



Factors Affecting Student Satisfaction of Tutoring Classes in a Private Tutoring Center

Jie Han¹, Satha Phongsatha² and Poonpilas Asavisanu³

¹ Ph.D. Candidate, Graduate School of Human Sciences, Assumption University, Bangkok, Thailand

² Program Director of M.Ed. Teaching and Technology, Graduate School of Business and Advanced Technology Management, Assumption University, Bangkok, Thailand

³ Ph.D., Asst. Prof., Educational Administration, and Leadership, Assumption University, Bangkok, Thailand

¹E-mail: 1171730864@qq.com, ORCID ID: <https://orcid.org/0009-0003-5839-2254>

²E-mail: sathaphn@au.edu, ORCID ID: <https://orcid.org/0000-0002-7035-4678>

³E-mail: poonpilasav@au.edu, ORCID ID: <https://orcid.org/0000-0002-4035-3877>

Received 25/06/2024

Revised 10/07/2024

Accepted 10/08/2024

Abstract

Background and Aim: In educational services, particularly tutoring centers, understanding the factors contributing to student satisfaction is crucial. This study aimed to investigate the impact of the variables of competence, responsiveness, empathy, learner-facilitator interaction, and learner-learner interaction on student satisfaction at a tutoring center in Hangzhou, China.

Materials and Methods: The study employed a robust methodological approach; (1) Questionnaire Validation: The validity of the questionnaire was tested using the Item-Objective Congruence (IOC) index, while its reliability was assessed through Cronbach's Alpha in a pilot test (n=30). (2) Data Collection: Data were gathered through surveys conducted via the Wenjuanxing App, yielding 120 valid responses. (3) Data Analysis: 1) Multiple Linear Regression: This technique was applied to the 120 valid questionnaires to verify significant relationships among variables. 2) Strategic Plan Implementation (SPI): A 14-week intervention was conducted with a control group of 30 students to test the impact of strategic changes. 3) Paired-Samples t-tests: These were performed to compare the variables between the pre and post-strategic plan for validation. (4) Statistical Software: Jamovi Statistical Software, version 2.4.1, was utilized for all statistical analyses in this study.

Results: The regression analysis revealed that all five variables significantly influenced student satisfaction. Specifically, tutor competence, responsiveness, and empathy were positively correlated with higher levels of student satisfaction. Additionally, both learner-facilitator and learner-learner interactions were found to enhance the overall satisfaction of students significantly. Following the implementation of the strategic plan designed to improve these variables, the paired samples t-test results indicated notable improvements: tutor competence ($t = -26.0, p < 0.05$), responsiveness ($t = -29.3, p < 0.001$), empathy ($t = -22.7, p < 0.001$), learner-facilitator interaction ($t = -18.0, p < 0.001$), learner-learner interaction ($t = -25.2, p < 0.001$) and satisfaction ($t = -23.5, p < 0.001$) all showed statistically significant enhancements. These findings underscore the critical role of these variables in fostering student satisfaction and demonstrate the effectiveness of the strategic interventions applied in this context.

Conclusion: This study highlights that tutor competence, responsiveness, empathy, and effective interactions are crucial for student satisfaction in tutoring centers. Implementing the strategic plan notably improved these areas, emphasizing their importance. These insights can enhance tutoring services, aiding Chinese students in their academic goals.

Keywords: Competence; Responsiveness; Empathy; Interaction; Students' satisfaction

Introduction

Private tutoring has emerged as a critical aspect of educational management, playing a significant role in enhancing the quality and effectiveness of learning systems (Ilham et al., 2023; Muhammad et al., 2023; Pertiwi et al., 2023). In today's highly competitive academic environment, parents increasingly seek to ensure the best possible education for their children, often turning to private tutoring as a preferred solution (Alhajri & Al-Hadrami, 2024). This trend highlights a growing dependence on supplementary educational support to meet academic goals and improve student performance.

Despite the advantages of private tutoring, it faces several challenges. In traditional schools, large class sizes restrict teachers' ability to offer personalized support, leading to inadequate practice and feedback for students (Darling-Hammond, 2006; Hattie, 2008). This situation widens disparities among students, negatively affecting the self-confidence of those who struggle to keep pace. Schools often prioritize enrollment rates and academic performance as measures of teacher effectiveness, which can result in





preferential treatment for high-achieving students, intensifying class polarization and increasing pressure on students and their families (Blatchford et al., 2011; Popham, 2009; Lareau, 2003). Although private tutoring centers can effectively complement traditional education, the fierce competition among centers and high student mobility mean that dissatisfied students frequently switch to different providers.

Given the growing competition among private tutoring centers and the high turnover rate of students, it is crucial to understand and improve student satisfaction with tutoring services to ensure the success and sustainability of these centers (Bray, 2009). Preliminary findings suggest that while the center aims to provide high-quality tutoring, there is considerable room for improving overall student satisfaction.

Objectives

The purpose of this study was to investigate the influence of teacher competence, responsiveness, empathy, learner-facilitator interaction, and learner-learner interaction, on student satisfaction. To test the influence, this study integrates a variety of research theories and previous literature from different perspectives to develop a research model. In addition, the research aims to design and implement an appropriate Strategic Plan on Competence, Responsiveness, Empathy, Learner-Facilitator Interaction, and Learner-Learner Interaction to improve Satisfaction. After the implementation, the differences in Competence, Responsiveness, Empathy, Learner-Facilitator Interaction, and Learner-Learner Interaction with Satisfaction between the pre- and post-strategic Plan phases were compared.

Literature review

1. Satisfaction

Given that students harbor various expectations regarding their educational encounters, numerous scholars conceptualize student satisfaction as a multi-faceted construct (Hanssen & Solvoll, 2015; Jereb et al., 2018; Nastasić et al., 2019; Weerasinghe et al., 2017). Satisfaction is the emotional state resulting from evaluating the fulfillment of expectations through performance (Arif & Ilyas, 2013). Student satisfaction refers to "the importance learners place on their academic experiences within an instructional context" (Bolliger & Erichsen, 2013). Various factors influence student satisfaction, such as teacher competence, learning environment, communication effectiveness, active educational interaction, and school reputation (Wu et al., 2010). In general, student satisfaction is often regarded as a transient sentiment, reflecting students' subjective assessments of whether their anticipated educational experiences have been fulfilled or surpassed (Elliott & Healy, 2001; Elliott & Shin, 2002). As per Sweeney and Ingram (2001), student satisfaction can be described as the enjoyment and achievement students derive from their study environment.

Deeply satisfied students contribute to student loyalty, benefiting higher education institutions in various ways. (Paul & Pradhan, 2019; Senior et al., 2017). Exceptional learning experiences and high satisfaction levels with provided services are key factors distinguishing one higher education institution from its competitors (McLeay et al., 2017). High levels of student satisfaction yield tangible commercial benefits. Satisfied students are more likely to stay with their current institutions and recommend them to potential future students (Mihanović et al., 2016). Bollinger and Erichsen (2013) found variations in how students perceive satisfaction in blended and online courses, influenced by personality types. In a study involving 397 students, Eom et al. (2006) identified key factors for student satisfaction with teacher interactions, highlighting the importance of regular feedback, active facilitation of learning, and teachers' strong subject knowledge. Many educational institutions view their online students as clients, emphasizing the significance of their satisfaction for both student retention and recruitment purposes (Emery et al., 2001).

2. Competence

Teacher professional competence is the ability or competency required to properly perform the duties of a teacher (Estiani & Hashanah, 2022). The ability to manage student learning, including student understanding, development, and implementation of learning, is referred to as pedagogic teacher





competence, and this competence must be possessed by a good teacher (Darminto, 2021). Teacher competence refers to the personal characteristics (e.g., knowledge and motivation) of teachers (Fauth et al., 2019). Teacher competence is the ability of teachers to teach effectively (De-Ketele, 1996). Competence is given a broad interpretation as encompassing knowledge, abilities, and attitudes, as these are evidenced in action in a particular context (Nordenbo et al., 2008).

Zhang and Zhang (2021) discovered direct causal links between satisfaction with teaching competence and motives for English learning. Additionally, they found that satisfaction indirectly influenced various English learning motives. Granero-Gallegos et al. (2020) investigated 758 students across seven Spanish public secondary schools and concluded that teaching competence significantly affects handling disruptive behaviors and influences students' satisfaction with school. Latip et al. (2020) found that lecturers' knowledge, industry expertise, and motivations significantly impact student satisfaction and loyalty in Malaysian higher education, emphasizing the importance of maintaining high service quality through capable teachers for fostering student loyalty, institutional sustainability, and a positive market reputation. Long et al. (2014) assessed 14 competencies with 260 students, finding that factors like subject knowledge, presentation clarity, student interaction, teaching creativity, learning outcome clarification, class activities, and lecture notes significantly correlated with student satisfaction. The lecturer's subject knowledge was identified as the most influential factor. Gee (2018) examined tutor competencies' impact on student satisfaction at a Malaysian private higher-learning institution and found a positive correlation between tutor competencies and student satisfaction. Iqbal et al. (2019) assessed teachers' competencies based on indicators such as subject matter knowledge, presentational skills, interaction with students, and evaluation methods and found that a teacher's content knowledge played a significant role in scholars' satisfaction and academic performance.

These studies have led to the following hypothesis:

H1: The competence of tutoring centers has a significant effect on satisfaction.

3. Responsiveness

Teacher responsiveness can be described as the capacity to offer students emotional support, such as comfort and warmth, and to cater to students' unique learning requirements by delivering insightful and well-timed pedagogical and organizing assistance (Walker & Hoover-Dempsey, 2015). Responsiveness is characterized by how a teacher addresses students' learning requirements, resolves their issues, assists them in completing assignments, and enhances their academic achievements (Ahmed et al., 2010). Teaching responsiveness, a facet of teaching style, involves demonstrating sensitivity and receptiveness to students' demands while displaying warmth for them (Dever & Karabenick, 2011). Based on the cognitive research tradition, most of the existing literature emphasizes teachers' responsiveness as centered around the act of paying attention to and addressing students' thoughts (e.g., Hutchison & Hammer, 2010; Levin et al., 2009; Levin et al., 2012; Thompson et al., 2016).

Darawong and Sandmaung (2019) examined the effect of service quality on student satisfaction in international programs at Thai tertiary institutions, involving 398 students. They found that responsiveness had the most significant impact on satisfaction, with empathy and quality of amenities also being crucial factors. Stephen et al. (2019) surveyed 384 students from public and private educational institutions in Kota Kinabalu, Sabah. They found that administrative service quality and teaching effectiveness significantly contribute to overall student satisfaction. Additionally, aspects like responsiveness, assurance, and tangibility greatly influence student satisfaction, while empathy and reliability have less impact. Lien (2017) assessed training service quality at a Vietnamese academic institute and its effect on student satisfaction. Using the SERVQUAL model, data from 105 respondents were collected via questionnaire survey, revealing significant correlations between satisfaction and five key variables (Responsiveness, Reliability, Empathy, Tangibles, and Assurance) through linear regression analysis. Ahmed et al. (2014) discovered that a supportive environment with high perceived organizational support positively impacted teachers at Pakistan's largest public university, enhancing their responsiveness to students' needs, ultimately leading to increased student satisfaction and academic performance. Ahmed et al. (2010) found that a





teacher's responsiveness positively influences students' satisfaction with both their teachers and academic institutions, as students often perceive teachers as primary representatives of the institution. Douglas et al. (2008) surveyed 163 UK undergraduate students using the Critical Incident Technique, revealing that responsiveness, communication, and visitation significantly impact student satisfaction. Browne et al. (1998) determined that an institution's prestige and student satisfaction are influenced by both the responsiveness of teachers and the level of satisfaction students have with their instructors. Ames (1990) contends that the results of the learning experience hinge on both the process of learning itself and the very quality of the engagement in the learning process, such as the responsiveness of teaching in the context of that process.

Referring to the aforementioned studies, we can thus conclude the hypothesis:

H2: Responsiveness of tutoring centers has a significant effect on satisfaction.

4. Empathy

Empathy refers to being deeply concerned with the thoughts and emotions of others, stepping into their shoes, and making an effort to understand their perspective (Stojiljković et al., 2012). Tettegah and Anderson (2007) characterized teacher empathy as the ability to effectively engage with students' worries, comprehend their issues, and view circumstances through the perspective of the learners. Decety and Jackson (2006) define empathy as empathetic trans-personal thinking, which is our aptitude to comprehend the feelings of others. Baron-Cohen and Wheelwright (2004) define empathy as understanding and responding to others' thoughts and emotions, involving cognitive comprehension and suitable emotional reactions.

Saori et al. (2023) examined the influence of teacher empathy, system quality, and prestige on student satisfaction in an Indonesian high school physical education curriculum. Gathering 364 responses through an online survey, they observed a significant positive correlation among these factors, all contributing significantly to student satisfaction. Fahlevi and Leonita (2022) investigated 239 students enrolled in Binus Online Learning. They discovered that factors such as teacher empathy, institutional reputation, and system quality, which depend on advanced technology, have a significant impact on student satisfaction. Munoz et al. (2022) investigate how professor empathy affects both course-related and non-course-related aspects, influencing student perceptions and reducing stress levels. Their findings highlight the significance of empathy in boosting student satisfaction, happiness, and resilience. Parahoo et al. (2016) developed a model for online tertiary education satisfaction, based on data from 834 students in Mauritius. They identified four key factors influencing satisfaction: university reputation, physical facilities quality, faculty empathy, and student interactions. RM Hanaysha et al. (2011) discovered a significant positive correlation between the five service quality dimensions (empathy, responsiveness, assurance, tangibility, reliability, collectively known as SERVQUAL) and student satisfaction, based on the completion of 360 out of 1000 distributed surveys. Hasan et al. (2008) studied 200 undergraduate students in two private higher education institutes, finding a strong positive correlation between service quality (empathy, responsiveness, tangibility, assurance, and reliability) and student satisfaction. Regression analysis highlighted empathy and assurance as the most crucial factors influencing student satisfaction.

These investigations could lead to the conclusion of the hypothesis:

H3: Empathy of tutoring centers has a significant effect on satisfaction.

5. Learner-Facilitator Interaction

In the realm of pedagogy, the concept of interaction, when defined narrowly, aligns closely with how interaction is understood in sociology. This typically encompasses various forms of communication between individuals, encompassing interactions between students and educators, as well as interactions among students (Xu et al., 2024). Learner-facilitator interaction involves both asynchronous exchanges via discussion boards and email, as well as synchronous communication through chat and video conferencing, according to Anderson (2003), fostering reciprocal communication between students and instructors. Interaction pertains to the social objectives and mechanisms involved in interpersonal engagement, specifically concerning interactions between students and between students and teachers (Beard & Harper,





2002). Daniel and Marquis (1988) narrowly defined interaction as encompassing only those situations in which the student engages in two-way communication with another individual or individuals. Learner-facilitator interaction involves the instructor guiding and motivating the learner, facilitating new insights into the subject matter. The instructor also serves as a model of expert knowledge, allowing the learner to evaluate their understanding (Moore & Kearsley, 1996). Wagner (1994) provided a detailed definition of interaction as "mutual occurrences involving a minimum of two entities and two activities, where they exert mutual influence on each other."

Mohan et al. (2022) found that student-teacher interactions are crucial for enhancing satisfaction in e-learning. Educators play a pivotal role in steering the learning process, impacting students' overall learning experience, and fostering opportunities for peer interaction (Mohan et al., 2022; Qadir et al., 2022). Elfeky (2018) suggests that interactions between learners and their tutors significantly improve student scores, satisfaction, and higher-level thinking abilities, based on literature reviews. Luo et al. (2017) discovered a significant correlation between student-teacher interaction and students' grades. Mentors not only encourage participation but also shape online academic debates, fostering higher-level cognitive abilities, supported by research by Hesrcu-Kluska (2019) and Hewett et al. (2019). Strong student-teacher interaction enhances evaluation quality and promotes greater engagement on online learning platforms, as suggested by Taib et al. (2021). Ali and Ahmad (2011) investigated the factors influencing student satisfaction in distance learning at a public university in Pakistan. They found that distance learning at this university, similar to traditional education, involved sufficient interaction between students and instructors, well-designed courses, and dedicated instructors. The study highlighted the importance of learner-counselor interaction in improving students' learning experience and satisfaction.

According to the stated literature reviews, the following hypothesis was formulated:

H4: Learner-facilitator interaction in tutoring centers has a significant effect on satisfaction.

6. Learner-Learner Interaction

Learner-learner interaction fosters diverse viewpoints and enhances learning by facilitating exchanges among fellow participants in a course (Hesrcu-Kluska, 2019). It involves various activities such as peer feedback on assignments, sharing work, and providing feedback to one another (Goh et al., 2017). Student-student interaction involves dynamic exchanges between students where they actively engage in discussions, share thoughts, pose questions, and collectively construct new knowledge (Jeong & Hmelo-Silver, 2016). Student-student interaction involves information exchange and communication among students, with collaborative learning being a significant component that fosters critical thinking skills and deeper knowledge acquisition, as emphasized by Anderson (2003). Learner-learner interaction involves learners engaging with each other, either individually or in groups, with or without an instructor present. It is particularly important for applying and assessing new knowledge, as peers serve as a benchmark for understanding (Moore & Kearsley, 1996). Hillman et al. (1994) described student-student and instructor-student interactions as "educational transactions".

Wong and Chapman (2023) conducted research with 280 undergraduate students to explore how different forms of interactions relate to student satisfaction. Their findings revealed that various dimensions of satisfaction were linked to three specific types of interaction: formal student-student, informal student-student, and student-instructor interactions. Aydin (2021) studied factors influencing satisfaction in online education, surveying 208 individuals through online platforms. The research identified four dimensions of satisfaction and highlighted the importance of interactions like student-student, student-content, and student-instructor interactions in shaping satisfaction with online education. Oyarzun et al. (2018) investigated the impact of learner-to-learner interactions on achievement, social presence, and satisfaction in online learning across 17 undergraduate courses. Surveys were distributed to both instructors and students, assessing social presence and interaction quality. Results showed that higher interaction quality correlated with increased social presence of both instructors and students, leading to greater student satisfaction. Nasirun et al. (2017) examined student engagement and interactions across content, instructors, and peers. By surveying 281 diploma students, they identified a strong connection between student



engagement and interactions, with two dimensions of student interactions significantly influencing satisfaction. A study found that student interactions, enabling them to share learning experiences and communicate with peers, increased feelings of collectivity and motivation for collaborative teamwork. These interactions significantly improved learning achievement and overall satisfaction (Sher, 2009). Chang and Smith (2008) investigated the connection between students' perceptions of interactions in a learner-centered distance education course and their overall satisfaction. Surveying 855 Computer Science students at an Iowa public university, they found that personal interactions with instructors and peers, engagement with course content, perspectives on Web Course Tools features, and gender were factors influencing student satisfaction levels.

From these supported studies, the following hypothesis has been formulated:

H5: Learner-learner interaction in tutoring centers has a significant effect on satisfaction.

Conceptual Framework

The research established its conceptual framework by integrating insights into the findings of previous studies. This framework is grounded in the SERVPERF Model by Parasuraman et al. (1985), the SERVQUAL Model by Parasuraman et al. (1988), and Astin's Input-Environment-Output (IEO) Model (1993). These models form the basis of the research's conceptual structure. The pivotal previous studies were conducted by Ahmed et al. (2010), Phimmasenh and Nouansavanh (2015), Darawong and Widayati (2022), Wang et al. (2023), and Nyathi and Sibanda (2023).

The developed conceptual framework is depicted in Figure 1.

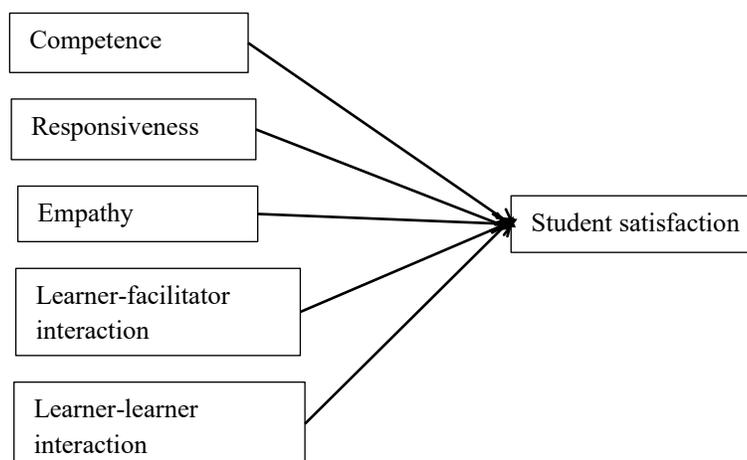


Figure 1 Conceptual Framework

According to the conceptual framework, this study puts forward five research hypotheses. Therefore, the research hypotheses are outlined as follows:

H1: Competence has a significant effect on satisfaction.

H2: Responsiveness has a significant effect on satisfaction.

H3: Empathy has a significant effect on satisfaction.

H4: Learner-facilitator interaction has a significant effect on satisfaction.

H5: Learner-learner interaction has a significant effect on satisfaction.

Methodology

1. Research Phases and Analysis

The research comprised four clear phases. At the outset, a preliminary survey, including a literature review and small-scale interviews or questionnaires, was conducted to collect existing data and information and to gain initial insights into the issue of student satisfaction at SJTC. Then, a survey was conducted



among 125 students (n=125) enrolled in private tutoring classes at SJTC, aimed at collecting fundamental data for the conceptual framework under development. Following this, the five hypotheses underwent rigorous examination through multiple linear regression analysis to ascertain their significance, indicated by a p-value of < 0.05 . Consequently, hypotheses with sufficient support were upheld, while those failing to meet the criterion were discarded. The third stage built upon the validated hypotheses, involving the administration of a survey to 30 students to assess the reliability of the questionnaire. The fourth stage initiated the implementation of the strategic plan, a research process executed by a group of 30 participants. Ultimately, the 30 participants involved in the strategic plan completed a survey, which provided the essential pre- and post-survey data for conducting a paired-sample t-test analysis. This analysis revealed both similarities and differences between the pre- and post-strategic plan phases. The study's objectives and hypotheses were comprehensively scrutinized through this process.

2. Research Population

This thesis focuses its inquiry on students attending grades 10 through 12 within SJTC. Throughout the academic year spanning from 2023 to 2024, a cohort of 125 students engaged actively in the study within the tutoring center premises. This student body serves as the research population under examination. A survey was distributed to the entire group of 125 students, and upon meticulous examination of the collected questionnaires, a total of 120 responses were deemed valid for inclusion in the analysis.

3. Sample size

The researcher conducted a random survey of 30 students and assessed the questionnaire's reliability through testing. Subsequently, the researcher identified 125 students attending private tutoring classes across three subjects at SJTC, securing 120 valid responses. These responses underwent thorough analysis using multiple linear regression to explore the connection between independent and dependent variables. Finally, the researcher handpicked 30 students to participate in implementing the strategic plan. Pairwise analyses were then employed to examine the disparities between the current situation and the expected situation.

4. Sampling Procedures

The researcher administered various sampling surveys during the study, with the sampling procedures detailed as follows:

Sampling 1: Sampling for reliability. A simple random sampling method was adopted. 30 students were selected from SJTC to complete a survey questionnaire. Their responses were analyzed to determine the questionnaire's reliability.

Sampling 2: Sampling for pre-survey. Targeted Sampling was employed. Using Questionnaire Star, the researcher distributed questionnaires to 125 students enrolled in private tutoring for three subjects at SJTC. After reviewing the questionnaires, 120 valid responses were confirmed.

Sampling 3: Sampling for Strategic Plan Implementation. Purposive Sampling was used. Thirty Grade 12 students from Class 1 at SJTC, all of whom are enrolled in English tutoring, were purposively selected to implement the strategic plan, as the preliminary survey results indicated that this class had the lowest satisfaction with their tutoring.

5. Human Research Ethics

The researcher conducted the research concerning participants' rights and anonymity. All participants were informed about the research and allowed to participate, cancel, or refuse to provide data at any time. Personal information such as names, IDs, and other identifications were not collected during the study. All of the data were analyzed as groups and not shared with others. Permission to conduct the research and collect data was obtained before the data collection process.

6. Design of Questionnaire

The researchers developed the questionnaire in a three-step process:

Step 1: Sources for the questionnaire were identified from three published articles (Ahmed et al., 2010; Darawong & Widayati, 2022; Nyathi & Sibanda, 2023).



Step 2: The questionnaire was tailored to align with the needs and characteristics of Chinese tutoring center students.

Step 3: Validation and reliability testing were conducted on the questionnaire.

7. Components of Questionnaire

The questionnaire is divided into two sections.

The initial segment is primarily dedicated to capturing the foundational details of the participants, encompassing inquiries related to demographics such as gender, grade level, and tutoring subjects. Meanwhile, the second section serves as the focal point of the questionnaire, housing all inquiries concerning the independent and dependent variables. Within this section, the independent variables under investigation encompass Competence, Responsiveness, Empathy, Learner-Facilitator Interaction, and Learner-Learner Interaction, while the dependent variable is Satisfaction. This structured approach ensures a comprehensive examination of both participant characteristics and the key factors influencing their satisfaction levels.

8. Strategic plan implementation Stage

The researcher implemented a 14-week strategic plan starting on December 2, 2023, and concluding on March 10, 2024. This plan aimed to enhance student satisfaction by analyzing quantitative data collected before and after its execution in a paired fashion. The steps of the strategic plan implementation are depicted in Figure 2

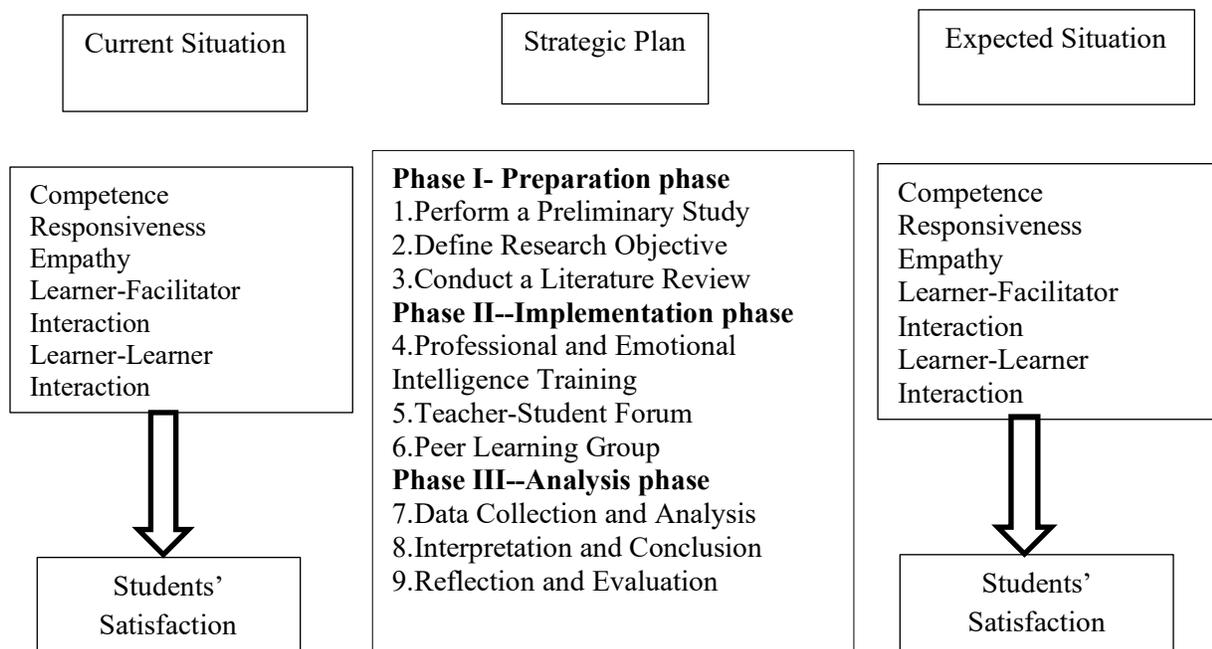


Figure 2 The strategic plan model finalized

Results

1. IOC Results

The researcher enlisted the evaluation of five experts to individually assess the questionnaire and apply the Index of Item-Objective Congruence (IOC). Among them, three were Thai professors, while the remaining two hailed from China. During the IOC evaluation, independent experts assigned a score of +1 for congruence, 0 for questionable alignment, and -1 for incongruence. Notably, all questionnaire items in this study scored higher than 0.80, prompting the researcher to retain all items for further analysis.

2. Pilot survey and Pilot test results



The researcher conducted a pilot survey with 30 randomly selected students, requesting them to complete a survey questionnaire and provide feedback. Subsequently, the researcher employed Cronbach's Alpha test to assess the internal consistency reliability, with values expected to be equal to or greater than 0.7 (Nunnally & Bernstein, 1994). As a result, the table below illustrates the confirmed outcomes indicating high reliability for each construct.

Table 1 The value of Cronbach's Alpha of each construct in this study

Variables	No. of items	Cronbach's Alpha	Strength of association
Competence	4	.809	Good
Responsiveness	5	.829	Good
Empathy	4	.804	Good
Learner-Facilitator Interaction	3	.850	Good
Learner-Learner Interaction	3	.849	Good
Satisfaction	6	.834	Good

3. Demographic Profile

The researcher provided an overview of the complete study population (n=120) and also presented fundamental data regarding the specific group of students (n=30) involved in the implementation of the strategic plan, as depicted in Table 2.

Table 2 Frequency table

Entire Research Population (n=120)		Frequency	Percent
Gender	Male	50	41.7
	Female	70	58.3
Grades	Ten	29	24.2
	Eleven	36	30.0
	Twelve	55	45.8
Subject	Maths	44	36.7
	English	39	32.5
	Chinese	37	30.8
Total		120	100%
Strategic Plan Participants (n=30)		Frequency	Percent
Gender	Male	13	43.33
	Female	17	56.67
Total		30	100%
Subject	English	30	100%

4. Results of multiple linear regression

Through multiple linear regression analysis, the researcher discovered that all p-values were below 0.05, signifying significant effects of the five dimensions of independent variables on the dependent variable. The R-squared value stood at 0.924, indicating that the independent variables explained 92.4% of the variance in the dependent variable. Moreover, significant values ($p < 0.05$ and $t > 1.98$) suggest that all independent variables influence satisfaction. Standardized regression coefficients for all five variables exceeded 0, indicating a positive correlation between each independent variable and the dependent variable.

In statistical terms, competence, responsiveness, learner-facilitator interaction, and empathy displayed a greater impact on satisfaction compared to learner-learner interaction. Variance inflation factor (VIF) values for these dimensions were 4.28, 4.83, 3.08, 4.51, and 2.39, respectively. All values were below 5, indicating an absence of multicollinearity among the five independent variables.





Table 3 The multiple linear results of the five independent variables on student satisfaction

Variables	Standardized Coefficients beta	VIF	t	P-value	R	R Square
Competency	.252	4.28	5.268	<0.001		
Responsiveness	.238	4.83	4.212	<0.001		
Empathy	.176	3.08	3.503	<0.001	.961	.924
Learner-Facilitator Interaction	.197	4.51	4.603	<0.001		
Learner-Learner Interaction	.128	2.39	3.253	.002		

Dependent variable: Satisfaction

Note: p-value <0.05*

In brief, all five hypotheses (H1, H2, H3, H4, and H5) were upheld. Thus, the hypotheses were progressively formulated based on the outcomes of the multiple linear regression analysis. Subsequently, the implementation of the strategic plan was examined by the following hypotheses:

H6 There is a significant difference in competence between the current situation and the expected situation.

H7 There is a significant difference in responsiveness between the current situation and the expected situation.

H8 There is a significant difference in empathy between the current situation and the expected situation.

H9 There is a significant difference in learner-facilitator interaction between the current situation and the expected situation.

H10 There is a significant difference in learner-learner interaction between the current situation and the expected situation.

H11 There is a significant difference in satisfaction between the current situation and the expected situation.

5. Results comparison between the current situation and the expected situation

Before and after implementing the strategic plan, the same questionnaire was given to the 30 students involved in the strategic plan to assess changes in their perceptions of the tutoring classes. Based on the questionnaire responses, the researcher conducted a paired samples t-test analysis on all six variables, including both independent and dependent, to ascertain differences in student satisfaction between the current and anticipated situations, and whether these variances signify enhancements. The table below illustrates the results of the paired samples t-test analysis for the six variables.





Table 4 Paired-Sample T-Test Results

Variables	Stages	Mean	SD	SE	t-value	P-value
Competence	Expected situation	4.04	0.405	0.0740		
	Current situation	2.89	0.326	0.0596	-26.0	<0.001
Responsiveness	Expected situation	4.04	0.398	0.0727		
	Current situation	2.78	0.312	0.0570	-29.3	<0.001
Empathy	Expected situation	4.01	0.386	0.0704		
	Current situation	2.78	0.299	0.0546	-22.7	<0.001
Learner-Facilitator Interaction	Expected situation	3.91	0.446	0.0814		
	Current situation	2.73	0.344	0.0627	-18.0	<0.001
Learner-Learner Interaction	Expected situation	3.91	0.338	0.0618		
	Current situation	2.72	0.340	0.0621	-25.2	<0.001
Satisfaction	Expected situation	4.02	0.278	0.0508		
	Current situation	2.88	0.211	0.0384	-23.5	<0.001

Table 4 illustrates the outcomes derived from the paired samples t-test analysis for the comparisons between the current situation and the expected situation, outlined as follows:

Table 4 reveals a notable increase in Competence in the expected situation ($M=4.04$, $SD=0.405$, $SE=0.0740$) compared to the current situation ($M=2.89$, $SD=0.326$, $SE=0.0596$), with a t-value of -26.0 and p-value of less than 0.001. The mean value difference is calculated to be 1.15. Hence, Hypothesis 6, stating a significant difference in Competence between the current situation and the expected situation, is supported.

The analysis reveals a notable increase in Responsiveness in the expected situation ($M=4.04$, $SD=0.398$, $SE=0.0727$) compared to the current situation ($M=2.78$, $SD=0.312$, $SE=0.0570$), with a t-value of -29.3 and p-value of less than 0.001. The mean value difference is calculated to be 1.26. Consequently, Hypothesis 7, which posits a significant difference in Responsiveness between the current situation and the expected situation, is supported.

The analysis reveals a considerable increase in Empathy in the expected situation ($M=4.01$, $SD=0.386$, $SE=0.0704$) compared to the current situation ($M=2.78$, $SD=0.299$, $SE=0.0546$), with a t-value of -22.7 and a p-value of less than 0.001. The mean value difference is calculated to be 1.23. Consequently, Hypothesis 8, which suggests a significant difference in Empathy between the current situation and the expected situation, is supported.

The analysis reveals a noteworthy increase in Learner-Facilitator Interaction in the expected situation ($M=3.91$, $SD=0.446$, $SE=0.0814$) compared to the current situation ($M=2.73$, $SD=0.344$, $SE=0.0627$), with a t-value of -18.0 and a p-value of less than 0.001. The mean value difference is calculated to be 1.18. Consequently, Hypothesis 9, which suggests a significant difference in Learner-Facilitator Interaction between the current situation and the expected situation, is supported.

The analysis reveals a notable increase in Learner-Learner Interaction in the expected situation ($M=3.91$, $SD=0.338$, $SE=0.0618$) compared to the current situation ($M=2.72$, $SD=0.340$, $SE=0.0621$), with a t-value of -25.2 and a p-value of less than 0.001. The mean value difference is calculated to be 1.19. Consequently, Hypothesis 10, which posits a significant difference in Learner-Learner Interaction between the current situation and the expected situation, is supported.

The analysis reveals a substantial increase in Satisfaction in the expected situation ($M=4.02$, $SD=0.278$, $SE=0.0508$) compared to the current situation ($M=2.88$, $SD=0.211$, $SE=0.0384$), with a t-value of -23.5 and a p-value of less than 0.001. The mean value difference is calculated to be 1.14. Consequently, Hypothesis 11, which suggests a significant difference in Satisfaction between the current situation and the expected situation, is supported.

Drawing from the outcomes of the aforementioned paired samples t-test, the researcher arrived at the following conclusions. Firstly, a notable mean difference was observed between the current situation and





the expected situation across all six variables. Secondly, it was noted that there was a remarkable increase in student satisfaction between the current situation and the expected situation.

Discussion

Chinese students enroll in private tutoring for diverse reasons, driven by intense academic pressure, personalized learning needs, and parental aspirations for competitive advantage. These motivations reflect a complex interplay of educational, familial, and personal factors, prompting students to seek additional academic support to excel, compensate for curriculum gaps, and deepen subject understanding.

In China's competitive private tutoring market, centers vie for students through extensive service offerings, including academic tutoring, test preparation, and innovative programs targeting various subjects and grades. Competition intensifies with technological advancements integrating online platforms and interactive tools to enhance learning experiences and reach broader audiences. Centers differentiate themselves through marketing, academic excellence, and personalized approaches, leveraging pricing strategies to attract and retain students.

Amid this competition, ensuring student satisfaction in private tutoring becomes crucial. The study explores factors such as Competence, Responsiveness, Empathy, Learner-Facilitator Interaction, and Learner-Learner Interaction, which influence satisfaction levels. Despite efforts by current centers to enhance satisfaction, further empirical research is needed to substantiate these findings and understand the dynamics shaping student satisfaction comprehensively.

Conclusion

This study investigates the impact of Competence, Responsiveness, Empathy, Learner-Facilitator Interaction, and Learner-Learner Interaction on student Satisfaction within a private tutoring center. Through the utilization of surveys, the research sought to identify and enhance the factors influencing student satisfaction. Subsequently, a Strategic Plan was devised and executed to address these areas of improvement seamlessly.

Initially, a SWOT analysis was conducted to assess the current satisfaction levels. Subsequently, initial and preliminary interviews were carried out at the private tutoring center, followed by the distribution of 120 questionnaires. These steps aimed at identifying significant improvement areas in teacher Competence, Responsiveness, Empathy, and interactions. As part of the strategic plan's implementation, 30 students participated in activities designed to enhance these factors. Post-implementation feedback collected through questionnaires confirmed that these initiatives positively influenced student satisfaction.

The research demonstrated that improving teacher Competence, Responsiveness, Empathy, and interactions through targeted strategies significantly boosts student satisfaction. Initiatives like Professional and Emotional Intelligence Training, Teacher-Student Forums, and Peer Learning Groups proved effective in enhancing the tutoring experience.

Recommendation

To enhance student satisfaction in private tutoring centers, stakeholders should prioritize strategies focused on improving educational experiences. Key recommendations include:

1. Strengthen Competence Development Among Tutoring Staff

Tutoring centers should invest in professional development to enhance tutors' subject mastery, instructional techniques, and pedagogical methods. This can be achieved through training sessions, mentorship programs, and constructive feedback mechanisms.

2. Elevate Responsiveness to Student Needs

Tutoring centers must prioritize responsiveness by establishing clear communication channels and feedback systems. Tutors should be trained in active listening and empathetic communication to better address students' unique learning needs.

3. Cultivate Empathetic Bonds Between Tutors and Students





Empathy is crucial for student satisfaction. Tutors should build supportive, understanding relationships with students. Tutoring centers should select and train tutors with strong interpersonal skills and empathy. Peer mentoring programs and group activities can foster a sense of community among students.

4. Encourage Collaborative Learning Environments

Enhancing Learner-Facilitator and Learner-Learner Interactions through collaborative learning environments is essential. Tutoring sessions should promote group activities, discussions, and peer-to-peer learning. Facilitating peer tutoring programs or study groups can foster collaboration and inclusivity, improving overall satisfaction.

In summary, addressing student satisfaction requires comprehensive strategies focusing on competence, responsiveness, empathy, and collaboration. Implementing these recommendations can create a nurturing, interactive educational atmosphere, boosting both satisfaction and academic achievement.

References

- Ahmed, I., Khairuzzaman Wan Ismail, W., Mohamad Amin, S., & Islam, T. (2014). Role of perceived organizational support in teachers' responsiveness and students' outcomes: Evidence from a public sector University of Pakistan. *International Journal of Educational Management*, 28(2), 246-256. <https://doi.org/10.1108/IJEM-02-2013-0031>
- Ahmed, I., Nawaz, M. M., Ahmad, Z., Ahmad, Z., Shaukat, M. Z., Usman, A., & Ahmed, N. (2010). Does service quality affect students' performance? Evidence from institutes of higher learning. *African journal of business management*, 4(12), 2527-2533.
- Alhajri, R., & Al-Hadrami, A. (2024). The relationship between private lessons and academic achievement among students in grades 9-12 in the Sultanate of Oman. *Kurdish Studies*, 12(1), 202-213.
- Ali, A., & Ahmad, I. (2011). Key factors for determining student satisfaction in distance learning courses: A study of Allama Iqbal Open University. *Contemporary Educational Technology*, 2(2), 118-134.
- Ames, C. A. (1990). Motivation: What teachers need to know. *Teachers College Record*, 91(3), 409-421.
- Anderson, T. (2003). Getting the mix right again: An updated and theoretical rationale for interaction. *The International Review of Research in Open and Distributed Learning*, 4(2), 9-14.
- Arif, S., & Ilyas, M. (2013). Quality of work-life model for teachers of private universities in Pakistan. *Quality Assurance in Education*, 21(3), 282-298. <https://doi.org/10.1108/QAE-Feb-2012-0006>
- Astin, A. W. (1993). *What Matters in College?* San Francisco: Jossey-Bass.
- Aydin, B. (2021). Determining the effect of student-content interaction, instructor-student interaction, and student-student interaction on online education satisfaction level. *University of South Florida (USF) M3 Publishing*, 3, 16. <https://www.doi.org/10.5038/9781955833042>
- Baker, D. P., Akiba, M., LeTendre, G. K., & Wiseman, A. W. (2001). Worldwide shadow education: Outside-school learning, institutional quality of schooling, and cross-national mathematics achievement. *Educational Evaluation and Policy Analysis*, 23(1), 1-17. <https://doi.org/10.3102/01623737023001001>
- Baron-Cohen, S., & Wheelwright, S. (2004). The empathy quotient: An investigation of adults with Asperger syndrome or high-functioning autism, and normal sex differences. *Journal of Autism and Developmental Disorders*, 34, 163-175.
- Beard, L. A., & Harper, C. (2002). Student perceptions of online versus on-campus instruction. *Education*, 122(4), 658-663.
- Blatchford, P., Bassett, P., & Brown, P. (2011). Examining the effect of class size on classroom engagement and teacher-pupil interaction: Differences about pupil prior attainment and primary vs. secondary schools. *Learning and Instruction*, 21(6), 715-730. <https://doi.org/10.1016/j.learninstruc.2011.04.001>





- Bolliger, D. U., & Erichsen, E. A. (2013). Student satisfaction with blended and online courses based on personality type. *Canadian Journal of Learning and Technology*, 39(1), 1-23.
- Bray, T.M. (2009). *Confronting the shadow education system: What government policies for what private tutoring?* Paris: UNESCO International Institute for Educational Planning.
- Browne, B. A., Kaldenberg, D. O., Browne, W. G., & Brown, D. J. (1998). Student as customer: Factors affecting satisfaction and assessments of institutional quality. *Journal of marketing for higher education*, 8(3), 1-14. https://doi.org/10.1300/J050v08n03_01
- Chang, S. H. H., & Smith, R. A. (2008). Effectiveness of personal interaction in a learner-centered paradigm distance education class based on student satisfaction. *Journal of Research on Technology in Education*, 40(4), 407-426.
- Daniel, J., & Marquis, C. (1988). Interaction and independence: Getting the mix right. In D. Sewart, D. Keegan, & B. Holmberg (Eds.), *Distance education: International perspectives* (pp. 339–359). Routledge.
- Darawong, C., & Sandmaung, M. (2019). Service quality enhancing student satisfaction in international programs of higher education institutions: A local student perspective. *Journal of Marketing for Higher Education*, 29(2), 268-283. <https://doi.org/10.1080/08841241.2019.1647483>
- Darawong, C., & Widayati, A. (2022). Improving student satisfaction and learning outcomes with the service quality of online courses: evidence from Thai and Indonesian higher education institutions. *Journal of Applied Research in Higher Education*, 14(4), 1245-1259. <https://doi.org/10.1108/JARHE-02-2021-0074>
- Darling-Hammond, L. (2006). *Powerful teacher education: Lessons from exemplary programs*. John Wiley & Sons.
- Darminto, R. (2021). Upaya Meningkatkan Kompetensi Pedagogik Guru dalam Merencanakan dan Melaksanakan Pembelajaran Daring Melalui Supervisi Berkelanjutan. *Journal on Education*, 4(1), 142-156. <https://doi.org/10.31004/joe.v4i1.410>
- Decety, J., & Jackson, P. (2006). A social-neuroscience perspective on empathy. *Current Directions in Psychological Science*, 15(2), 54-58. <https://doi.org/10.1111/j.0963-7214.2006.00406.x>
- De-Ketele, J. M. (1996). Evaluation of educational achievement: What? Why? For what? *Journal Tunisian Science Education*, 23, 17-36.
- Dever, B. V., & Karabenick, S. A. (2011). Is authoritative teaching beneficial for all students? A multi-level model of the effects of teaching style on interest and achievement. *School Psychology Quarterly*, 26(2), 131. <https://doi.org/10.1037/a0022985>
- Douglas, J., McClelland, R., & Davies, J. (2008). The development of a conceptual model of student satisfaction with their experience in higher education. *Quality assurance in education*, 16(1), 19-35. <https://doi.org/10.1108/09684880810848396>
- Elfeky, A. I. M. (2018). The effect of personal learning environments on participants' higher-order thinking skills and satisfaction. *Innovations in Education and Teaching International*, 56(4), 505-516. <https://doi.org/10.1080/14703297.2018.1534601>
- Elliott, K. M., & Healy, M. A. (2001). Key factors influencing student satisfaction related to recruitment and retention. *Journal of Marketing for Higher Education*, 10(4), 1-11. <https://doi.org/10.1300/J050v10n0401>
- Elliott, K. M., & Shin, D. (2002). Student satisfaction: An alternative approach to assessing this important concept. *Journal of Higher Education Policy and Management*, 24(2), 197-209. <https://doi.org/10.1080/1360080022000013518>
- Emery, C., Kramer, T., & Tian, R. (2001). Customers vs. products: Adopting an effective approach to business students. *Quality Assurance in education*, 9(2), 110-115. <https://doi.org/10.1108/09684880110389681>





- Eom, S. B., Wen, H. J., & Ashill, N. (2006). The determinants of students' perceived learning outcomes and satisfaction in university online education: An empirical investigation. *Decision Sciences Journal of Innovative Education*, 4(2), 215-235. <https://doi.org/10.1111/j.1540-4609.2006.00114.x>
- Estiani, S. W., & Hasanah, E. (2022). Principal's Leadership Role in Improving Teacher Competence. *Nidhomul Haq: Jurnal Manajemen Pendidikan Islam*, 7(2), 229-241. <https://doi.org/10.31538/ndh.v7i2.2281>
- Fahlevi, M., & Leonita, L. (2022). The Role of Gender in Moderating The Effect of Teachers Empathy, Reputation, and System Quality on Student Satisfaction Online Learning Program. In *2022 4th International Conference on Cybernetics and Intelligent Systems (ICORIS) (pp. 1-4)*. IEEE. <https://doi.org/10.1109/ICORIS56080.2022.10031371>
- Fauth, B., Decristan, J., Decker, A. T., Büttner, G., Hardy, I., Klieme, E., & Kunter, M. (2019). The effects of teacher competence on student outcomes in elementary science education: The mediating role of teaching quality. *Teaching and teacher education*, 86, 102882. <https://doi.org/10.1016/j.tate.2019.102882>
- Gee, N. C. (2018). The impact of lecturers' competencies on students' satisfaction. *Journal of Arts and Social Sciences*, 1(2), 74-86.
- Goh, C., Leong, C., Kasmin, K., Hii, P., & Tan, O. (2017). Students' experiences, learning outcomes and satisfaction in e-learning. *Journal of E-learning and Knowledge Society*, 13(2), 117-128. <https://www.learntechlib.org/p/188116/>
- Granero-Gallegos, A., Baños, R., Baena-Extremera, A., & Martínez-Molina, M. (2020). Analysis of misbehaviors and satisfaction with school in secondary education according to student gender and teaching competence. *Frontiers in Psychology*, 11, 63. <https://doi.org/10.3389/fpsyg.2020.00063>
- Hanssen, T., & Solvoll, G. (2015). The importance of university facilities for student satisfaction at a Norwegian University. *Facilities*, 33(13/14), 744-759. <https://doi.org/10.1108/F-11-2014-0081>
- Hasan, H. F. A., Ilias, A., Rahman, R. A., & Razak, M. Z. A. (2008). Service quality and student satisfaction: A case study at private higher education institutions. *International business research*, 1(3), 163-175.
- Hattie, J. (2008). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.
- Hesrcu-Kluska, R. (2019). The interaction between learners and learner-facilitator in an online learning environment. *Creative Education*, 10(7), 1713-1730. <https://doi.org/10.4236/ce.2019.107122>
- Hewett, S., Becker, K., & Bish, A. (2019). Blended workplace learning: The value of human interaction. *Education+ Training*, 61(1), 2-16. <https://doi.org/10.1108/ET-01-2017-0004>
- Hillman, D. C., Willis, D. J., & Gunawardena, C. N. (1994). Learner-interface interaction in distance education: An extension of contemporary models and strategies for practitioners. *The American Journal of Distance Education*, 8(2), 30-42. <https://doi.org/10.1080/08923649409526853>
- Hutchison, P., & Hammer, D. (2010). Attending to student epistemological framing in a science classroom. *Science Education*, 94(3), 506-524. <https://doi.org/10.1002/sc.20373>
- Ilham, R., Muhammad, I., Aji, L. J., Rizal, S. U., & Özbilen, F. M. (2023). Artificial intelligence research in education: A bibliometric analysis. *Journal of Education Global*, 1(1), 45-55. <http://penaeducentre.com/index.php/JEdG/article/view/25>
- Iqbal, A., Hussain, S., Parveen, S., & Javaid, Z. (2019). Effect of teachers' competencies on scholars' academic achievement and satisfaction. *European Online Journal of Natural and Social Sciences*, 8(1), 9-16.
- Jeong, H., & Hmelo-Silver, C. E. (2016). Seven affordances of computer-supported collaborative learning: How to support collaborative learning? How can technologies help? *Educational Psychologist*, 51(2), 247-265. <https://doi.org/10.1080/00461520.2016.1158654>
- Jereb, E., Jerebic, J., & Urh, M. (2018). Revising the importance of factors about student satisfaction in higher education. *Organizacija*, 51(4), 271-285. <https://doi.org/10.2478/orga-2018-0020>



- Kuan, P. Y. (2011). Effects of cram schooling on mathematics performance: Evidence from junior high students in Taiwan. *Comparative Education Review*, 55(3), 342–368. <https://doi.org/10.1086/659142>
- Lareau, A. (2003). *Unequal childhoods: Class, race, and family life*. University of California Press.
- Latip, M. S. A., Newaz, F. T., & Ramasamy, R. (2020). Students' Perception of Lecturers' Competency and the Effect on Institution Loyalty: The Mediating Role of Students' Satisfaction. *Asian Journal of University Education*, 16 (2), 183-195. <https://doi.org/10.24191/ajue.v16i2.9155>
- Levin, D. M., Grant, T., & Hammer, D. (2012). Attending and responding to student thinking in science. *The American Biology Teacher*, 74 (3), 158-162. <https://doi.org/10.1525/abt.2012.74.3.6>
- Levin, D. M., Hammer, D., & Coffey, J. E. (2009). Novice teachers' attention to student thinking. *Journal of Teacher Education*, 60 (2), 142-154. <https://doi.org/10.1177/0022487108330245>
- Lien, P. T. (2017). Training service quality and its effects on student satisfaction: Case of a Vietnam University. *International Journal of Academic Research in Business and Social Sciences*, 7(4), 99-110.
- Long, C. S., Ibrahim, Z., & Kowang, T. O. (2014). An Analysis of the Relationship between Lecturers' Competencies and Students' Satisfaction. *International Education Studies*, 7(1), 37-46. <https://doi.org/10.5539/ies.v7n1p37>
- Luo, N., Zhang, M., & Qi, D. (2017). Effects of different interactions on students' sense of community in an e-learning environment. *Computers & Education*, 115, 153-160. <https://doi.org/10.1016/j.compedu.2017.08.006>
- McLeay, F., Robson, A., & Yusoff, M. (2017). New applications for importance-performance analysis (IPA) in higher education: Understanding student satisfaction. *Journal of Management Development*, 36(6), 780-800. <https://doi.org/10.1108/JMD-10-2016-0187>
- Mihanović, Z., Batinić, A. B., & Pavičić, J. (2016). The link between students' satisfaction with faculty, overall students' satisfaction with student life, and student performances. *Review of Innovation and Competitiveness, A Journal of Economic and Social Research*, 2(1), 37-60. <https://doi.org/10.32728/ric.2016.21/3>
- Mohan, M., Rajendiran, K., Gunasekaran, V., & Cassinadane, A. V. (2022). Face-to-face education in the virtual classroom in the health sector during the COVID-19 pandemic. *Journal of Education Technology in Health Sciences*, 8(3), 105-110. <https://doi.org/10.18231/j.jeths.2021.021>
- Moore, M. G., & Kearsley, G. (1996). *Distance Education: A Systems View*. Belmont, California: Wadsworth Publishing Company.
- Muhammad, I., Samosir, C. M., & Bakker, C. (2023). Instrument analysis: Students' self-regulated learning based on gender in learning with the Rasch model. *Journal of Education Global*, 1(1), 22-36.
- Munoz, L., Ferguson, J. R., Harris, E. G., & Fleming, D. (2022). Does empathy matter? An exploratory study of class-transition satisfaction in unplanned course interruptions. *Journal of Marketing Education*, 44(2), 217-234. <https://doi.org/10.1177/02734753211073891>
- Nasirun, N., Noor, S. M., Yusoff, R. Z., & Othman, A. A. (2017). Student engagement, student interactions, and student satisfaction in blended learning: A case of entrepreneurship education. *Advanced Science Letters*, 23(8), 7952-7955. <https://doi.org/10.1166/asl.2017.9617>
- Nastasić, A., Banjević, K., & Gardašević, D. (2019). Student satisfaction as a performance indicator of higher education institutions. *Journal of Innovative Business and Management*, 11(2), 67-76. <https://doi.org/10.32015/JIBM/2019-11-2-8>
- Nordenbo, S. E., Larsen, M. S., Tiftikçi, N., Wendt, R. E., & Østergaard, S. (2008). Teacher competencies and pupil achievement in pre-school and school. *International Journal of Educational Research*, 47(6), 366-380.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory*. 3rd edition. McGraw-Hill.





- Nyathi, M., & Sibanda, E. (2023). E-learning: substitutability of learner–learner, and learner–facilitator interactions to enhance learner satisfaction in higher education. *Journal of Research in Innovative Teaching & Learning*, 16(2), 210-225. <https://doi.org/10.1108/JRIT-04-2022-0018>
- Oyarzun, B., Stefaniak, J., Bol, L., & Morrison, G. R. (2018). Effects of learner-to-learner interactions on social presence, achievement, and satisfaction. *Journal of Computing in Higher Education*, 30, 154-175. <https://doi.org/10.1007/s12528-017-9157-x>
- Parahoo, S. K., Santally, M. I., Rajabalee, Y., & Harvey, H. L. (2016). Designing a predictive model of student satisfaction in online learning. *Journal of Marketing for Higher Education*, 26(1), 1-19. <https://doi.org/10.1080/08841241.2015.1083511>
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49(4), 41-50. <https://doi.org/10.1177/002224298504900403>
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12-40.
- Paul, R., & Pradhan, S. (2019). Achieving student satisfaction and student loyalty in higher education: A focus on service value dimensions. *Services Marketing Quarterly*, 40(3), 245-268. <https://doi.org/10.1080/15332969.2019.1630177>
- Pertiwi, S., Muhammad, I., & Mukhlisonisa, S. (2023). Spatial ability research trends in mathematics learning from 1980-2023: A bibliometric review. *Journal of Education Global*, 1(1), 9-21.
- Phimmasenh, B., & Nouansavanh, K. (2015). Analysis of Pregnant Woman Satisfaction to Hospital Service by SERVQUAL Method: A Case Study of Mahosot Referral Hospital. *PSAKU International Journal of Interdisciplinary Research*, 4(1), 19–26.
- Popham, W. J. (2009). Assessment literacy for teachers: Faddish or fundamental? *Theory Into Practice*, 48(1), 4-11. <https://doi.org/10.1080/00405840802577536>
- Quadir, B., Yang, J. C., & Chen, N. S. (2022). The effects of interaction types on learning outcomes in a blog-based interactive learning environment. *Interactive Learning Environments*, 30(2), 293-306. <https://doi.org/10.1080/10494820.2019.1652835>
- RM Hanaysha, J., Hilman Abdullah, H., & Warokka, A. (2011). Service quality and students' satisfaction at higher learning institutions: The competing dimensions of Malaysian universities' competitiveness. *Journal of Southeast Asian Research*, 2011(2011), 1-10. <https://doi.org/10.5171/2011.855931>
- Saori, S., Alghamdi, A. A., & Fahlevi, M. (2023). Influential Factors on Student Satisfaction in High School Sports Education: Unravelling the Roles of Instructor Empathy, System Quality, and Reputation. *Revista de Psicología del Deporte (Journal of Sport Psychology)*, 33(3), 29-41.
- Senior, C., Moores, E., & Burgess, A. P. (2017). "I can't get no satisfaction": Measuring student satisfaction in the age of a consumerist higher education. *Frontiers in Psychology*, 8, 1-3. <https://doi.org/10.3389/fpsyg.2017.00980>
- Sher, A. (2009). Assessing the relationship of student-instructor and student-student interaction to student learning and satisfaction in web-based online learning environment. *Journal of Interactive Online Learning*, 8(2), 102-120.
- Stephen, T. B., Abu, N. Z., Loy, C. K., & Belkhamza, Z. (2019). The effect of administrative service quality and lecturer's teaching quality on students' satisfaction in higher learning institutions in Kota Kinabalu, Sabah. *International Journal of Innovation, Creativity and Change*, 6(4), 260-376.
- Stojiljković, S., Djigić, G., & Zlatković, B. (2012). Empathy and teachers' roles. *Procedia-Social and Behavioral Sciences*, 69, 960-966. <https://doi.org/10.1016/j.sbspro.2012.12.021>
- Sweeney, J. C., & Ingram, D. (2001). A comparison of traditional and web-based tutorials in marketing education: An exploratory study. *Journal of Marketing Education*, 23(1), 55-62. <https://doi.org/10.1177/0273475301231007>





- Taib, N. A. M., Rahmat, N. H., Ismail, S., & Hassan, O. (2021). Teacher presence as mediator in online learning: The case for French as a foreign language. *European Journal of Foreign Language Teaching*, 5(5), 74-92. <https://doi.org/10.46827/ejfl.v5i5.3934>
- Tettegah, S., & Anderson, C. J. (2007). Pre-service teachers' empathy and cognitions: Statistical analysis of text data by graphical models. *Contemporary educational psychology*, 32 (1), 48-82. <https://doi.org/10.1016/j.cedpsych.2006.10.010>
- Thompson, J., Hagenah, S., Kang, H., Stroupe, D., Braaten, M., Colley, C., & Windschitl, M. (2016). Rigor and responsiveness in classroom activity. *Teachers College Record*, 118(5), 1-58. <https://doi.org/10.1177/016146811611800506>
- Wagner, E. D. (1994). In support of a functional definition of interaction. *The American Journal of Distance Education*, 8(2), 6-29. <https://doi.org/10.1080/08923649409526852>
- Walker, J. M. T., & Hoover-Dempsey, K. V. (2015). Parental engagement and classroom management. In *E. T. Emmer & E. J. Sabornie (Eds.), Handbook of classroom management (2nd ed., pp. 459-478)*. New York: Routledge.
- Wang, Q., Somjai, S., & Somjai, A. (2023). The Influence of Perceived Quality on Online Teaching Satisfaction. *Procedia of Multidisciplinary Research*, 1(11), 14.
- Weerasinghe, I. S., Fernando, S., & Lalitha, R. (2017). Students' satisfaction in higher education. *American Journal of Educational Research*, 5 (5), 533-539.
- Wong, W. H., & Chapman, E. (2023). Student satisfaction and interaction in higher education. *Higher Education*, 85(5), 957-978. <https://doi.org/10.1007/s10734-022-00874-0>
- Wu, J. H., Tennyson, R. D., & Hsia, T. L. (2010). A study of student satisfaction in a blended e-learning system environment. *Computers & Education*, 55(1), 155-164. <https://doi.org/10.1016/j.compedu.2009.12.012>
- Xu, W., Zhang, N., & Wang, M. (2024). The impact of interaction on continuous use in online learning platforms: a metaverse perspective. *Internet Research*, 34(1), 79-106. <https://doi.org/10.1108/INTR-08-2022-0600>
- Zhang, J., & Zhang, L. J. (2021). Learners' satisfaction with native and non-native English-speaking teachers' teaching competence and their learning motivation: a path-analytic approach. *Asia Pacific Journal of Education*, 41(3), 558-573. <https://doi.org/10.1080/02188791.2020.1833834>