine the significant influence of Educational Facilities on student satisfaction.

6.To measure the significant difference between levels of Course Structure, Student Engagement, Academic Aspects Service, Non-Academic Aspects Service, Educational Facilities, and Student Satisfaction before and after the strategic planning process.

7.To design a strategic plan based on the research findings.

Research Questions

To achieve these objectives, the following research questions were formulated:

1.What is the significant influence of Course Structure on student satisfaction?

2.What is the significant influence of Student Engagement on student satisfaction?

3.What is the significant influence of Academic Aspects Service on student satisfaction?

4.What is the significant influence of Non-Academic Aspects Service on student satisfaction?

5.What is the significant influence of Educational Facilities on student satisfaction?

6.What are the significant differences in the five independent variables—Course Structure, Student Engagement, Academic Aspects Service, Non-Academic Aspects Service, and Educational Facilities—and the dependent variable, Student Satisfaction, before and after the strategic planning process?

7.What strategic plan can be designed based on the findings?

Scope and Limitations

This study was conducted at a public vocational college in Guizhou Province, focusing on students enrolled in a preschool education program. It examined five independent variables—Course Structure, Student Engagement, Academic Aspects Service, Non-Academic Aspects Service, and Educational Facilities—and their relationship with student satisfaction. Data were collected from 311 students across three academic years through structured questionnaires distributed late in the year 2024. A pilot test with 30 participants was carried out beforehand to ensure the instrument's validity. In addition, a group of 30 students participated in the strategic planning stage. Limitations include the focus on a single institution and major, which may constrain generalizability. The use of convenience sampling and self-reported data may also introduce response bias. Furthermore, as a cross-sectional study, it does not capture longitudinal changes in satisfaction.

Significance of the Study

This study offers both academic and practical contributions. It expands the literature on student satisfaction in vocational education within the Chinese context, particularly in southwestern regions. By integrating relevant theoretical models and focusing on a specific vocational program, it provides empirical insights into the academic and non-academic factors shaping student satisfaction. Practically, the findings can guide institutional improvements in curriculum design, student engagement, and service quality. The strategic plan developed in this study offers actionable recommendations for school administrators and policymakers seeking to align vocational education with students' needs and industry demands. Moreover, this research supports broader goals of educational equity and workforce readiness by highlighting the voices and experiences of students in vocational pathways.

Literature Review

Overview of Student Satisfaction in Vocational Education

Student satisfaction has become a critical indicator of quality assurance in higher education, particularly in vocational institutions where learning outcomes are closely tied to employability and skill development. Unlike traditional academic programs, vocational education emphasizes practical training, applied competencies, and alignment with labor market needs. In this context, student satisfaction reflects a multidimensional construct encompassing both academic provisions and non-academic services that influence learners' overall educational experience (Elliott & Shin, 2002; Kotler, 2012; Zhai, 2022).Scholars argue that student satisfaction serves not only as an outcome but also as a predictor of institutional success—affecting student retention, academic performance, and long-term career success (Clemes et al., 2008; Xu & Du, 2019). In vocational colleges, satisfaction is influenced by curriculum relevance, instructional quality, engagement opportunities, and support infrastructure. As vocational education in China rapidly expands under national reform policies, enhancing satisfaction is essential for aligning institutional services with evolving student needs. However, current assessment frameworks often rely on administrative indicators such as enrollment rates or employment outcomes, which may not fully reflect students lived experiences or expectations. This limitation is especially pronounced in regional colleges, where disparities in resources, rigid curricula, and limited student voice persist. A more student-centered and empirically grounded understanding of satisfaction is therefore essential for guiding institutional development—particularly in programs such as preschool education, which require the integration of theoretical knowledge with hands-on pedagogical practice.

Review of Key Institutional Factors Influencing Student Satisfaction

Course Structure (CS)

Course structure (CS) refers to the organization of curriculum content, learning objectives, instructional strategies, and assessment methods that guide the delivery of learning. In vocational education, particularly, a well-structured course fosters clarity, reduces cognitive overload, and enhances satisfaction by aligning theoretical content with practical outcomes (Liang, 2012; Zhai, 2022). Garrison and Archer (2000) emphasize that course planning spans the entire instructional process, with structure playing a central role in coordinating teaching and resource use. M. G. Moore's (1991) transactional distance theory identifies structure as one of three pillars of effective learning, alongside dialogue and autonomy. Empirical studies support this, indicating that clearly defined learning goals, timely feedback, and flexible sequencing are positively associated with student satisfaction (Eom et al., 2006; Gray & DiLoreto, 2016; Hew et al., 2020). Kim and Kim (2021) further note that structure has a stronger impact on satisfaction than peer interaction, especially when flexibility is balanced with clarity. Research in both global and Chinese contexts underscores that students are more engaged when course design emphasizes real-world relevance, organized progression, and transparent expectations (Jaggars & Xu, 2016; Paechter et al., 2010; Vargas, 2014). Poorly

designed courses—characterized by fragmented content or ambiguous tasks—can reduce satisfaction and hinder performance (Paswan & Young, 2002; Vieira et al., 2008). In contrast, structured yet adaptable curricula support learner motivation and improve perceptions of institutional quality (Larkin & Jamieson-Proctor, 2015; Lee et al., 2014; Squires, 2013).

H1: Course Structure has a significant influence on Student Satisfaction.

Student Engagement (SE)

Student engagement (SE) encompasses behavioral, emotional, and cognitive dimensions that reflect students' motivation, participation, and psychological investment in learning (Fredricks et al., 2004; Pedler et al., 2020). In vocational education, high engagement levels are linked to improved academic outcomes, reduced dropout rates, and stronger alignment with real-world demands (Parsons & Taylor, 2011; Zhang & Luo, 2016). Engagement involves both visible participation and internal meaning-making, such as reflective thinking and collaboration (Trowler, 2010). Effective engagement is often driven by well-structured courses and supportive teaching practices that foster dialogue and interaction (Gray & DiLoreto, 2016; Jaggars & Xu, 2016). Emotional and psychological factors—such as motivation and confidence—also shape students' willingness to participate (Harrington et al., 2021; Mandernach, 2015). Teachers can enhance engagement by designing inclusive activities and assessing student needs (Lee et al., 2014). Pedagogical tools such as formative assessment, peer interaction, and timely feedback further support engagement, particularly in hands-on programs like preschool education (Handelsman et al., 2005; Lin & Huang, 2017). Nygaard et al. (2013) highlight that community and learner identity contribute to sustained engagement. However, as Bryson (2014) and Kahu (2013) note, engagement is shaped by institutional, social, and cultural contexts, requiring strategies that are sensitive to students lived realities—especially in regional vocational settings. In sum, SE is a dynamic, multi-dimensional construct essential to student satisfaction, retention, and equitable outcomes.

H2: Student Engagement significantly influences Student Satisfaction.

Academic Aspects Service (AAS)

Academic Aspects Service (AAS) refers to structured academic support mechanisms—including academic advising, mentoring, instructor accessibility, and timely feedback—designed to enhance student learning, engagement, and satisfaction (Bao & Cho, 2021; Tinto & Pusser, 2019). These services address both pedagogical and developmental needs, helping reduce dropout risks and build an academically supportive environment (Kakada et al., 2019; Zineldin et al., 2011). AAS quality is multidimensional, involving infrastructure, staff competency, and service delivery (Bertolin, 2015; Vesce et al., 2020). When aligned with student expectations, especially in resource-limited vocational colleges, high-quality AAS promotes academic success and retention (Ali et al., 2016; Martirosyan et al., 2014). The HEdPERF model identifies academic aspects as a core dimension of service quality in higher education (Ali et al., 2016). Studies confirm that academic support—such as regular advising and structured feedback—enhances student self-efficacy and institutional trust (Greimel-Fuhrmann & Geyer, 2003; Ross, 2016). AAS also positively impacts psychological well-being and academic confidence, especially for students with diverse learning needs (Lipka et al.,

2018; Martirosyan et al., 2014). In vocational settings, satisfaction is shaped by clarity of instruction, relevance of content, and responsiveness of academic staff (Abdullah, 2006; Zhu & Sharp, 2021). Continuous improvement tools, such as Importance-Performance Analysis (Said et al., 2018), and student-centered design (Yılmaz & Temizkan, 2022), are recommended for optimizing AAS delivery. In sum, AAS is a critical institutional driver of student satisfaction, fostering not only improved academic performance but also retention, motivation, and loyalty (Kakada et al., 2019; Lai, 2014).

H3: Academic Aspects Service significantly influences Student Satisfaction.

Non-Academic Aspects Service (NAAS)

Non-Academic Aspects Service (NAAS) refers to institutional supports unrelated to direct instruction, including dormitories, financial aid, mental health counseling, campus safety, catering, and administrative services. Though auxiliary in nature, these services significantly influence students' satisfaction, well-being, and academic success (Abdullah, 2006; Dominguez-Whitehead, 2017; Latif et al., 2017). In today's higher education landscape, NAAS is increasingly viewed through a service quality framework, where students are seen as service recipients or consumers (Hou et al., 2019; Wilson, 2012). Studies confirm that supportive NAAS fosters engagement and enhances student retention, particularly in vocational and under-resourced settings (Park et al., 2014; White, 2016). Models such as HEdPERF evaluate NAAS through multiple dimensions: interaction quality, physical environment, and outcome delivery (Ali et al., 2016). Graunke and Woosley (2005) found that students benefiting from dormitory services were more likely to integrate socially and academically. Financial support also improves satisfaction, especially among low-income students (Gale, 2012; Goldrick-Rab et al., 2009). The role of non-academic staff is equally critical. Positive interaction with support personnel promotes belonging and institutional trust (Pike et al., 2010). Moreover, NAAS helps develop non-cognitive skills—discipline, communication, adaptability—that are vital for success beyond graduation (Lotkowski et al., 2004; Palardy, 2019). Despite their indirect nature, non-academic services complement academic provisions and contribute to a holistic educational experience. Institutions that strategically invest in NAAS demonstrate improved satisfaction, reduced dropout rates, and stronger institutional loyalty (Awang et al., 2021; Chong & Yeo, 2015; Tambunan, 2022).

H4: Non-Academic Aspects Service has a significant influence on Student Satisfaction.

Educational Facilities (EF)

Educational Facilities (EF) refer to the physical and material infrastructure that directly supports teaching and learning, including classrooms, libraries, laboratories, and technology-equipped environments (Novita, 2022; Parid & Alif, 2020). These facilities serve as essential enablers of educational quality, providing the foundation for instructional delivery, hands-on practice, and student engagement. When adequately designed and maintained, educational facilities significantly enhance student satisfaction and learning outcomes (Sojkin et al., 2011; Song & Yang, 2018). Research has shown that learning environments equipped with up-to-date infrastructure promote better academic performance, foster motivation, and reduce stress (Herwan et al., 2018; Khan et al., 2020). In contrast, poor facilities—such as overcrowded

classrooms or outdated equipment—negatively affect satisfaction and contribute to disengagement (Ruhyana & Aeni, 2019). The physical condition of a school campus, including layout and accessibility, also influences perceptions of safety, inclusiveness, and institutional credibility (Huang et al., 2023; In'am et al., 2018). In higher education, educational facilities are part of a value chain that connects academic services with broader institutional performance (Sapri et al., 2009; Sirvanci, 2004). Their role extends beyond the classroom, supporting interdisciplinary collaboration, digital learning, and innovation (Adesope et al., 2014). Particularly in vocational contexts, facilities such as simulation rooms and specialized labs help align instruction with real-world job requirements, improving student readiness and satisfaction (Latif et al., 2017). Evidence from Chinese and international settings confirms a strong correlation between satisfaction and access to well-resourced facilities (Sojkin et al., 2011; Song & Yang, 2018). Institutions that invest in physical infrastructure not only improve learning conditions but also enhance their appeal and reputation.

H5: Educational Facilities have a significant influence on Student Satisfaction.

Student Satisfaction (SS)

Student satisfaction is defined as the emotional response that arises when educational experiences meet or exceed expectations (Kotler et al., 2015). In higher education, it reflects students' perceptions of both academic quality and service delivery (Butt & Rehman, 2010; Esmaeili & Horri, 2014). As a psychological outcome, satisfaction results from the alignment between students' anticipated learning outcomes and their actual experiences (Pandža Bajs et al., 2024). From a service quality perspective, satisfaction functions as a key indicator of institutional performance and competitiveness (Khoo et al., 2017; Moslehpour et al., 2020). Studies confirm that well-structured courses, effective instructor communication, and accessible support systems enhance satisfaction (Eom et al., 2006; Gray & DiLoreto, 2016). Conversely, unmet expectations in facilities or services lead to dissatisfaction, particularly in resource-constrained contexts (Ruhyana & Aeni, 2019; Sojkin et al., 2011). Satisfaction also influences student loyalty, retention, and word-of-mouth reputation (Liddy et al., 2019). However, the increasing trend of viewing students as consumers raises concerns over the balance between satisfaction and educational integrity (Calma & Dickson-Deane, 2020). Nevertheless, satisfaction remains a multidimensional construct and a central metric in assessing educational quality and strategic development (Hanssen & Solvoll, 2015; Wong & Chapman, 2022).

Theoretical Perspectives on Student Satisfaction

Student satisfaction is increasingly interpreted through organizational and psychological theories adapted from the workplace. Herzberg's Two-Factor Theory (1959) is particularly influential, distinguishing between motivators (e.g., achievement, engagement) that promote satisfaction and hygiene factors (e.g., facilities, policies) that prevent dissatisfaction (DeShields et al., 2005; Ibrahim et al., 2023). This dual framework has been widely applied in educational research to differentiate the functions of academic and non-academic services. Building on this, Moslehpour et al. (2020) modeled Academic Aspects Service (AAS) as a motivator that enhances learning and satisfaction, while Non-Academic Aspects Service (NAAS) serves as a hygiene factor ensuring institutional support. Gray and

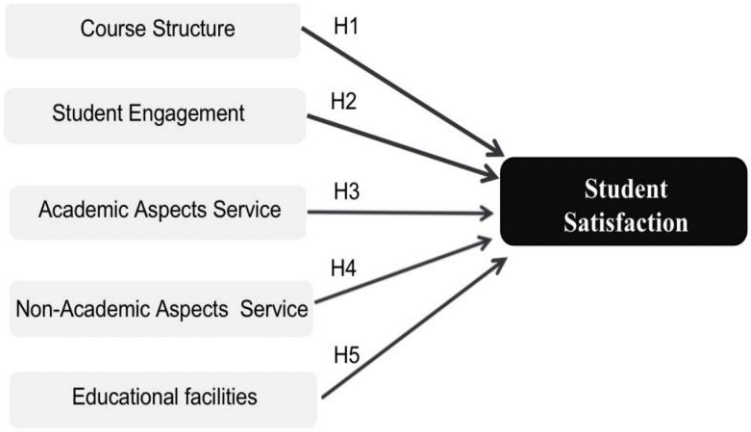
DiLoreto (2016) further extended this model, conceptualizing Course Structure as a hygiene factor providing clarity and Student Engagement as a motivator driving deeper learning. Their findings emphasize the interaction between structure and engagement in shaping satisfaction. Sojkin et al. (2011) contributed an infrastructure-focused model, arguing that Educational Facilities function both as hygiene elements (basic needs) and motivators (innovative spaces), with dynamic assessments better capturing their role in student satisfaction—especially in post-pandemic vocational contexts. Collectively, these perspectives inform this study's conceptual framework by applying Herzberg's theory across five institutional domains—Course Structure, Student Engagement, Academic Aspects Service, Non-Academic Aspects Service, and Educational Facilities—to explore what drives satisfaction among vocational students in China.

Conceptual Framework

The conceptual framework of this study is based on Herzberg's Two-Factor Theory, integrating motivator and hygiene factors to explain student satisfaction in vocational education. Five institutional factors—Course Structure, Student Engagement, Academic Aspects Service, Non-Academic Aspects Service, and Educational Facilities—are proposed to influence satisfaction. The model synthesizes prior frameworks (Gray & DiLoreto, 2016; Moslehpour et al., 2020; Sojkin et al., 2011), serving as a foundation for hypothesis testing and strategic planning.

Figure 1

Conceptual Framework



Source: Author

Research Hypotheses

Based on the conceptual framework and literature review, this study formulates the following hypotheses to explore both the influencing factors of student satisfaction and the differences before and after the strategic planning process.

H1: Course Structure has a significant influence on Student Satisfaction.

H2: Student Engagement has a significant influence on Student Satisfaction.

H3: Academic Aspects Service has a significant influence on Student Satisfaction.

H4: Non-Academic Aspects Service has a significant influence on Student Satisfaction.

H5: Educational Facilities have a significant influence on Student Satisfaction.

In addition, the study also tests whether student perceptions significantly changed after participating in the Strategic Plan process:

H6: There is a significant difference in perceived Course Structure between the pre- and post-Strategic Plan phases.

H7: There is a significant difference in Student Engagement between the pre- and post-Strategic Plan phases.

H8: There is a significant difference in Academic Aspects Service between the pre- and post-Strategic Plan phases.

H9: There is a significant difference in Non-Academic Aspects Service between the pre- and post-Strategic Plan phases.

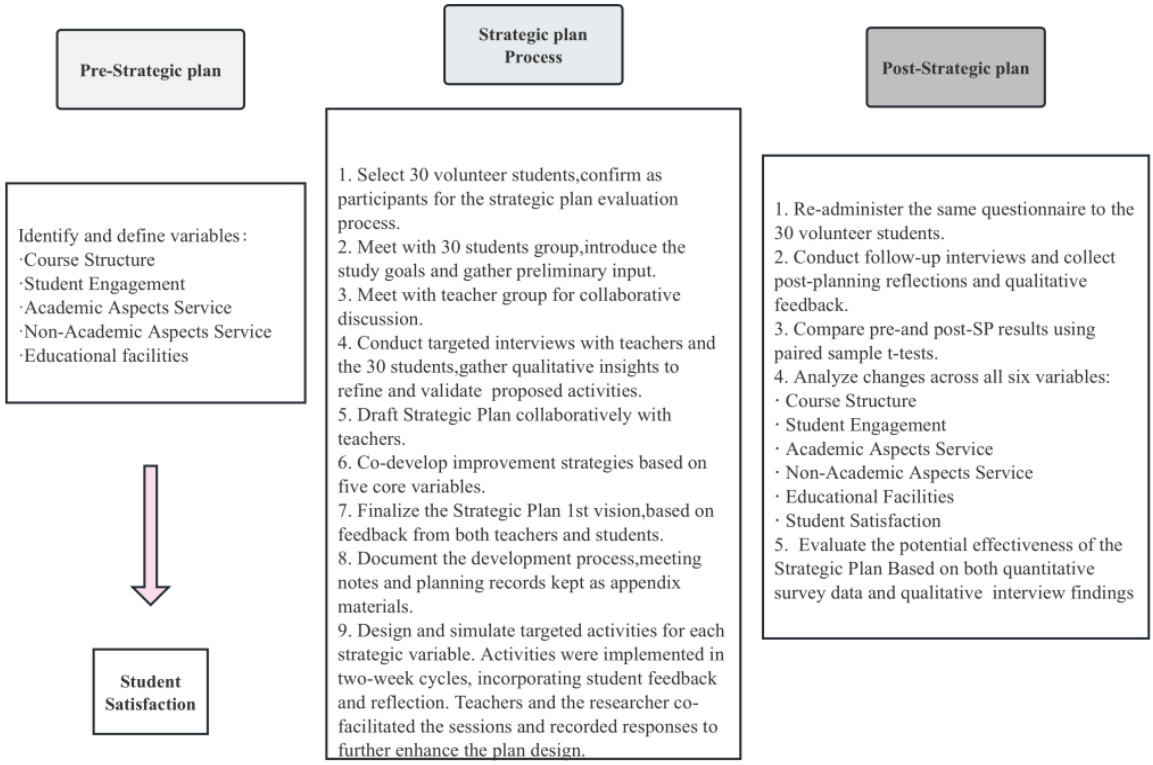
H10: There is a significant difference in Student Satisfaction between the pre- and post-Strategic Plan phases.

Strategic plan Model

The Proposed Strategic Plan Model (Figure 2) in this study consists of three sequential phases: Pre-Strategic Plan Phase, Strategic Plan Process Phase, and Post-Strategic Plan Evaluation Phase. The first phase involved quantitative and qualitative diagnosis using a 311-student questionnaire and SWOT analysis to identify key institutional factors affecting student satisfaction. The second phase engaged 30 participants in co-developing a strategic plan through structured small-group activities and planning sessions; no implementation was carried out. The final phase evaluated perceptions of the strategic plan through follow-up questionnaires and interviews with the same student group, aiming to assess alignment, feasibility, and potential impact. This non-intervention framework emphasized participatory planning and institutional responsiveness.

Figure 2

Proposed Strategic Plan Model



Research Methodology

This study employed a mixed-methods approach and was structured into three sequential phases: the Pre-Strategic Plan Phase, the Strategic Plan Process Phase, and the Post-Strategic Plan Evaluation Phase. A total of 311 students from Guiyang Women's Vocational School were selected through purposive sampling to complete a structured questionnaire. Among them, 30 students participated in group-based activities to co-develop the Strategic Plan, and one teacher and four students were interviewed to support the plan's development and evaluation. This design ensured comprehensive data triangulation across all phases.

Sample Size and Sampling Procedures

A pilot test was first conducted with 30 students to evaluate the clarity and internal consistency of the instrument, aligning with Johanson and Brooks (2010). Cronbach's alpha confirmed acceptable reliability. For the main survey, 311 valid responses were collected from a population of 901 students, exceeding the minimum sample size requirement for multiple linear regression (Bujang et al., 2017). According to Cochran's (1977) formula, the minimum sample size was 270. An additional 30 students participated in the Strategic Plan Process Phase. According to Hulley et al. (2013), 30 cases are sufficient for paired-sample t-tests in the absence of extreme outliers.

This study adopted a purposive sampling approach in all three phases. Pilot participants were selected to validate the instrument. The 311 students in the main survey were randomly selected and responded via the Wenjuanxing (WJX) platform. In the final phase, 30 student volunteers were purposively selected for the Strategic Plan design and evaluation. These students, mostly in their second or third year, completed both pre- and post-surveys and participated in interviews. This matched-sample design supported valid comparisons.

Research Instruments

Two instruments were employed: a structured questionnaire and semi-structured interviews. The questionnaire included 36 items across three sections: Part 1 covered 2 demographic items (gender and grade level); Part 2 contained 27 items for five independent variables—Course Structure (7), Student Engagement (5), Academic Aspects Service (5), Non-Academic Aspects Service (5), and Educational Facilities (5); and Part 3 had 7 items for Student Satisfaction. All items used a five-point Likert scale, adapted from prior research (Gray & DiLoreto, 2016; Moslehpour et al., 2020; Sojkin et al., 2011).

Content validity was established using the Index of Item-Objective Congruence (IOC) method, evaluated by three educational experts—one from Assumption University, one from Guizhou University, and one assistant professor. Following the procedure proposed by Rovinelli and Hambleton (1977), each item was rated as +1 (congruent), 0 (questionable), or −1 (incongruent), as suggested by Ismail and Zubairi (2021). Three items (CS5, AAS6, NAAS6) scored below the 0.67 threshold and were removed prior to pilot testing. All remaining items were validated and retained for further analysis.

Following the IOC process, three items (CS5, AAS6, and NAAS6) were removed due to low expert ratings, resulting in a revised 34-item questionnaire. A pilot test was conducted with 30 preschool education students to evaluate the instrument's reliability. Cronbach's alpha coefficients were calculated for all six constructs—Course Structure, Student Engagement, Academic Aspects Service, Non-Academic Aspects Service, Educational Facilities, and Student Satisfaction. All values exceeded 0.80, indicating good to excellent internal consistency (Cronbach, 1951; Hair et al., 2010), as shown in Table 1. These results confirmed the reliability of the instrument for full-scale administration.

Table 1

Pilot Test Result

Variables	Before Pilot Test	After Pilot Test	Cronbach's Alpha	Strength of association
Student Engagement (SE)	5	5	0.894	Good
Course Structure (CS)	7	7	0.925	Excellent
Academic Aspects Service (AAS)	5	5	0.816	Good
Non-Academic Aspects Service (NAAS)	5	5	0.929	Excellent
Educational facilities (EF)	5	5	0.903	Excellent
Student Satisfaction (SS)	7	7	0.901	Excellent
Total	34	34		

Source: Author

Semi-structured interviews involved one teacher and four students in the Strategic Plan Process Phase, with follow-up interviews with students during the Post-Strategic Plan Evaluation Phase. Interview protocols aligned with the six variables and supported triangulation.

Data Collection and Analysis

Quantitative and qualitative data were collected in three phases. In the Pre-Strategic Plan Phase, 311 student responses were analyzed using multiple linear regression to assess the influence of five institutional factors on student satisfaction. In the Post-Strategic Plan Phase, 30 participants completed a follow-up survey; paired-samples t-tests were used to compare Pre- and Post- Strategic plan perceptions.

Interviews with one teacher and four students were transcribed and analyzed thematically to supplement the quantitative results. Supplementary data included photos, observation notes, and memos collected during the planning activities. All procedures adhered to ethical standards concerning informed consent and data confidentiality.

Strategic Plan Process

The Strategic Plan process illustrated in Figure 2 was conducted with 30 student participants during the planning phase. A series of structured group activities were designed around six institutional variables: Course Structure, Student Engagement, Academic Aspects Service, Non-Academic Aspects Service, Educational Facilities, and Student Satisfaction. These activities aimed to co-develop improvement strategies based on student input. No implementation was involved; the focus remained on participatory design and feedback.

Result and Discussions

This section presents the main findings of the study based on both quantitative and qualitative data. The analysis was conducted in two phases: a pre-strategic plan phase involving 311 student responses, and a post-strategic plan evaluation phase with 30 participants. Multiple linear regression was applied to examine the influence of five institutional factors—Course Structure, Student Engagement, Academic Aspects Service, Non-Academic Aspects Service, and Educational Facilities—on student satisfaction. Paired-samples t-tests were then used to assess perceptual differences in the Pre and Post Strategic Plan phases. In addition, qualitative data collected through semi-structured interviews with students, and a teacher were thematically analyzed to support and contextualize the quantitative findings.

Result of Multiple Linear Regression

Multiple Linear Regression (MLR) was conducted using data from 311 valid responses to examine the effects of five independent variables—Course Structure (CS), Student Engagement (SE), Academic Aspects Service (AAS), Non-Academic Aspects Service (NAAS), and Educational Facilities (EF)—on the dependent variable, Student Satisfaction (SS). The model showed a high explanatory power, with $R^2 = 0.886$, indicating that 88.6% of the variance in student satisfaction was explained by the five predictors.

All five variables were statistically significant at the $p < .05$ level. Among them, Course Structure had the strongest effect ($\beta = 0.297$, $p < .001$), followed by Student Engagement ($\beta = 0.229$, $p < .001$), Educational Facilities ($\beta = 0.170$, $p < .001$), Non-Academic Aspects Service ($\beta = 0.153$, $p = .002$), and Academic Aspects Service ($\beta = 0.139$, $p = .006$). Variance Inflation Factor (VIF) values ranged from 5.49 to 7.72, all below the threshold of 10, indicating no multicollinearity concerns (Hair et al., 2010).

Table 2

Multiple Linear Regression Results on Student Satisfaction (n = 311)

Variables	Standardized Coefficients Beta(β)	t-value	P-value	R2	VIF
Course Structure (CS)	0.297	5.54	< .001	0.886	7.72
Student Engagement (SE)	0.229	4.54	< .001		6.81
Academic Aspects Service (AAS)	0.139	2.79	0.006		6.66
Non-Academic Aspects Service (NAAS)	0.153	3.10	0.002		6.58
Educational facilities (EF)	0.170	3.75	< .001		5.49
Dependent variable: Student Satisfaction (SS)					

Source: Author

Beyond statistical relationships, the study also yielded a Strategic Plan design through participatory processes, as described in the following section.

Hypothesis Testing

Hypothesis Testing (H1-H5)

Hypotheses H1 to H5 were tested using Multiple Linear Regression (MLR) based on data from 311 student responses. The five institutional factors—Course Structure, Student Engagement, Academic Aspects Service, Non-Academic Aspects Service, and Educational Facilities—were found to have significant influence on Student Satisfaction (SS). All five hypotheses were supported at the $p < .05$ level. Table 2 presents the regression results.

Based on the significant relationships established in the MLR analysis, five additional hypotheses (H6-H10) were developed to explore whether students' perceptions significantly differed between the pre- and post-Strategic Plan phases. These were tested using paired-sample t-tests on data collected from the same 30 participants.

H6: There is a significant difference in Course Structure at the Pre and Post Strategic Plan level.

H7: There is a significant difference in Student Engagement at the Pre and Post Strategic Plan level.

H8: There is a significant difference in the Academic Aspects Service at the Pre and Post Strategic Plan levels.

H9: There is a significant difference in Non-Academic Aspects Service at the Pre and Post Strategic Plan level.

H10: There is a significant difference in Educational facilities at the Pre and Post Strategic Plan level.

Strategic Plan Design

In addition to the quantitative analyses, this study produced a Strategic Plan that was drafted but not implemented, developed through a participatory design process. The plan was grounded in the findings of the Pre-SP survey of 311 students and supported by qualitative inputs from one faculty member and four student interviews, as well as simulated activities conducted with 30 student volunteers. This process ensured that the proposed strategies were directly aligned with the expressed needs of the participants. The Strategic Plan design addressed all six variables in the conceptual framework. For Course Structure (CS), activities included curriculum mapping, lesson planning, and mock teaching. For Student Engagement (SE), student mini-forums, reflection journals, feedback walls, and peer motivation cards were designed to strengthen interaction and ownership. Academic Aspects Service (AAS) improvements included peer teaching, structured lesson archives, and curriculum analysis to enhance academic support. Non-Academic Aspects Service (NAS) emphasized dormitory-based peer support and wellness discussions to provide social and emotional care. Educational Facilities (EF) were addressed by redesigning classroom layouts, improving multimedia tools, and reviewing access to laboratories and computer rooms. Finally, Student Satisfaction (SS) was integrated through reflection sessions, group discussions, and message board notes to

consolidate overall perceptions. Although the plan was not executed, its feasibility was reinforced by the participatory involvement of students and faculty, together with the alignment of the proposed strategies to the empirical findings. The Strategic Plan design demonstrates that a participatory, data-driven approach could realistically be adopted by vocational colleges to address both academic and non-academic dimensions of student satisfaction.

Paired-Sample T-Test Results

To assess whether student perceptions significantly changed after participating in the Strategic Plan design process, paired-sample t-tests were conducted for the 30 student participants who completed both pre- and post-SP questionnaires. Results revealed statistically significant increases in mean scores across all five institutional factors and the dependent variable, Student Satisfaction.

Table 3

Paired-Sample T-Test Results

Variables	Mean	Std. Deviation	t-value	df	p-value
Pre-CS	3.27	1.136	-4.80		< .001
Post-CS	4.33	0.253			
Pre-SE	3.21	1.190	-5.53		< .001
Post-SE	4.47	0.232			
Pre-AAS	3.39	1.088	-3.53		0 .001
Post-AAS	4.12	0.451			
Pre-NAAS	3.37	1.265	-3.28	29.0	0.003
Post-NAAS	4.16	0.369			
Pre-EF	3.46	1.233	-3.61		0.001
Post-EF	4.33	0.330			
Pre-SS	3.26	1.117	-4.47		< .001
Post-SS	4.15	0.282			

Note: All p-values are based on two-tailed tests and considered significant at the $p < .05$ level.
Source: Author

As shown in Table 3, statistically significant improvements ($p < .001$) were observed across all six measured dimensions following the Strategic Plan design phase. The post-SP mean scores for Course Structure (CS), Student Engagement (SE), Academic Aspects Service (AAS), Non-Academic Aspects Service (NAAS), Educational Facilities (EF), and overall Student Satisfaction (SS) were consistently higher than their pre-SP counterparts. These results suggest that the participatory planning process—though not implemented—effectively enhanced students' perceptions by aligning proposed strategies with their academic and institutional needs.

Hypothesis Testing (H6-H10)

Hypotheses H6 to H10 were tested using paired-sample t-tests based on pre- and post-SP survey data from 30 participants. The results revealed significant improvements ($p < .001$) in students' perceptions of all five institutional dimensions—Course Structure, Student

Engagement, Academic Aspects Service, Non-Academic Aspects Service, and Educational Facilities—as well as overall Student Satisfaction. These findings confirm that the participatory Strategic Plan design positively impacted student perceptions, even without actual implementation. Therefore, all five hypotheses (H6-H10) were supported. Table 3 presents the paired-sample comparison results.

Discussion

The findings of this study confirmed that all five institutional factors—Course Structure, Student Engagement, Academic Aspects Service, Non-Academic Aspects Service, and Educational Facilities—significantly influenced Student Satisfaction in the preschool education context. Among them, Course Structure ($\beta = 0.297$) and Student Engagement ($\beta = 0.229$) emerged as the strongest predictors, aligning with prior research emphasizing the importance of instructional clarity and active learning in vocational education (Gray & DiLoreto, 2016; Schreiner & Nelson, 2013).

The strategic planning process, though not implemented, generated significant changes in students' perceptions across all variables. Paired-sample t-tests showed notable improvements post-plan, suggesting that even simulated participatory activities can foster positive expectations and ownership over institutional services. These outcomes support the application of participatory planning in student-centered educational models and resonate with the principles of Herzberg's Two-Factor Theory—where both motivational factors (e.g., engagement and facilities) and hygiene factors (e.g., support services) collectively shape satisfaction.

The improvement observed in Academic and Non-Academic Services further indicates that students value comprehensive institutional support beyond classroom instruction. This aligns with the holistic approach promoted in student affairs literature (Moslehpour et al., 2020; Sojkin et al., 2011). Meanwhile, the enhanced perception of Student Satisfaction in the post-plan phase highlights the impact of involving students in co-design processes. Although the activities were only simulated, the strategic plan helped students feel heard and empowered, enhancing their connection to the learning environment.

Overall, the results suggest that a participatory strategic design model, even without implementation, can influence student perceptions by aligning planning with real needs. This contributes to both theoretical understanding and practical strategies for improving institutional effectiveness in vocational education settings.

Conclusions, Recommendations and Limitations

Conclusions

This study examined the influence of five institutional factors—Course Structure, Student Engagement, Academic Aspects Service, Non-Academic Aspects Service, and Educational Facilities—on Student Satisfaction within a preschool education program in a public vocational college in Guizhou, China. Through a 24-week Strategic Plan process comprising Pre-SP diagnosis, participatory planning, and post-SP evaluation, mixed-methods data were collected and analyzed.

Multiple linear regression (n = 311) confirmed that all five independent variables significantly influenced student satisfaction, with Student Engagement and Educational Facilities showing the strongest effects. A Strategic Plan was co-developed with faculty and 30 student participants, followed by paired-sample t-tests, which revealed significant improvements in student perceptions post-SP. Qualitative interviews supported these quantitative findings.

All ten hypotheses (H1-H10) were confirmed. Although the Strategic Plan was not implemented, the participatory design process effectively aligned with student expectations. This study contributes empirical evidence and a replicable framework for enhancing satisfaction in vocational education.

Recommendations

Based on the findings, the following recommendations are proposed:

1.Foster Active Student Engagement

Implement participatory strategies such as group discussions, reflective tasks, and peer feedback to enhance motivation and ownership.

2.Strengthen Academic Support Services

Ensure accessible advising, structured feedback, and tailored assistance, particularly for students with lower academic readiness.

3.Expand Non-Academic and Emotional Support

Promote dorm-based mentoring and wellness activities to cultivate belonging and psychological safety in emotionally demanding fields.

4.Refine Course Structure

Improve curriculum clarity, integrate theory and practice, and adopt flexible assessments to enhance learning coherence.

5.Upgrade Educational Facilities

Provide interactive classrooms, digital resources, and hands-on simulation environments to support active learning.

6.Embed Student Satisfaction into Institutional Strategy

Establish regular feedback loops, cross-departmental collaboration, and satisfaction-driven quality assurance mechanisms.

These measures support a more student-centered, responsive approach to vocational education aligned with national reform goals.

Limitations and Future Research

Several limitations should be acknowledged:

•The study focused on a single program in one institution, limiting generalizability. Future research should include diverse colleges and disciplines.

•The Strategic Plan was developed and assessed over 24 weeks with 30 participants, without long-term follow-up. Longitudinal studies are recommended.

•The participatory model may suit practice-oriented fields; adaptation in theory-driven programs warrants further exploration.

•Broader aspects of the learning journey—such as digital integration or out-of-class engagement—were not fully examined.

•The qualitative sample included only one teacher and four students. Future work should involve a wider range of stakeholders for deeper insight.

Future research should adopt multi-site, multi-stakeholder, and longer-term approaches to develop scalable strategies for improving student satisfaction in vocational settings.

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