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The Impact of Service Supply Quality of Training Organizations for Management Postgraduate Examination on Learners' Satisfaction and Loyalty

GUO Ying

Doctor of Management

Supervisors:

PhD Virginia Trigo, Professor Emerita,
ISCTE University Institute of Lisbon

PhD XIAO Wen, Professor,
University of Electronic Science and Technology of China

May, 2023



BUSINESS
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Jury:

PhD José Manuel Gonçalves Dias, Full Professor,
ISCTE University Institute of Lisbon

PhD Maria José Aguilar Madeira, Assistant Professor with habilitation,
Universidade da Beira Interior

PhD Pan Jingming, Professor,
University of Electronic Science and Technology of China

PhD Shaozhuang Ma, Associate Professor with Habilitation,
ISCTE University Institute of Lisbon

PhD Virgínia Maria Trigo, Emeritus Professor,
ISCTE University Institute of Lisbon

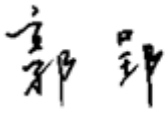
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**The Impact of Service Supply Quality of Training
Organizations for Management Postgraduate
Examination on Learners' Satisfaction and
Loyalty**

GUO Ying

Declaration

I declare that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university and that to the best of my knowledge it does not contain any material previously published or written by another person except where due reference is made in the text.

Signed:  Guo Ying

Date: 2023.5.30

Name: GUO Ying

作者申明

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作者签名:  Guo Ying

日期: 2023.5.30

姓名(拼音): GUO Ying

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Abstract

The problem addressed in this study is the relationship between service quality in pre-examination coaching and training organizations for the Chinese national postgraduate entrance examination (PEE) and customer satisfaction and loyalty. The specific research questions include: (1) What are the factors of the service supply quality of PEE training organizations that affect the satisfaction of learners? (2) What are the factors of the service supply quality of PEE training organizations that affect the loyalty of learners? (3) What is the relationship between learners' satisfaction and loyalty in the service supply quality of PEE institutions? (4) How to explore measures to improve the quality of service supply of PEE training organizations and effectively improve the satisfaction and loyalty of learners? (5) What are the impacts of online teaching, hybrid teaching (combining online and on-site teaching), and offline teaching modes on learners' satisfaction and loyalty during the COVID-19 pandemic in China?

This study proposes hypotheses, conducts a questionnaire survey, and performs empirical statistical analysis to examine how the service quality provided by management-oriented PEE training organizations affects the learners' satisfaction. Furthermore, it identifies the key factors within the service delivery process. Based on learners' satisfaction, the study further explores the relationship between satisfaction and loyalty. It investigates how the service quality provided by training organizations influences loyalty through satisfaction. The research findings provide support and recommendations for optimizing the service quality provided by training organizations.

Keywords: management-oriented PEE training organizations, training service quality, satisfaction, loyalty

JEL: M31, M53

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Resumo

O problema abordado neste estudo é a relação entre a qualidade do serviço em organizações de treino e formação pré-exame para o exame nacional chinês de admissão à pós-graduação (PEE) e a satisfação e lealdade do cliente. As questões específicas de investigação incluem: (1) Quais são os factores da qualidade da prestação de serviços das organizações de formação PEE que afectam a satisfação dos estudantes? (2) Quais são os factores da qualidade da prestação de serviços das organizações de formação PEE que afectam a lealdade dos estudantes? (3) Qual é a relação entre a satisfação e a fidelização dos estudantes na qualidade da oferta de serviços das instituições de EEP? (4) Como explorar medidas para melhorar a qualidade da prestação de serviços das organizações de formação em EEP e melhorar efectivamente a satisfação e a fidelização dos estudantes? (5) Quais são os impactos do ensino online, do ensino híbrido (combinando ensino online e presencial) e dos modos de ensino offline na satisfação e lealdade dos estudantes durante a pandemia de COVID-19 na China?

Este estudo propõe hipóteses, realiza um inquérito por questionário e efectua uma análise estatística empírica para examinar a forma como a qualidade do serviço prestado pelas organizações de formação em EEP orientadas para a gestão afecta a satisfação dos estudantes. Além disso, identifica os factores-chave do processo de prestação de serviços. Com base na satisfação dos estudantes, o estudo explora ainda a relação entre satisfação e lealdade. Investiga de que forma a qualidade do serviço prestado pelas organizações de formação influencia a lealdade através da satisfação. Os resultados da investigação fornecem apoio e recomendações para otimizar a qualidade do serviço prestado pelas organizações de formação.

Palavras-chave: organizações de treinamento de PEE orientadas para a gestão, qualidade do serviço de treinamento, satisfação, lealdade

JEL: M31, M53

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摘要

本文研究的问题是中国管理类研究生联考考前辅导机构中，服务质量与顾客满意度及顾客忠诚度存在怎样的关系。本文研究的具体问题包括：（1）考研培训机构的服务供给质量有哪些因素影响考研学员满意度的？（2）考研机构的服务供给质量有哪些因素影响考研学员忠诚度的？（3）研究在考研机构的服务供给质量中，学员满意度和忠诚度之间是什么关系？（4）探索提高考研培训机构服务供给质量的措施，如何有效提高学员的满意度和忠诚度？（5）基于中国疫情防控期间，线上授课、线上与线下结合授课、线下授课方式对于学员满意度和忠诚度的影响？

本文通过提出假设、问卷调研、实证统计分析，分析了中国管理类研究生联考考研培训过程中，考研机构的服务供给质量是如何影响考研学员满意度的。同时明晰服务供给中哪些因素更为重要。在考研学员满意度基础上，进一步探究满意度与忠诚度的关系。探究考研机构的服务供给质量如何通过满意度来影响忠诚度。通过研究结论，给考研机构的服务供给质量提供优化建议支撑。

关键词：管理类考研机构，培训服务供给质量，满意度，忠诚度

JEL: M31, M53

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I am a student of the 2019 cohort of the DOM program. In September 2019, just three months after starting my studies, we encountered the unprecedented COVID-19 pandemic. Throughout the three years of pandemic prevention and control, I faced numerous challenges. As a doctoral student, I had to diligently advance my academic progress. Simultaneously, as an entrepreneur and manager, I had to navigate policy changes and economic fluctuations, lead my team towards innovation and breakthroughs, and adapt to the changing circumstances. Through a combination of online and offline methods, I successfully completed all the courses and made progress in my doctoral dissertation, including the proposal, mid-term defense, and writing process.

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List of Acronym

AHP	Analytic Hierarchy Process
AP	academic postgraduates
BGT	behavior guides technical studying
CBL	case based learning
CLD	Customer loyalty degree
COVID-19	Coronavirus 2019
CSD	Customer satisfaction degree
ERL	emergency remote learning
FAHP	Fuzzy Analytic Hierarchy Process
GPA	grade point average
HEdPERF	Higher Education PERFormance
HEI	higher education institutions
HESQUAL	Higher Education Service Quality
IPS	Ingenuity Pathway Analysis
ISO	International Organization for Standardization
JGMAT	joint graduate management admission test
Maud	Master of Auditing
MBA	Master of business administration
MEC	the Ministry of Education of China
MILS	Master of Library and Information Studies
MOOC	Massive Open Online Course
MPA	Master of Public Administration
MPAcc	Master of Professional Accounting
MTA	Master of Tourism Management
PCT	per customer transaction
PEE	postgraduate entrance examination
PLS	partial least squares
PP	professional postgraduates
QoS	quality of service
RMB	Renminbi

RN-BSN	Bachelor of Science in Nursing for Registered Nurses
SEM	structural equation modelling
SERVPERF	Service Performance
SERVQUAL	Service Quality
STEM	science, technology, engineering, and math
TAM	technology acceptance model
TBL	team-based learning

Chapter 1: Introduction

This chapter presents an overview of the entire study, including research background, research problem and questions, research objectives and significance, and research structure. This thesis focuses on the relevant background of the joint graduate management admission test (JGMAT) in China, and puts forward research questions.

1.1 Research background

This chapter presents a general description of the full study, including research background, research questions, research purpose and significance, research methods, and research structure. The focus is on the relevant background of the Chinese management graduate entrance exam and the proposal of the research problem and research questions.

1.1.1 Introduction to joint graduate management admission test

1.1.1.1 Definition of joint graduate management admission test (JGMAT)

JGMAT refers to the unified postgraduate entrance examination (PEE) for management majors. It is a selective exam for universities and research institutes to recruit management majors at the national level.

At present, China's economy is developing rapidly and the business environment is fiercely competitive. People in China who are engaged in or aspire to be engaged in management, accounting, or auditing are forced to improve their comprehensive management knowledge systematically, so they normally choose to learn professional and holistic courses to expand their industry vision and extend their network. To realize this goal, it is a vital channel to take the JGMAT and get admitted to the master's degree in management. Obtaining a master's degree is conducive to their career development.

The JGMAT in China is derived from the national joint entrance examination for master of business administration (MBA) in 1997. It refers to the unified entrance examination for graduate students majoring in management. Held annually on a Saturday in mid-to-late December, JGMAT is applicable and available for 7 majors under the Master of Management, namely: Master of Professional Accounting (MPAcc), Master of Library and Information

Studies (MILS), Master of Business Administration (MBA, including EMBA), Master of Public Administration (MPA), Master of Tourism Management (MTA), Master of Engineering Management (MEM) and Master of Auditing (Maud). All candidates who apply for the above-mentioned majors should take JGMAT and pass the scores before they can be officially admitted by the college or the university.

The written test of JGMAT contains two subjects: comprehensive ability test and English test. The comprehensive ability test paper is subdivided into 3 modules: mathematics, logical reasoning, and writing. The question types draw on the GMAT (Graduate Management Admission Test) in the United States. The focus is to test the candidates' computing ability, logical reasoning ability, spatial imagination ability, data processing ability, and rapid decision-making ability.

1.1.1.2 The difference between academic postgraduates and professional postgraduates of JGMAT

At present, China's postgraduate programs are divided into academic postgraduates (AP) and professional postgraduates (PP). AP was established according to disciplines, which are guided by academic research with emphasis on theory and research to nurture university teachers and researchers for research institutions. At the same level as AP, the purpose of PP is to cultivate high-level professional talent who has a solid theoretical foundation and is capable of applying the theory to meet the actual needs of a specific industry or profession.

The written part for AP consists of 2 subjects that are organized in a unified way nationally: politics and English, 1 basic subject: mathematics (national unified test) or profession foundation, and 1 profession subject (the college or the university will design the examination paper).

There are two types of written examinations for PP. One is the 4 exams like the one for AP, and the other is JGMAT.

JGMAT is mainly for on-the-job candidates. Firstly, JGAMT does not contain the subject politics compared with unified exams for AP. Secondly, JGAMT does not consist of the profession subjects, such as business administration, public administration, accounting. Thirdly, the mathematics test involves mere mathematics knowledge of the elementary school, junior high school, and high school, without any relation to calculus or linear algebra. And the question types are all multiple-choice questions. Fourthly, the full score of JGMAT is 300 points, but 195 points are for multiple-choice questions (English: 60 points, Math 75 points, Logic 60 points), accounting for 65% of the total score. This kind of exam is relatively low in

difficulty, allowing in-service candidates to quickly improve their skills and expand their knowledge pool through learning and reviewing to meet the requirements of JGAMT in a short period.

1.1.1.3 Policies of the Ministry of Education about private PEE training organizations

Since colleges and universities are the recipients of postgraduate applications, they participate in the exam design for postgraduates. In order to further strict management, strict examination style and discipline, emphasize the unremitting efforts to strengthen the comprehensive improvement of the examination environment, China's Ministry of Education (2016) strengthened the education and management of the team who are responsible for designing the exam paper. In particular, it was reiterated that management of teachers who are responsible for designing the exam paper should be conducted according to detailed rules and regulations and legal education for these teachers should be strengthened according to typical examples. All colleges and universities should not hold exam training or coaching in any form. At the same time, it is clear that in-service teachers of colleges and universities should not participate in PEE training or coaching.

China's Ministry of Education (2009) required educational administrative departments at all levels and universities to further strengthen the management of PEE coaching and training. Universities and their faculty members are not allowed to hold or participate in PEE coaching and training and compiling textbooks for PEE.

In this case, there is a huge market demand for the PEE training and coaching, but universities and colleges cannot participate in it, which facilitates the surge and thriving of private training organizations engaged in PEE. At the same time, a larger number of candidates can be admitted to their ideal schools after being trained and coached by these private institutions. In addition to extensive publicity, the training and coaching market dedicated to the PEE is being continuously expanded.

1.1.2 Training objects of JGMAT

1.1.2.1 Introduction to the management system of JGMAT

The seven PP programs available in JGMAT are divided into two categorizations: part-time and full-time. Full-time programs require candidates to study full-time at the campus, while part-time programs allow candidates to study on the job (in the form of evening classes, weekend classes, intensive classes, online intensive classes). China's Ministry of Education (2016) required that both of the programs should issue a graduate certificate and a master's

degree certificate because full-time and part-time graduate learners implement the same examination admission policy and training standards, their academic degree certificates have the same legal status and the same effect.

Among the seven PP programs, applicants for the part-time degree of MBA (including EMBA), MPA, MTA, and MEM are required to have work experience of three or more years graduating from a college or university, or five or more years after graduating from a junior college, or two or more years after graduating from a master or a doctoral program.

Both full-time and part-time MPAcc, MILS, Maud, and full-time MEM permit the application of fresh graduates without working experience. There is also no requirement for the year cap after graduation.

1.1.2.2 The contradiction between work, family and study of in-service people preparing for JGMAT

For learners who are preparing for the JGMAT on the job, since they have worked for a while after graduation, many of them have to build a family, and they will be affected by many career and family factors in the process of preparing for the test.

First, the careers of learners in this age group are in a climbing period. They are usually busy at work and have many temporary tasks at work. Therefore, it is not easy for them to yield ideal learning results.

Second, in the learning process, these adult learners also play an important role in the family as husband and wife, or children, or parent. They are too easily interfered with by family affairs to concentrate on exam preparation.

1.1.2.3 The characteristics of the in-service personnel in the management PEE training group and their preparation needs

With the rapid growth of the on-the-job group who prepare for JGMAT, the coverage of candidates has further expanded. At present, this group of people has the following characteristics:

First, candidates have a different and uneven foundation for some subjects, such as English and mathematics. Many learners have been away from graduation for some time, so the memorable knowledge are seriously forgotten by them.

Second, available time for learning is not fixed and their learning arrangement is not systematic. Once they do not study for some time, they are highly likely to give up halfway. However, intermittent self-study is prone to incomplete learning and incapability of meeting the

exam requirements.

Third, memory decline causes relatively low learning efficiency, and learning habits need to be developed.

Fourth, due to complicated work and family affairs, it is difficult for adults to concentrate time and energy on study. If they review by themselves without applying for training classes, they need to spend much time studying the syllabus as well as important and difficult knowledge. At the same time, the review effect cannot be checked in time, and it is easy for them to stop the review midway and give up the JGMAT. In this context, they need a good learning environment and atmosphere, and constant encouragement.

In this case, if on-the-job JGMAT candidates do not have solid knowledge and sufficient time for preparation but have to learn by themselves, probably, they cannot pass JGMAT. Therefore, many learners preparing for JGMAT choose professional training organizations to help them pass the entrance exam one time successfully.

1.1.3 Introduction to the pre-examination training market for management graduate learners in China

1.1.3.1 Training objects of JGMAT training service

It mainly refers to the market that provides pre-examination training services for JGMAT. At present, the scale of the pre-examination training market for management graduate learners in China is mainly targeted for MBA (including EMBA direction), MPA, MPAcc, and MEM (part-time), while training for MTA, MEM (full-time), MILS, Maud is also covered.

1.1.3.2 Market analysis of pre-examination training for management PEE

Table 1.1 The number of applicants for MBA, a major category of JGMAT in China from 2010 to 2021

Year	Number of Applicants	Number of Actual Test Takers	Actual Test Taking Rate	Admissions	Actual Test Admission Rate	Application Admission Rate	National A Line (Total points)
2011	90614	68108	75.16%	29736	43.66%	32.82%	165
2012	106862	77828	72.83%	28931	37.17%	27.07%	150
2013	122701	85792	69.92%	32625	38.03%	26.59%	155
2014	128299	85951	66.99%	31944	37.17%	24.90%	160
2015	122016	85956	70.45%	30363	35.32%	24.88%	160
2016	109580	71876	65.59%	24642	34.28%	22.49%	165
2017	142389	98863	69.43%	35112	35.52%	24.66%	170
2018	170096	120000	70.55%	38915	32.43%	22.88%	165
2019	204160	147700	72.35%	40000	27.08%	19.59%	170
2020	220000	160000	72.73%	43000	19.55%	19.55%	175
2021	230000	180000	78.26%	50000	27.78%	21.74%	170

Source: Sohu (2020)

It has been 26 years since the MBA entrance exam in 1997. Since the beginning of 2002, pre-examination training organizations for this type of exam have appeared on a large scale. At present, the market for management PEE is fierce. Training organizations are mainly divided into:

First, pure online training organizations: a) focus on pre-examination training organizations for the management PEE: Sponge MBA, MBA Master, Duxue.com; b) online course institutions that focus on pre-examination guidance services for comprehensive PEE (including examination for PP, AP, and JGMAT): Hujiang Online School, New Oriental Online, Yantu, Shangde.

Second, training organizations that take offline business as their main body: a) nation-wide training organizations for JGMAT: Social Science, Taiqi, Huazhang, Taiqi, Huajie; b) training organizations for comprehensive PEE: Wendu, Haiwen, Haitian, Wendeng, Cross-examination, and Xuefu; c) cross-border training organizations: Zhonggong, Huatu; d) training organizations with a focus on MPAcc, Maud, and full-time MEM: Xinquan, Mixue, Jinghu. This type of training institution is mainly in the form of summer and winter vacation camps; e) regional training organizations: Pinrui, Yanyuan, Kunze, Chengfeng, Brunei.

1.1.3.3 Market demand forecast

According to China Industry Information (CII, 2020), regarding the MBA training market, the market size in 2019 was about 700 million, and the market size is expected to be about RMB 3.4 billion in 2025.

First, the number of people registered PEE. 170,000 people registered for the MBA exam in 2018, a compound growth rate of 25% in the past two years, slightly higher than the overall growth rate of the PEE market. It is assumed that the growth rate of applicants in the next few years will be decreasing from 20% to 15% year by year, the number of candidates in 2020 to 2025 will be 250 to 530 thousand (see Figure 1.1). Second, the rate of participating in training. Referring to the assumptions on the overall PEE market participation rate, combined with the above analysis that the on-the-job population is more willing to participate in the training and coaching for PEE, it is estimated that the proportion of taking MBA training is 5% higher than the general PEE market, and it is estimated that the proportion of taking MBA training will reach 25% in 2019. MBA training participation rate will be 33%, 35% and 38% respectively under optimistic, neuter, and pessimistic prediction (see Figure 1.2). Third, per customer transaction (PCT). Regarding the assumption of the PCT of the training for general PEEs, considering the fact that the PCT of MBA training is 40% to 80% higher than the general

training for PEE courses, the PCT for MBA training is about Renminbi (RMB) 14 thousand if taking the minimal proportion of the range. the PCT for MBA training will be RMB 17, 18 and 22 thousand respectively under optimistic, neuter, and pessimistic prediction in 2025 (see Figure 1.3). Fourth, according to the market size of the PEE which is the result of the number of candidates multiply the rate of participating in training multiply PCT, the market size of the training market for the MBA examination in 2019 was about RMB 700 million under the neutral assumption and about RMB 3.4 billion in 2025 (see Figure 1.4).

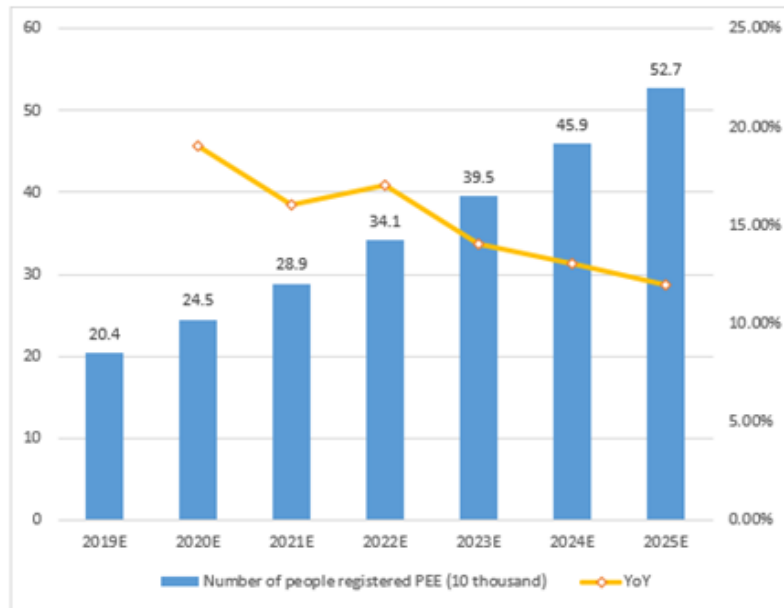


Figure 1.1 The prediction of the number of references to China's MBA exam training in 2019-2025

Source: CII (CII, 2020)

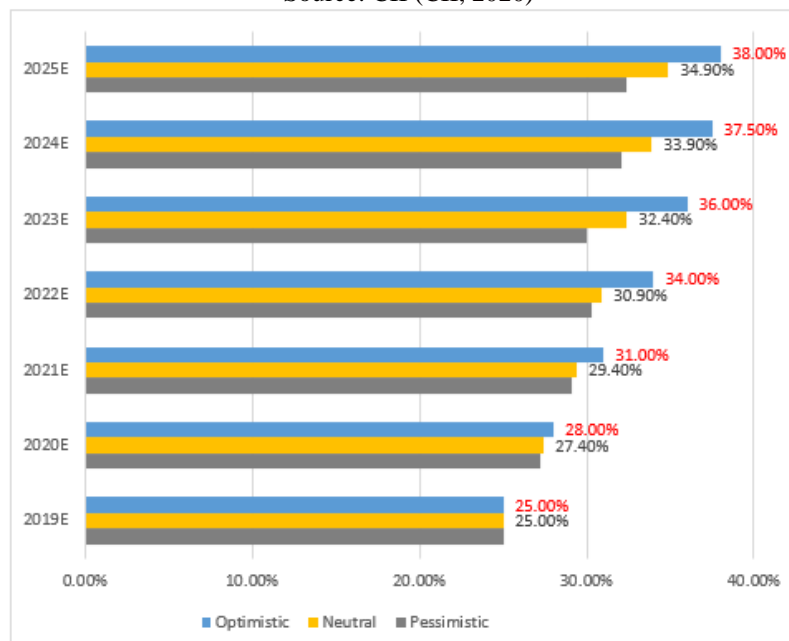


Figure 1.2 Forecast of China's MBA training participation rate in 2019-2025

Source: CII (2020)

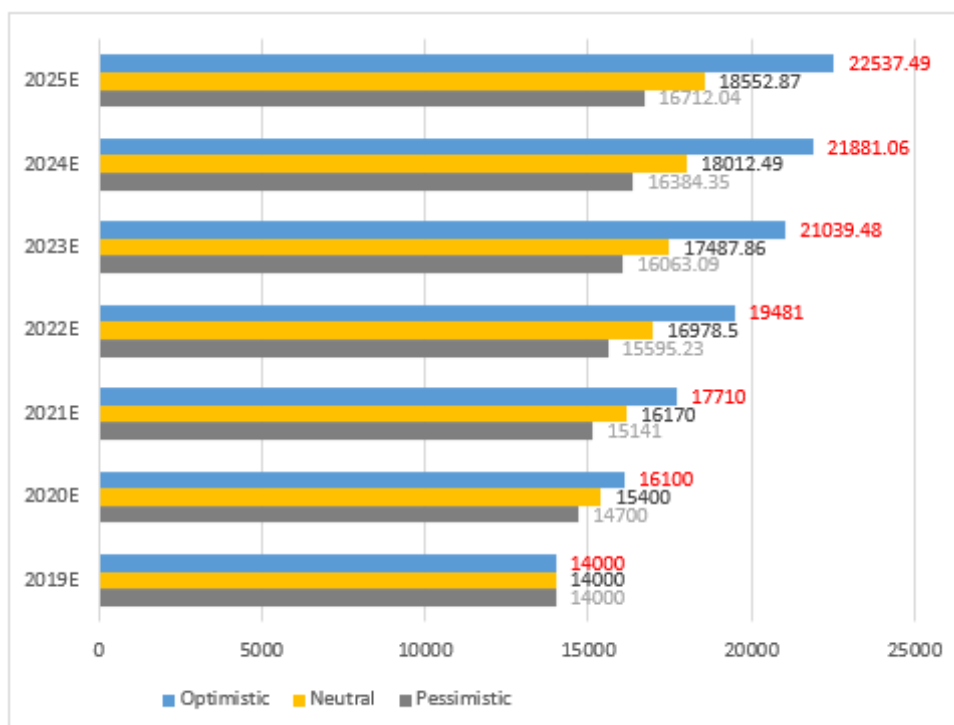


Figure 1.3 2019-2025 China's MBA training customer unit price forecast

Source: CII (2020)

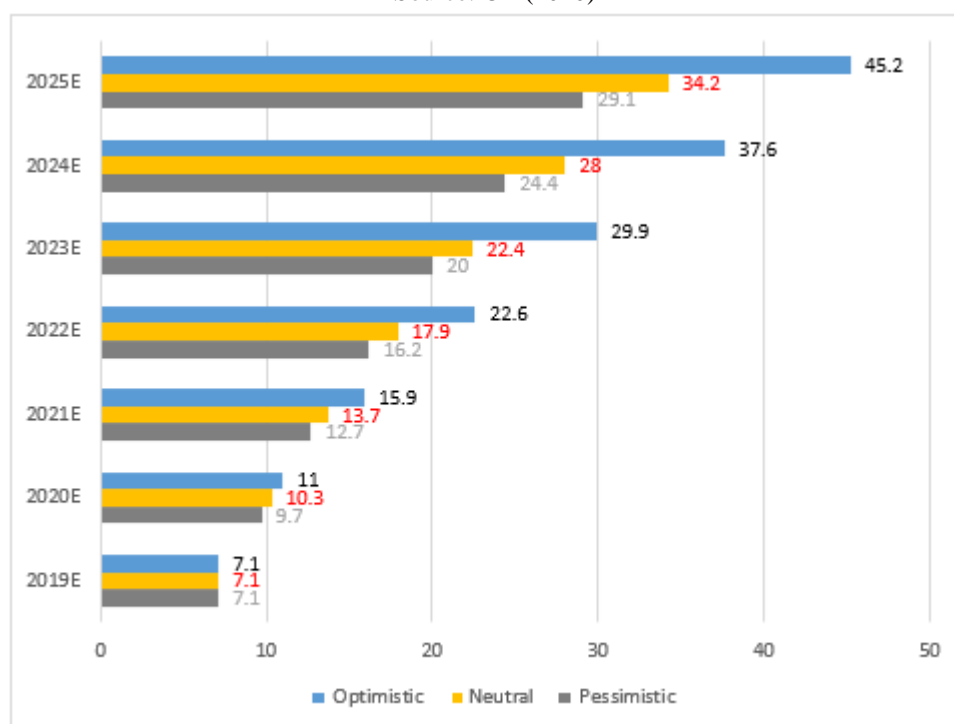


Figure 1.4 2019-2025 China's MBA training market scale forecast

Source: CII (2020)

1.1.4 Introduction to Pinrui Education

Established in March 2010, Pinrui Education has been dedicated to providing pre-examination

coaching programs for MBA, MPA, MEM, MPAcc, Maud, and other JGMAT exams. With 13 years of industry training experience, Pinrui Education offers a diverse range of training programs including offline classes, online courses, and blended learning options to cater to the diverse needs of learners. With an annual enrollment of over 3,000 students, it has become a well-established research and training institution in the Sichuan and Chongqing regions, focusing on pre-examination coaching for JGMAT.

1.1.4.1 Teaching aspect

Teaching forms one of the core competitive strengths of educational training organizations. A high-quality teaching product is essential for attracting learners' interest, enhancing learning efficiency, ensuring training quality, and achieving optimal learning outcomes.

First, curriculum design. Pinrui Education has adopted a curriculum system featuring renowned instructors who specialize in subjects such as English, mathematics, logic, and writing for management graduate entrance exams. Collaborating closely with national experts, including He Jing, Wang Wenke, Wei Xiang, Chen Jian, Liao Wei, Kang Yong, and Zheng Tao, Pinrui Education offers onsite classes taught by these experts in Chengdu, Sichuan, and Chongqing. These instructors have extensive experience in their respective fields, have conducted in-depth research on the trends in JGMAT, and possess a profound understanding of curriculum changes and exam patterns. Their teaching methods are accessible and effective, making them highly sought after by a wide range of candidates.

While building a renowned instructor teaching system, Pinrui Education has spent several years assembling a team of full-time teaching faculty responsible for coaching high-value classes for management graduate entrance exams, conducting comprehensive interview coaching for top MBA, EMBA, MEM, and MPA programs, as well as providing guidance for regular admissions in other institutions. The institution continually optimizes its teaching content, forming its unique market competitiveness.

Second, textbook Development. Leveraging its team of full-time teaching faculty and 13 years of coaching experience, Pinrui Education has published three books: MBA Interview Guidebook, In-depth Analysis of the National English Exam (Section II), and Comprehensive Analysis of Management Graduate Entrance Exam Questions. It has also compiled standardized internal teaching materials, including lecture notes, workbooks, and mock exam papers for each subject in the management graduate entrance exams. Additionally, it has developed teaching materials for political science subjects, English interview question banks and analyses, as well as past exam papers and analyses for MBA, EMBA, MEM, and MPA

interviews.

Third, learner assessment system. Pinrui Education has established various types of testing systems, including weekly tests, monthly tests, stage tests, and mock exams, allowing learners to quickly and clearly assess their learning progress at different stages. This system enables learners to promptly identify any learning issues and resolve related exam preparation problems, thereby facilitating targeted improvement.

Fourth, Q&A System. Pinrui Education provides one-on-one Q&A sessions during class and offers online Q&A support through WeChat groups after class. It has developed written explanations for various sections of standardized practice workbooks and recorded video explanations of accompanying practice questions by the teaching faculty. This ensures timely resolution of learners' doubts and queries.

1.1.4.2 Academic services

For training organizations, in addition to providing high-quality teaching products, academic services are also crucial. Through academic services, better coordination with teaching faculty can be achieved to implement specific teaching processes. Moreover, timely communication with learners during their exam preparation process is essential to address any issues they may encounter, such as stage-based learning plans, prerequisite degree authentication, and choice of examination preferences.

First, academic services team. Pinrui Education has overcome the criticism faced by other institutions in the industry of hiring part-time staff as class supervisors. Instead, it has invested relevant resources to establish a stable team of full-time academic management personnel. Each class is assigned a dedicated class supervisor, counseling teacher, and subject-specific Q&A teachers. These staff members undergo continuous professional training to enhance their expertise and are evaluated according to relevant regulations. This approach ensures the effective implementation of Pinrui's academic service standards and quality control.

Second, class management. Pinrui has established a professional academic management process and service standards. For instance, prior to classes, equipment checks are conducted, teachers coordinate their teaching plans, attendance sheets are prepared, and in-class test papers are organized. During classes, the class supervisor or counseling teacher assists in the entire teaching process, contacting absent learners who did not provide prior notice to understand the reasons. They also facilitate learner assessments and coordinate with Q&A teachers for grading learner assignments. After classes, teaching materials are recorded and

saved, including the audio recording of lecture slides using backup voice recorders. These materials are then handed over to the technical team for post-production processing and uploaded to the online classroom platform for absent learners to catch up on missed classes.

Through grading in-class test papers, analyzing learner answers, and providing feedback to teaching faculty, the test results are announced in class, and learners who did not pass the test are advised to stay for further study. Learners are also informed about the content of the next class and the required materials, and homework assignments are given.

At the end of each class, electrical appliances are turned off, classroom desks and chairs are arranged, and the teaching area is cleaned.

In terms of academic management, Pinrui establishes class committees and forms several study groups to foster a positive class atmosphere where learners help and encourage each other. The class supervisor regularly holds class meetings to communicate learning tasks and important considerations regarding targeted universities for application, thereby addressing learners' concerns.

Third, professional guidance. Class supervisors and counseling teachers conduct personalized communication with each learner every one to two weeks, based on their learning progress. This includes subject review at different stages, one-on-one advice on examination preferences, and analysis of mock exam papers. Through efficient and meticulous academic services, coupled with their professional expertise, learners' confusion during the exam preparation process is resolved. Learners are motivated to persevere in their studies and continuously improve to meet the requirements of the entrance exams.

1.1.4.3 Class offerings

Pinrui Education offers three types of classes. The first type is designed for working professionals preparing for MBA, MPA, and MEM exams, with evening classes and weekend classes offered on-site. The second type caters to out-of-town or remote learners who find it inconvenient to attend classes in person. These classes are conducted through live online streaming and recorded sessions available on the "Pinrui MBA" mobile app, thus better meeting the diverse needs of candidates. The third type is intensive training camps for recent university graduates who are eligible to apply for programs such as MPAcc, Maud, and MLIS. Examples of these camps include summer training camps, National Day past paper training camps, and pre-exam intensive training camps.

1.1.4.4 Brand promotion

First, online marketing. Pinrui Education employs various online marketing strategies, including Baidu keyword searches and promotion through popular review platforms. Live streaming and short videos are conducted on platforms such as WeChat Video Accounts and Douyin (TikTok) to reach a wider audience. Additionally, original content is created and promoted on platforms such as WeChat Subscription Accounts, Toutiao (Today's Headlines), Xiaohongshu (Little Red Book), and Zhihu (a Chinese Q&A platform) to enhance brand visibility.

Second, corporate client promotion. Pinrui Education actively engages with alumni and learner organizations of various universities, delivering informative lectures and promotional activities to attract and convert prospective learners.

Third, university market promotion. Pinrui Education collaborates with universities such as Sichuan Normal University, Xihua University, Chengdu Jincheng College, and Sichuan Business College. Through organizing public lectures and offering public service courses, the brand is promoted to attract potential learners and generate enrollment.

With the motto of Achieving Excellence in Learning, Shaping Intelligent Futures,” Pinrui Education adheres to the principles of focus, professionalism, and dedication. By assisting numerous learners in successfully passing entrance exams and gaining admission to their desired institutions, Pinrui Education has become a guiding light in the industry and a trusted coaching brand among learners.

1.2 Research problem and questions

There is a huge market for PEE training in China, but due to the Chinese Ministry of Education's (MoE) policy of prohibiting universities from participating in PEE training, many JGMAT training organizations have emerged. At present, the pressure of competition among the PEE training organizations is relatively high, and their quality of training services varies greatly. How to obtain a competitive advantage by improving learners' satisfaction and loyalty is a dilemma facing PEE training organizations.

- What are the factors of the service supply quality of PEE training organizations that affect the satisfaction of learners?
- What are the factors of the service supply quality of PEE training organizations that affect the loyalty of learners?

- What is the relationship between learners' satisfaction and loyalty in the service supply quality of PEE institutions?
- How to explore measures to improve the quality of service supply of PEE training organizations and effectively improve the satisfaction and loyalty of learners?
- What are the impacts of online teaching, hybrid teaching (combining online and on-site teaching), and offline teaching modes on learners' satisfaction and loyalty during the COVID-19 pandemic in China ?

1.3 Research objectives and implication

Under the impact of the coronavirus (COVID-19), the training institution is facing great operating pressure, and it is urgent to adjust the quality of service to better serve postgraduate candidates so that learners will be more satisfied in postgraduate training, and then increase their loyalty. On the one hand, the trainees can better complete the training for PEE and enter their dream university. On the other hand, it can also improve the loyalty of customers of PEE, so that it can bring more learners to training organizations for PEE through word of mouth.

This study is intended to realize the following research objectives:

(1) Through proposing hypotheses, a questionnaire survey, and empirical statistical analysis, the author will analyze clearly how the service supply quality of PEE training organizations impacts the satisfaction of graduate learners in the process of PEE training in China. At the same time, which factors are more important in service supply will also be clarified.

(2) Based on the satisfaction of postgraduate candidates, the study will further explore the relationship between satisfaction and loyalty, and how the service supply quality of PEE training organizations impact loyalty through satisfaction.

(3) With research conclusions, the study will provide suggestions to optimize the service supply quality of PEE training organizations.

1.4 Thesis structure

The research structure of this study is shown in Figure 1.5. There are six chapters in this thesis, and the specific chapters are summarized as follows.

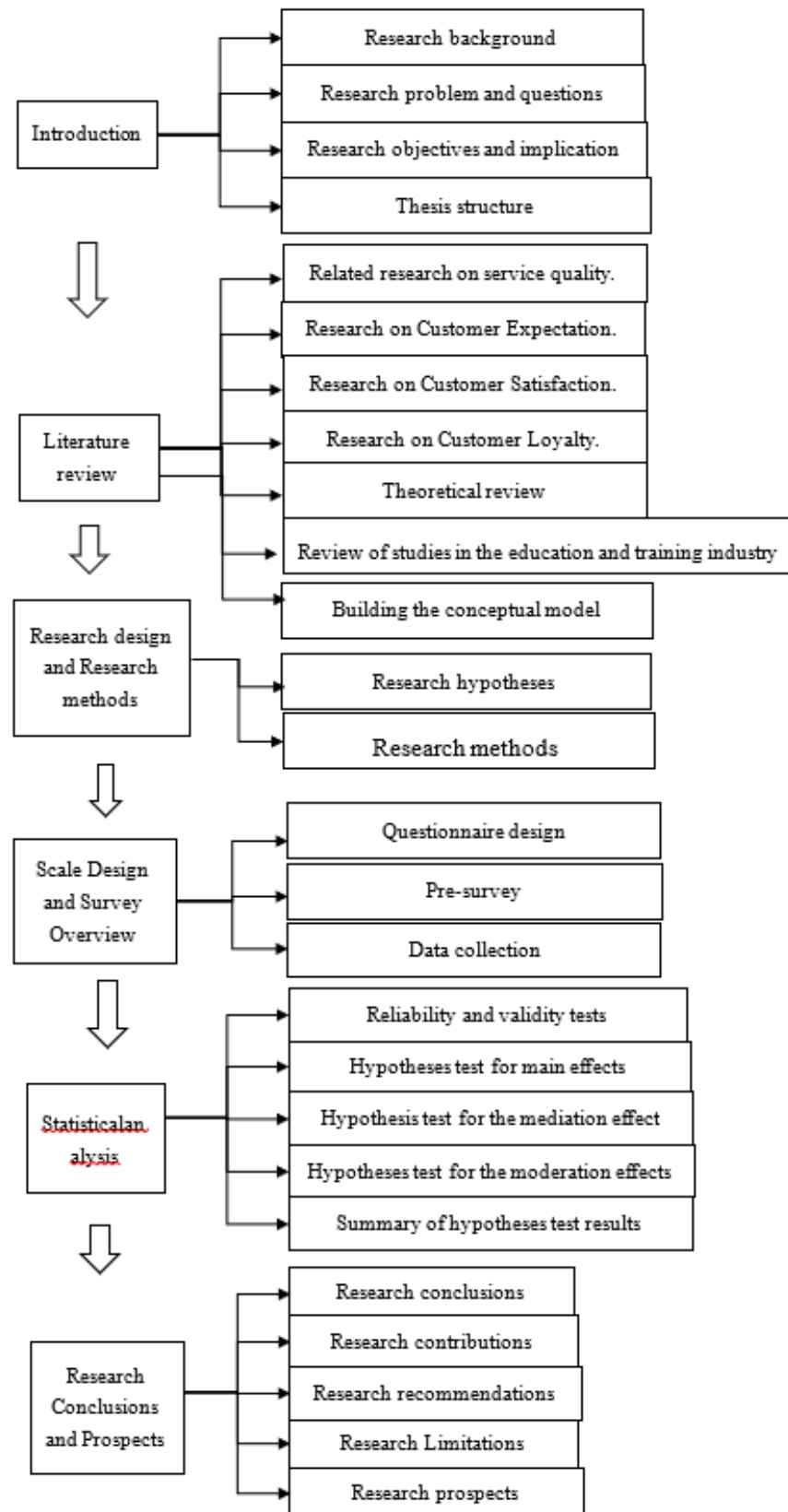


Figure 1.5 Research scheme of the study

Chapter One: Introduction. It includes research background, research questions, research purpose and significance, research methods, research structure. This chapter is the summary

part of the full text, which explains the summary of the study.

Chapter Two: Literature Review. It includes related research on service quality, related research on customer expectations, related research on customer satisfaction, related research on customer loyalty, theoretical review and the conceptual model. This chapter combs through a large amount of literature to extract the relevant situation of the core points of this thesis and provides a literature foundation for subsequent thesis.

Chapter Three: Research Design and Methods. In this chapter, we present the research design and methodology employed in this study. Based on literature analysis, research hypotheses are proposed. Corresponding research methods are then selected.

Chapter Four: Questionnaire Design and Survey Implementation. This chapter encompasses the design of the questionnaire and details the survey implementation process. This section includes the initial design of the questionnaire based on relevant literature, as well as a pre-survey conducted to test the questionnaire's reliability and validity. The pre-survey involves distributing and collecting a small-scale questionnaire and performing reliability and validity tests to preliminarily validate the feasibility and effectiveness of the questionnaire. Furthermore, this chapter describes the formal data collection phase, including the distribution and collection of the survey.

Chapter Five: Data Analysis. This chapter focuses on data analysis, which includes tests for reliability and validity, tests for the main effect hypotheses, tests for the mediating effect hypotheses, tests for the moderating effect hypotheses, and a summary of hypothesis test results. Statistical software such as SPSS and Mplus is used to analyze the survey results obtained in Chapter 4. This chapter primarily examines the main effect hypotheses, mediating effect hypotheses, and moderating effect hypotheses proposed in Chapter Three. Additionally, this chapter conducts comparative analyses due to the different teaching modes, which include offline teaching, on-site teaching, and a hybrid. These three teaching modes may result in significant differences in the perceived services by learners. Based on these differences, the respondents are divided into three groups for comparative analysis.

Chapter Six: Research Conclusions and Prospects. This chapter concludes the study and provides an outlook for future research. This section includes research conclusions, research contributions, research suggestions, research limitations, and research prospects. The chapter summarizes the entire study and highlights the research contributions of this work, addressing similarities and differences with previous studies. Furthermore, based on the empirical findings, practical suggestions are proposed to aid the development of management-oriented

PEE training organizations. Finally, the limitations of this study are acknowledged, and future research directions are outlined.

Chapter 2: Literature Review

This chapter presents a large amount of literature, extracts the relevant research situation of the core points of this thesis, and prepares the literature foundation for subsequent study. The dimensions of the literature review include related research on service quality, customer expectations, customer satisfaction, and customer loyalty.

2.1 Service quality

Service quality is the core keyword of this study. This section summarizes the literature on quality, service quality, service quality in the education and training industry, and related empirical research to clarify the relevant concepts and gain an understanding of the latest research on service quality.

2.1.1 Definition of service quality

Quality is a core concept in the theory of service quality management and one of the most difficult to define. It seems impossible to give quality a recognized and unique definition, at least so far no one has been able to provide such a definition. The difficulty lies in the fact that the meaning of the same word varies greatly when used in different contexts. With the improvement of social productivity and the progress of human society, in the process of structural changes in supply and demand interaction, the concept of quality is not static but constantly enriches its connotation and expands its extension with the progress of the times, thereby maintaining its relevance to the era, exhibiting the characteristic of keeping pace with the times.

Different experts have many different definitions of quality, such as suitability for use, compliance with requirements, and freedom from the need for modification. Jack Welch, former Chairman of General Electric, once said that quality is the best assurance for maintaining customer loyalty, the most powerful weapon to deal with foreign competitors, and the only way to sustain growth and profitability.

The definition of quality initially originates from the definition of product quality. The American Society for Quality defines quality as the characteristics and total of features of a

product or service that bear on its ability to satisfy stated or implied needs.

It can be seen that the question of “what is quality” is a matter of different opinions. In fact, in the field of academic research, it is also an unresolved question. Table 2.1 presents the definitions of quality by eight renowned quality management experts around the world, forming the foundation of the theory of service quality management.

Table 2.1 The definition of quality by eight quality management experts in the world

Author	Perspective	Definition	Assessors of Quality
Shewhart (1931)	From both subjective and objective aspects	Quality can be divided into objective quality (product characteristics independent of customer expectations) and subjective quality (quality desired by customers)	Customers
Crosby (1979)	Based on the operability of technology	Quality is conformity to standards. For producers, quality implies consistency with technical requirements.	Setting standards
Taguchi (1979)	based on the losses caused to society by a product	Quality is the magnitude of social losses	Social losses magnitude
Ishikawa (1980)	In narrow and broad senses	In a narrow sense, quality refers to product quality. In a broad sense, quality refers to work quality, service quality, information quality, process quality, departmental quality, personnel quality, system quality, company quality.	Customers
Feigenbaum (1983)	Based on meeting customer expectations	Quality is a complex entity encompassing the product itself, after-sales service, as well as aspects such as marketing, engineering control, upstream manufacturing, and product maintenance. Through this entity, quality should reach or surpass customer's expected standards when they use the product and enjoy its services.	Customers
Bitz (1987)	Approaches quality from an abstract and comprehensive perspective	Defines quality as “customers' perception of excellence”	Customers
L. Zhu (1988)	Begins from the customer's viewpoint	Product quality refers to its applicability, i.e., the extent to which the product satisfies the user's needs when utilized.	End users
Dai (1988)	Starts from multiple evaluation criteria	Quality must be defined by customer satisfaction. Quality is multidimensional and cannot be measured by a single dimension. Different qualities can be assessed using various scales.	End users

Source: Hoyer and Hoyer (2001)

The ISO organization defines quality in its standard ISO 9000:2005 Quality Management System Fundamentals and Vocabulary as follows quality refers to the degree to which a set of inherent characteristics fulfills requirements. The term *characteristics* refers to distinctive

features, which can be inherent or assigned, qualitative or quantitative, and can include physical, sensory, behavioral, temporal, human factors, and functional characteristics. On the other hand, requirements are defined as expressed, implied, or obligatory needs or expectations.

C. X. Wang et al.(2001)suggested that there are two widely used categories of quality definitions: conformance to specifications and conformance to expectations. The former emerged during the late 18th to early 19th century when mass production necessitated the production of interchangeable parts and standardized products according to specifications, placing high demands on productivity and cost, thus emphasizing compliance with specifications. The latter is more suitable for the current situation.

From the definitions mentioned above, it can be observed that regardless of the definition of quality, meeting customer expectations and requirements is the fundamental essence of quality. In this regard, this study proposes that the definition of quality should be conceptually defined from both broad and narrow perspectives (see Table 2.2 below).

Table 2.2 The distinction between service quality and tangible product quality

	Physical Products	Service Products
Timing of Core Quality Generation	Within the factory	Throughout the interaction process
Quality Elements	Technical quality	Output quality or process quality
Evaluator	Company	Customers
Basis for Quality Evaluation	Company quality standards	Customer perception
Stability of Quality Good Poor	Good	Poor
Customer Contribution to Quality	Small	Large
Ease of Evaluation	Easy	Relatively difficult
Characteristic of Evaluation	Objective	Subjective

Moreover, in research on quality improvement models, Design for Six Sigma (DFSS) is representative. DFSS is the application of rational processes and scientific methods to accurately understand and grasp customer requirements, robustly design new products/processes, and achieve Six Sigma quality levels for products/processes at low costs. It also enables products/processes to resist various interferences, ensuring they can meet customer needs even in harsh environments or with operator issues. DFSS effectively helps improve product quality and reliability, while reducing costs and shortening development cycles, making it highly valuable in practice.

DFSS has been recognized as an efficient tool for achieving high quality and superior operations. The core of the DFSS is the application of sophisticated statistical tools in the early stages of product development, providing substantial data to demonstrate the feasibility

and superiority of the predicted design. Predicting product or service performance at the customer's end during the early stages of product development is critical to achieving higher customer satisfaction, increased profits, and greater market share. DFSS is implemented through four stages: Identify, Design, Optimize, and Validate. DFSS represents the pinnacle of Six Sigma management, with the development direction focusing on cost reduction, high reliability, and zero defects.

DFSS encompasses six tools:

(1) Quality Function Deployment, which is one of the most important methods for implementing Six Sigma Design. To ensure that design targets fully align with customer requirements, the specifications of quality characteristics must meet customer needs.

(2) System Design, which plays a crucial role in Six Sigma Design. After clarifying customer needs, the targeted development of high technological content, vitality, and marketability of products fundamentally determines their quality and directly affects the success or failure of enterprises.

(3) Parameter Design, conducted after system design. The basic idea of parameter design is to minimize the influences of external, internal, and between-product interferences by selecting the optimal combination of all parameters (including raw materials, components, etc.) in the system. This aims to achieve minimal fluctuations and good stability in the designed product's quality characteristics.

(4) Tolerance Design, which occurs after completing system design and determining the best combination of controllable factors through parameter design. At this stage, the quality level of each component is relatively low, and the range of parameter fluctuations is wide.

(5) Failure mode and effects analysis. It can find out various potential quality problems and failure modes that affect product quality and reliability, as well as their hazards and causes (including design defects, process problems, environmental problems, aging, wear and processing errors), through financial corrective measures in design and process to improve product quality and ability to resist various disturbances.

(6) X-oriented design. In order to enhance customer satisfaction throughout the product life cycle, it is necessary to carry out Design for Family X for various related elements X. The so-called DFX is essentially a design for the entire life cycle of a product.

2.1.2 Service quality

In this section, definitions of service quality by different scholars will be presented and then

influential models to measure the service quality will be introduced.

2.1.2.1 Definition of service quality

Since Levitt (1972) first introduced the concept of service quality, many scholars have studied the concept and connotation of service quality, from the perspective of quality perception and composition. Based on empirical research in different service industries, scholars have explored the mechanisms of service quality, analysed and explored the components of service quality, and developed theoretical and conceptual models (Lapierre et al., 1996).

By continuously exploring the role of external factors such as employees, customers and the environment in influencing service quality, attention is paid not only to the intrinsic quality of the service itself but also to the quality of the resulting relationships between stakeholders (Kuei & Lu, 1997).

Garretson and Clow (1997) considered services as a process in which production and consumption occur simultaneously, so perception, monitoring or evaluation of service quality can only be confirmed during or after the service is completed. Ways of the confirmation include the identification of compliance with service process requirements, the use of specific methods and procedures, the necessary documentation requirements for service process validation activities, and re-validation at regular intervals or in exceptional circumstances. The service quality (SERVQUAL) scale model that consists of five dimensions is a relatively mature measurement of service quality and has influenced many subsequent studies.

A model of the relationship between customer satisfaction and customer perceived service quality was constructed (Cox & Dale, 2001; Franceschini et al., 1998). They revised the model constructed by incorporating customer tolerance zones and customer satisfaction. The revised model provides a theoretical basis for service quality management in enterprises and further enhancing the practical application of the model, which is useful for the development of service quality management in enterprises.

Other influential conceptual models for evaluating the service quality include the Relational Quality Model, the Customer Perceived Service Quality Gap Model, the Service Quality Model, the Perceived Service Quality Model, and the 4Q Product/Service Quality Model, a comprehensive model of customer perceived service quality (Cox & Dale, 2001; Franceschini et al., 1998). These models each make innovations to the Parasuraman et al.'s (1985) SERVQUAL model.

The relationship quality model describes customer perceptions of service quality as episode quality arising from situation perceptions and relationship quality arising from relationship

perceptions and diversifies the criteria for comparing perceptions with actual services.

The customer perception service quality gap model expands the ultimate gap in service quality to include customer perception and understanding of market information compared to their experience throughout the service process.

The service quality model adds factors such as organisational characteristics and engineering characteristics and introduces the value that the service can bring to the customer into the model and considers service value as the most important factor influencing customer satisfaction.

The perceived service quality model attempts to show that in the process of customer judgement of service quality is influenced by non-quality elements on service.

The 4Q product or service quality model considers that there is no need to differentiate between products and services, but that all quality elements of products and services should be included, especially the entire enterprise operation (service) process as the 4Q product or service quality model considers that it is not necessary to distinguish between product and service offerings and that all quality elements of the product and service should be included, especially the entire business process as one of the key elements.

Although scholars have formed a basic consensus on the conceptual connotation of service quality from the perspective of customer perception, there are still a series of disagreements on how to measure customer perception and from which angles and dimensions, which has resulted in a blossoming of academic research on service quality evaluation indicators.

Based on the above studies, this thesis defines service quality as the quality perceived by customers. This can differentiate service quality from tangible product quality. To sum up, service quality is the result of comparing customer expectations with actual perception. The most superficial connotation of service quality should include general requirements such as service safety, applicability, effectiveness and economy.

2.1.2.2 Measurement and model of service quality

Parasuraman et al.(1985) proposed ten determinants that influence customers' perceptions of service quality. These ten factors are reliability, responsibility, competence, accessibility, courtesy, communication, credibility, security, understanding the customer, and tangibles.

The characteristics of service quality are determined by the characteristics of the service product. Since the production of service products involves consumer involvement, they must be produced according to customer requirements. Customers' qualities, such as cultural upbringing, aesthetic viewpoints, interests, and values, directly influence their service needs

and evaluations.

Different customers have different requirements for the same service, and even the same customer may have different requirements for the same service at different times. Service providers should strive to meet customers' diverse needs.

Therefore, service quality is reflected in the utility of the provided service itself as well as the level of customer satisfaction with the received service. Due to the intangible nature of services, the inability to return them, and the inability to stop them, it is crucial to provide the correct service from the first encounter.

Grönroos (1984) divided service quality into three dimensions: technical quality, functional quality, and corporate image. This was the first time the term *quality* was applied to intangible services, departing from tangible products. This led to the development of the perceived service quality model (as shown in Figure A.1).

Grönroos' (1984) service quality model laid a solid foundation for subsequent research by scholars, and numerous models of perceived service quality have emerged since then. One of the most well-known models is the famous SERVQUAL model, which was proposed by three scholars in the field of service marketing, Parasuraman et al. (1985).

Parasuraman et al. (1985) conducted a series of questionnaire surveys, in-depth interviews, and focus group discussions to develop their model. The study involved the American credit card center, wired telephone users, insurance brokers, and customers as research subjects. The core idea of the model is that customers are the determinants of service quality. If a company wants to meet customer needs, it must address the five gaps identified by the model. The specific descriptions of these five gaps are as shown in Figure 2.1.

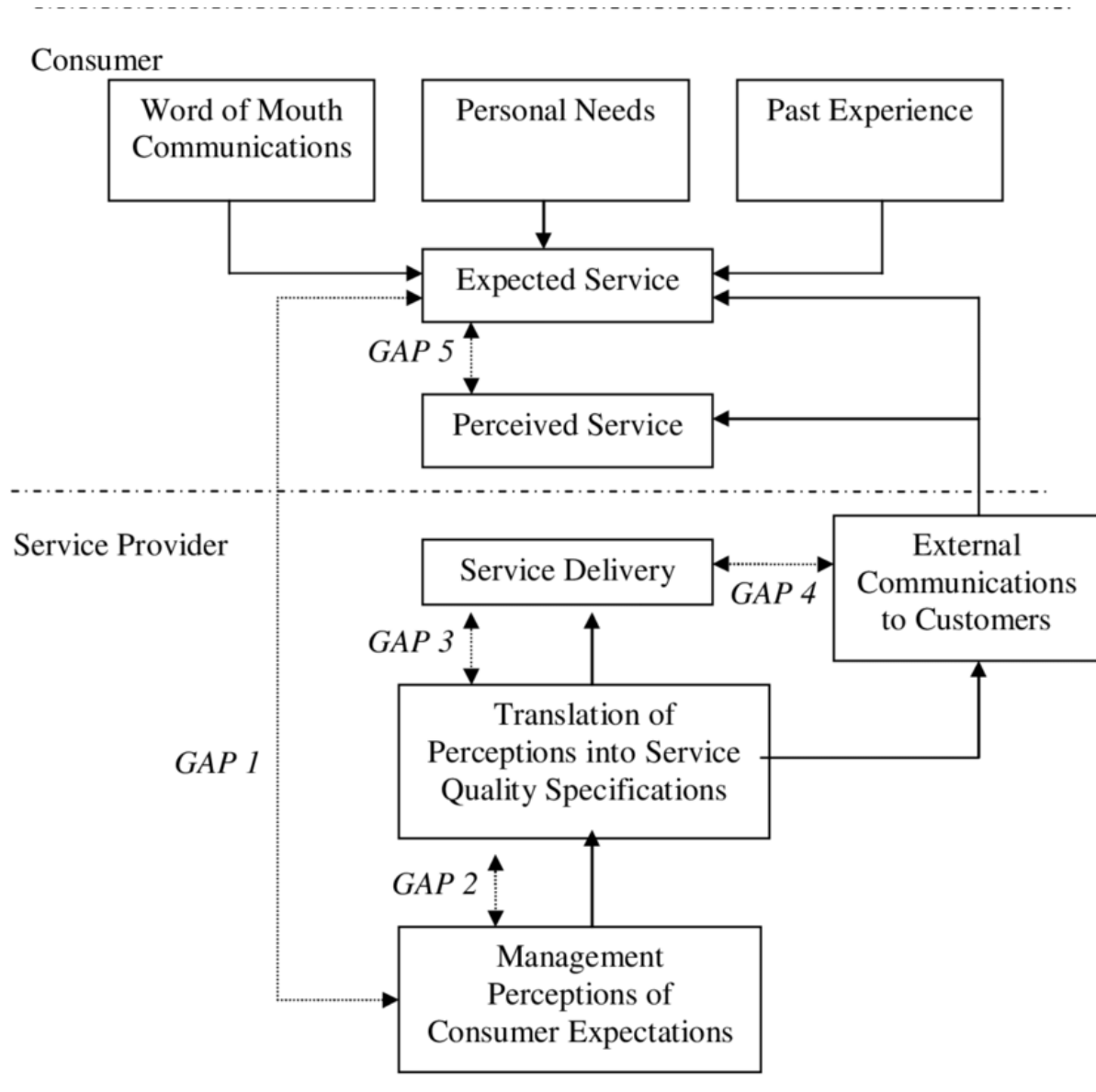


Figure 2.1 GAP model of service quality

Source: Zeithaml et al. (1990)

Gap one: Customer-perceived service expectations gap. The researchers found significant differences between customer expectations of service and the subjective perceptions of service by managers. Often, companies are unaware of what customers expect, making it challenging to accurately identify and provide the corresponding services. Hence, the first gap arises.

Gap two: Management perception gap. This refers to the gap between the management's perception and the service specifications. While the company may perceive the services expected by customers, limitations in resources or insufficient market supply and demand prevent the company from delivering standardized products or services, resulting in the second gap.

Gap three: Service quality gap. As companies are composed of people, despite relevant training and performance evaluations, there is still a variance in the capabilities of employees. When the services or goods delivered by employees do not meet standardized requirements, a gap in service quality management emerges.

Gap four: Communication gap between external and internal stakeholders. The promotion of a company's products or services requires external collaboration. However, during this process, there is uncertainty about whether the value of the products or services can be effectively communicated to customers. Exaggerated advertising may lead to customer disillusionment upon actual experience, while inadequate promotion may hinder customer motivation to make a purchase. This results in the fourth gap.

Gap five: Service delivery gap. This refers to the significant differences between the actual experiences of customers and their expectations regarding the products or services they receive. Customers' past consumption experiences directly or indirectly influence their expectations, which in turn affect the perceived disparity between expectations and actual experiences. Gap five is considered to be influenced by the previous four gaps.

Following the model of perceived service quality, the three scholars further conducted research and developed a scale consisting of 10 dimensions and 97 items to measure service quality. These 10 dimensions are assurance, reliability, responsiveness, tangibles, empathy, tangibility, competence, courtesy, communication, and security. In 1988, the scale was condensed, resulting in five dimensions: tangibles, reliability, responsiveness, assurance, and empathy.

Tangibles refer to the physical facilities, equipment, and communication channels related to services. They serve to ensure the smooth delivery of services, attract customers based on external appearance, and maintain consistency and professionalism, thereby reflecting the preliminary level of service.

Reliability refers to the extent to which customers trust the service and the extent to which the company fulfills its service commitments. It reflects the accuracy of the company's services and its ability to gain customer acceptance.

Responsiveness refers to the willingness and enthusiasm of service personnel when providing services. It reflects whether service personnel can seize service opportunities accurately and the impact of their mental state on customers.

Assurance refers to the basic service qualities and professional capabilities of service personnel. It also reflects the trust customers maintain toward their services. It mainly manifests in terms of politeness and communication abilities.

Empathy refers to the ability to empathize with customers' specific problems and provide personalized care, allowing customers to experience additional services. It primarily reflects whether the company can prioritize customer interests, identify and address their different problems.

Based on these five dimensions, the SERVQUAL questionnaire was developed, comprising a total of 22 items, as shown in Table 2.3.

Table 2.3 Dimensions of Service Quality in SERVQUAL

Dimension	Item
Tangibility	(1) Having relatively new equipment
	(2) Attractive arrangement and installation of facilities
	(3) Service personnel with clean appearance and emphasis on etiquette
Reliability	(1) The company can deliver on promises made to consumers
	(2) In unforeseen circumstances, the company can promptly address issues in the best interest of the consumers
	(3) The company can provide high-quality services and instill trust in consumers
Responsiveness	(1) The company can provide services to consumers according to scheduled timelines
	(2) The company can meet consumers' needs promptly when they arise
	(3) Employees, when providing services, can prioritize whether they have met consumers' needs
Assurance	(1) Consumers can trust service personnel
	(2) Engaging in conversations with service personnel feels secure
	(3) Service personnel exhibit polite behavior
Empathy	(1) The company takes into consideration personalized needs of customers
	(2) The company provides special attention to certain customers
	(3) The company can tailor services based on the individual needs of consumers

Source: Parasuraman et al.(1988)

After the introduction of SERVQUAL, it gained widespread adoption and was subsequently applied in various service industries to measure the multidimensional aspects of service quality. Despite its extensive application, the SERVQUAL scale has been subject to controversy due to conceptual ambiguity and operational convenience. The main points of contention revolve around the gaps between expectations and perceptions, the length of the questionnaire, predictive ability, and the construction of the five dimensions. Zeithaml, Parasuraman, and Berry made further modifications and adjustments to the model as shown in Figure 2.2. Compared to the original model, the revised model underwent significant adjustments and changes, primarily in the following two aspects.

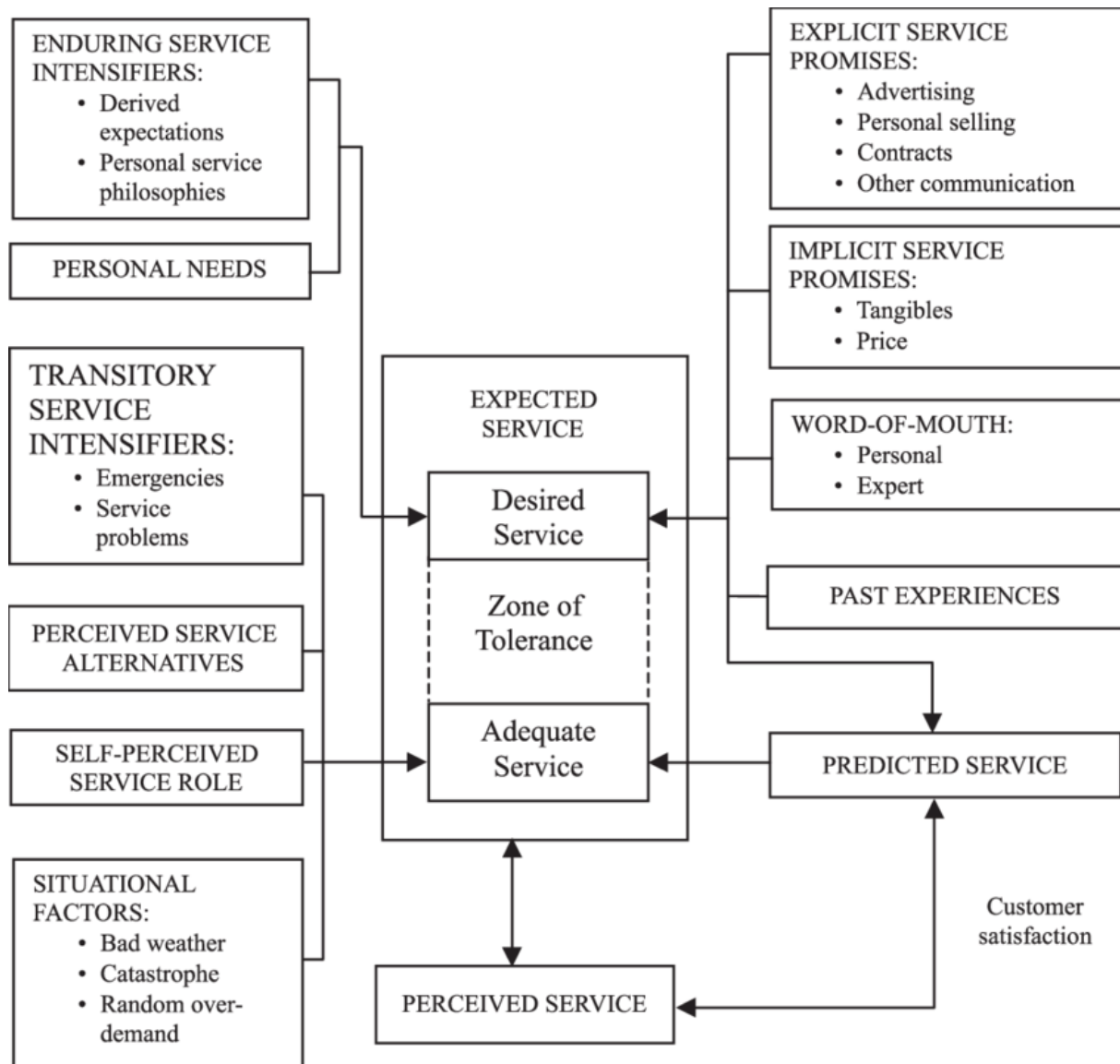


Figure 2.2 Revised SERVQUAL model

Source: Zeithaml et al. (1993)

First, they classified the factors influencing customer expectations into controllable factors and uncontrollable factors. The former refers to service promises, service processes, and standards, while the latter includes customer subjective perceptions and word-of-mouth communication.

Second, customer expectations were adjusted and divided into two parts: desired service and adequate service. The former represents what customers hope to receive in terms of service, while adequate service refers to the minimum acceptable level of service for customers. The difference between ideal service and adequate service is the zone of tolerance, which indicates the maximum level of service variation that customers are willing to accept.

The comparison of expectations and performance is also divided into two aspects: perceived service superiority gap, which refers to the gap between customers' ideal service

and their actual service experience, and perceived service adequacy gap, which refers to the gap between actual service perception and adequate service perception. From a management perspective, this classification has significant research implications as it considers customer perceptions and provides measures and recommendations for service quality management.

Ramu and Anbalagan (2017) argued that service quality evaluation has been widely applied in the service industry, especially in the banking sector. This study aims to understand the impact of service quality in Indian public sector banks on customer loyalty. Service quality is quantified using an improved SERVQUAL model, which includes dimensions such as reliability, assurance, tangibles, empathy, responsiveness, affordability, and convenience. Structural equation modeling (SEM) indicates significant relationships between assurance, empathy, responsiveness, tangibles, and service quality. Banks need to focus on innovation in these parameters to maintain high service quality, achieve high satisfaction, and develop customer trust. By bringing about innovative changes to improve service quality, banks can also enhance their competitive advantage and customer retention, as service quality plays a crucial role in customer loyalty.

Aboubakr and Bayoumy (2022) evaluated the educational service quality for dental and nursing students using the SERVQUAL model. Additionally, the study examines the influence of educational sector, country, gender, and academic year on educational service quality. The research findings indicate that students' perception of educational service quality is higher than the average level. The educational sector has the most significant influence on educational service quality. Furthermore, academic year, educational sector, and country have a significant impact on educational service quality.

Mansour et al. (2023) assessed the service quality of the pharmacy in the affiliated outpatient teaching hospital of Iran's Isfahan University of Medical Sciences in 2019, using the SERVQUAL model to identify areas in need of improvement. The study employs a cross-sectional, descriptive, and analytical approach. The research reveals that strengthening systems for promptly and easily receiving patient feedback and paying attention to customer voices can pave the way for hospital managers and pharmacy technicians to enhance service quality and narrow the existing gaps.

Sangpikul (2023) conducted qualitative exploratory research to examine the assurance dimension of SERVQUAL and better understand its role in hotels. Three main findings are identified: firstly, hotel assurances can be identified in the major service areas of hotels. Secondly, the assurance concept can be conceptualized into four key categories: food and beverage assurance, staff assurance, tangibles assurance, and process assurance. Thirdly,

hygiene perceived during the COVID-19 pandemic is incorporated into the assurance dimension. The research findings enhance the understanding of the assurance dimension in hotels and provide conceptualization under current circumstances. The study also presents theoretical and practical implications.

2.1.3 Empirical evidence of service quality

There are many studies on the relationship between service quality and student satisfaction.

The study conducted by Nugraheni et al. (2014) aimed to examine the relationship between the caliber of educational services and the contentment level of students at the Semarang State Polytechnic, located in Indonesia. The findings indicate that the Semarang State Polytechnic in Indonesia offers satisfactory educational services to the average student. This includes positive perceptions of the lecturers' reputation, academic administration, public facilities, library, laboratories, and security system. The mean scores of students regarding the quality of educational services at Semarang State Polytechnic, Indonesia, varied between the categories of "very suitable" and "suitable." A positive correlation has been observed between the provision of high-quality educational services and the level of satisfaction reported by students enrolled at Semarang State Polytechnic, located in Indonesia. The bivariate analysis revealed that there existed no significant association between the caliber of educational services and the contentment of students with the dental care, engineering radiology, and obstetrics programs.

Ali et al. (2016) examined the influence of service quality on the satisfaction of international students, institutional image, and loyalty in public universities located in Malaysia. The results suggest that the quintet of higher education service quality dimensions exert an impact on the contentment of students, which subsequently influences the institutional image, and jointly influences the allegiance of students.

Krishnamoorthy et al. (2016) examined the dimensions of the quality of higher education services. The study was delimited to examining the perceptions of Tamil Nadu students regarding the quality of higher education services. The researchers employed a questionnaire survey as their chosen research methodology to gather data from students. Additionally, a snowball sampling method was utilized to identify five crucial dimensions pertaining to the quality of higher education services. The dimensions are curricular aspects, infrastructural aspects, faculty competence, academic activities and teaching methods. Furthermore, the research demonstrates that the contentment of students is impacted by the methods of teaching,

the educational program, and the proficiency of the faculty.

Chang et al. (2017) undertook an empirical investigation utilizing a questionnaire, the Timko model to identify potential enhancements in quality components, and structural equations and regression models to evaluate their influence on service satisfaction and loyalty. The findings of the research indicate that educational curriculum, academic advising, and administrative services play a crucial role in enhancing satisfaction with educational services.

Hwang and Choi (2019) proposed an inclusive framework to investigate the interdependent connections among service quality, student satisfaction, institutional image, and behavioural intentions in private higher education institutions located in South Korea. The findings indicate that the students exhibit contentment towards diverse facets of service quality, namely tangibility, reliability, responsiveness, empathy, and assurance. Furthermore, the quality of service has a direct impact on the level of satisfaction among students and their perception of the institutional image. Moreover, the perceived institutional image and satisfaction of students had a direct impact on their behavioral intentions. The results indicate that the connection between service quality and behavioral intention is mediated by student satisfaction and perceived institutional image.

In their study, Khalid et al. (2019) utilized self-reported questionnaires that were obtained through the Higher Education Performance model. The sample consisted of 187 lecturers who were affiliated with Malaysia's leading polytechnics. The findings indicate that non-academic factors, academic factors, course-related concerns, and accessibility were notable predictors of job satisfaction among polytechnic employees in Malaysia. On the contrary, the impact of reputation on satisfaction is not statistically significant.

The study conducted by Mwiya et al. (2019) investigated the variations in learning patterns exhibited by undergraduate students with respect to service quality dimensions and their overall satisfaction. Utilizing a quantitative methodology, a sample of 824 students from a publicly-funded institution of higher education was surveyed and subsequently subjected to statistical analysis via one-way correlation and variance techniques. The results suggest that all five aspects of service quality performance, namely tangibility, reliability, responsiveness, empathy, and assurance, were significantly linked to the overall satisfaction of students in all modes of learning. However, distance students exhibited the highest level of satisfaction across all dimensions, followed by evening students, and full-time students expressed the least satisfaction. The research proposes that the Service Performance Model is a reliable and valuable framework for evaluating and tracking the manner in which significant stakeholders develop their perspectives on the excellence of higher education services. This finding has

implications for scholars, decision-makers, and officials involved in higher education policy.

The hypothesized hypotheses were tested using quantitative techniques by Massoud et al. (2020) who also utilized a causal study design to clarify the causal links between the constructs. Student happiness was significantly impacted by non-academic service quality factors, and student satisfaction had a significant impact on institutional reputation. The link between the academic and non-academic aspects of service quality and institutional reputation is moderated by student happiness. The findings of this research may assist Taiwanese HEIs in evaluating and improving the quality of their services, which will help them draw in more foreign students.

In terms of the evaluation of service quality, H. D. Wang et al. (2021) argued that service quality evaluation is an important first step towards continuous improvement of service quality. However, the majority of currently used evaluation techniques use type 1 fuzzy sets or fuzzy integers to describe assessment information, which is unable to accurately express the uncertainty of user views. In order to evaluate service quality, they created a multi-attribute evaluation model based on interval type-2 fuzzy sets. The similarity between two trapezoidal T2 FSs was first determined using an area similarity measure technique. The Technique for Order Preference by Similarity to an Ideal Solution is enhanced as an evaluation approach based on the area similarity measure. By ranking each evaluation dimension according to predetermined categories, the evaluation model was then applied to the challenge of evaluating public transportation services.

Conventional metrics for Quality of Service (QoS) adhere to the approach of expectation uncertainty. Moreover, research has demonstrated that the effect of negative disconfirmation surpasses that of positive disconfirmation. A study was conducted wherein a scale for Information Systems service quality was postulated, drawing from the dimensions of the Expectation-Disconfirmation and Desire-Disconfirmation approaches. The development of information system service quality scales was achieved through the utilization of the SERVQUAL+ instrument and the analysis of data obtained from 321 users of the information system. Two novel constructs pertaining to service quality in information systems were posited and subsequently validated through empirical means. Two key concepts in the realm of service quality are service adequacy, which refers to the discrepancy between desired and perceived service, and service dominance, which pertains to the difference between desired and perceived service. The findings indicate that both of these approaches exhibit superior predictive capabilities compared to previous measurement tools like the SERVQUAL+ scale (Kesharwani et al., 2021).

In terms of service quality and brand image, Lin et al. (2021) collected data from 316

customers and used structural equation modelling (SEM) to examine the relationship between the variables and to determine the final model. The results show that the social mission enhanced the service quality and brand image of the company. Furthermore, the social mission of a social enterprise is an important issue to encourage consumers to feel concerned. Finally, service quality is a moderator of social mission in terms of brand image. The results of this study help managers to better understand the relationship between social mission, service quality and brand image.

When it comes to SERVQUAL selection, it is difficult to meet the user's requirement for quality of service (QoS). For the service combination optimisation problem, a QoS-aware evolutionary method for web service selection is suggested. The size of the solution space is drastically reduced when using this method to identify the best possible arrangement of services since numerous candidate services are chosen for each abstract service in order to increase the solution efficiency. The solution to this non-linear programming issue is then found using the genetic method. According to experimental findings, the strategy decreases the number of service groups by using path templating and has good execution efficiency and adaptability. When the number of genetic generations is larger than 300 and the number of candidate services is greater than 60, simulated experiments show that the algorithm converges more quickly and the ideal solution is more adaptable than when using the conventional algorithm (Xue, 2021).

2.1.4 Summary of literature of SERVQUAL

The author summarised the related studies on SERVQUAL and obtained the core viewpoints and enlightenment as shown in Table 2.4.

Table 2.4 Core viewpoints and enlightenment of studies on SERVQUAL

Authors	Core viewpoints	Enlightenment
Levitt (1972)	SERVQUAL reflects the extent to which the service provided by the service provider can meet the expectations of consumers. SERVQUAL is composed of multiple factors, and the focus of SERVQUAL is to improve customers' perception of SERVQUAL.	The design of SERVQUAL scales should consider the perception of SERVQUAL.
Lapierre et al. (1996)	It is believed that SERVQUAL is composed of multiple elements. The elements of SERVQUAL in different industries are not the same, but there is one commonality, serving customers.	The study will combine the characteristics of the education industry, and select key elements to design SERVQUAL scales, such as teaching content and services.
Kuei and Liu (1997)	SERVQUAL is affected by external factors such as employees, customers, and the environment, as	The design of SERVQUAL scales can be considered from

	well as the internal quality of the service itself.	both external and internal and external aspects. The external environment includes transportation convenience.
Garretson and Clow (1997)	Service is carried out at the same time as production and consumption. The methods of SERVQUAL confirmation include identifying factors that affect the process, formulating review conditions and approval criteria for factors related to the service process, evaluating whether equipment capabilities and personnel qualifications meet the requirements of the service process, using specific methods and procedures, confirming the necessary record requirements in the service process, reconfirming it on a regular basis or under special circumstances.	Identify the factors affecting SERVQUAL based on a certain process.
Garretson and Clow (1997)	SERVQUAL scale model composed of 5 dimensions.	The SERVQUAL scale serves as an important basis and reference for the design of the service quality scale in this study.
Franceschini et al.(1998)	Incorporating customer tolerance area and customer satisfaction into the revised SERVQUAL model.	Establish a service quality scale based on the revised SERVQUAL model according to the actual situation.
H. Y. Wang (2019)	From the aspects of corporate image enhancement strategy, teacher enhancement strategy, management enhancement strategy, service innovation strategy, employee training innovation, he proposed the construction of SERVQUAL management system of the A Training Company.	These factors are the internal reasons for service governance, but not the perception of SERVQUAL. These factors will be considered in the recommendations for improving SERVQUAL.
Summary	The above viewpoints can provide guiding ideas for the design of the SERVQUAL scales of this study. This study will design specific indicators based on the five dimensions of the SERVQUAL scale and combine them with the actual situation of the Pinrui Training Organization.	

2.2 Customer expectations

Customer expectation is the core keyword of this research. This section sorts out the literature research on the concept of customer expectation and related empirical evidence, in order to clarify how the previous literature research defines the concept of customer expectation, and can also learn from the empirical methods of customer expectation research.

2.2.1 Identification of customer expectations

Customer expectation is an important relational variable in customer satisfaction research and

an important factor influencing customer satisfaction. The study of customer expectation helps the external marketing communication and communication of enterprises, contributing to further development. Customer expectations are judgments and predictions made by customers about the quality of products or services provided by enterprises in the future using empirical or non-empirical information from the past, and such expectations are built up based on their consumer experience and gradual understanding of the behaviour of enterprises. Customer expectations are considered to be the level at which consumers are satisfied that the product or service provided by the company meets their needs, a level at which consumers will be satisfied, otherwise, consumers will be dissatisfied.

According to Grönroos (1984), there are three categories of client expectations, ranging from low to high. The first expectation level refers to the fundamental qualities that consumers take for granted. The second level of expectations relates to the quality attributes that buyers might choose in respect to the price range. Level three is the anticipation for excitement, which relates to the excellent features that clients like.

According to Webb's (2000) definition, expectations refer to the preconceived notions or perspectives held by consumers prior to purchasing a product or service. These expectations serve as a benchmark or point of comparison against which the actual performance of the product or service is evaluated, ultimately shaping the consumer's assessment of its quality. This concept of expectation is widely accepted among scholars and is considered to be highly authoritative. As per his perspective, customer expectations are construed as the customer's anticipation of the events that are likely to unfold during the service interaction or transaction. The definition of customer expectations pertains to the likelihood of a favorable versus unfavorable result when a customer engages in a service behavior, as determined by the customer.

Customer expectations refer to the anticipated needs and desires of customers, which are essentially their projections of the level of service they expect to receive from a service provider. Once customers are stimulated to make a purchase, they establish a set of expectations that serve as a benchmark for the quality of services they receive. This is achieved through the acquisition of information from diverse sources, followed by a process of comparison and discrimination. Thus, individuals develop personal anticipations regarding the service provider and the service itself, subsequently determining their purchasing behavior.

According to Ojasal's (2001) categorization, customer expectations can be classified into three distinct types: ambiguous expectations, explicit expectations, and implicit expectations. Ambiguous expectations refer to customer expectations that are difficult to articulate or express.

Explicit expectations refer to the expectations that a customer is able to clearly express and perceives as attainable. Implicit expectations refer to the set of expectations that customers perceive as essential for achieving their desired outcomes, without the need for explicit communication.

In the service industry, maintaining long-term customer loyalty has always been an important issue. Although customer satisfaction can be improved through better service quality, delivering the right service to customers can pose challenges to service providers, especially in dynamic service environments where real-time and resources are limited. However, in the real world where real-time and dynamics are lacking, customer expectation management is considered an effective way to help service providers achieve high customer satisfaction.

Hsieh et al. (2014) designed a customer expectation-driven service scheduling system based on customer expectations to enable providers to effectively handle the problem of delivering the right service to the right customer in the right environment. The findings show that service providers can make the right service dispatch decisions for their customers by effectively managing their customers' expectations and scheduling their limited resources and time. At the same time, when the right service is provided, customers can receive the right service and achieve a high level of satisfaction. As a result, service providers and customers can co-create value in a dynamic service climate, resulting in a high-performance ecosystem.

X. Xu et al. (2017) argued that customer expectation is a fundamental concept of service marketing, an evaluation criterion for customer satisfaction and perceived service quality, and has an important impact on customer satisfaction and perceived service quality. From the perspective of service attributes, they compared the differences between perceived service quality and customer satisfaction. Firstly, the definition of customer expectations is clarified and there are three types of expectations regarding the Kano model. Using the restaurant industry as the empirical background, through multitrait-multimethod and path analysis, they found that deserved attribute expectation and appropriate attribute expectation have a greater impact on perceived service quality, while desired attribute expectation has the greatest impact on customer satisfaction. They also offered directions for the management of expectations, service quality and customer satisfaction.

2.2.2 Empirical evidence of customer expectations

To explore the benefits and drawbacks of flipped classrooms, Beenen and Arbaugh (2019) used the psychological contract theory and the idea of individual contextual matching and

found that undergraduate organizational behaviour students who expect traditional face-to-face instruction but accept flipped instruction (indicating a breach of their psychological contract) are less satisfied and less willing to take flipped courses. However, they signify more effort in class than those students who expect and accept traditional instruction. In addition, autonomously motivated students are more likely to participate in flipped classes in the future (indicating a better fit), with satisfaction mediating this relationship. Autonomous motivation also predicted out-of-class effort and self-regulated learning strategies. Flipped classrooms are beneficial for students who are autonomous students since they can choose their courses, while students who are less autonomous or whose psychological contract is broken may encounter pitfalls.

In order to gather feedback on student expectations and learning experiences, Fernandes et al. (2019) conducted an anonymous survey at the beginning and end of the semester for the transdisciplinary module Social Responsibility in Action at an Australian research institution. According to data from the three student groups, 80% of student responses at the start of the semester showed a desire to increase their interest in ethical concerns. 59% of respondents wanted to learn more. 59% want to improve their communication or critical thinking abilities. Students overwhelmingly preferred the Social Responsibility in Action module, with 98% of respondents saying the transdisciplinary ethics course surpassed their expectations. Additionally, students said that the variety of teaching methods, subject matter, and interdisciplinary approach encouraged their learning.

According to Hussain et al. (2019), the implementation of appropriate assessment and feedback mechanisms is crucial for maintaining the standard of student learning and enhancing their educational experience. Nonetheless, these crucial constituents encounter significant obstacles in fulfilling student anticipations within the framework of sizable class magnitudes. The provision of transnational education poses supplementary challenges due to the limitations of face-to-face teacher-student interaction, temporal discrepancies across regions, and cultural disparities. It is imperative to conduct suitable evaluations in order to furnish students with prompt and beneficial feedback. The authors put forth a novel framework for assessment and feedback that incorporates student numbers as a positive factor. They advocate for a collaborative approach between educators and students to implement an effective assessment and feedback strategy. Additionally, they recommend leveraging students for peer review, assessment design, assessment indicator design, and tutorial-based feedback.

The study conducted by Laco and Johnson (2019) examined a program for school-based management implemented during the first three months of its establishment in a single school.

The program was offered by teachers and was mandatory for all first- and second-year high school students (N=103). There was a positive correlation observed between the quality of teacher-apprentice environment and the level of school engagement reported by students. In addition, a higher teacher-apprentice environment was associated with greater perceived benefits of discussing personal topics rather than academic topics. The absence of academic benefits, along with the presence of personal benefits, is in line with the outcomes observed in other programs.

According to Linton et al. (2019), inadequate comprehension of student expectations could be a potential factor contributing to the disparities in the perceived quality of services among students. Their report on students and teachers reveals common themes in workload, flexibility, curriculum and support. The study revealed that there was uniformity in the distribution of workload and coursework among the participants. However, variations were observed in the level of adaptability and assistance provided to the participants. Undertaking a gap analysis is a worthwhile pursuit for educators who aim to comprehend the requirements of their student cohort.

In their recent publication, Mamica and Mazur (2020) examined the dissonance between students' expectations and the degree to which universities fulfill those expectations. The authors focused on the factors that shape students' perceptions of universities and explored several key inquiries regarding the interplay between universities and industry. The researchers conducted a comparative analysis of students' perceptions regarding the significance of certain facets of the educational process vis-à-vis the level of assistance furnished by universities. The findings indicate that students hold greater expectations for most dimensions of the educational process, with the exception of theoretical knowledge, which is anticipated to be higher than the level of support provided by their respective universities.

According to Gorgodze et al. (2020), the increasing number of students seeking higher education has emphasized the significance of comprehending students' anticipations from the university. A survey was conducted on a sample of over 800 undergraduate students enrolled in diverse academic programs across five major public universities situated in Georgia. Furthermore, a set of 10 comprehensive interviews were carried out with academic officials to gain insights into the objectives of public university amenities and to comprehend their anticipations from the institutions. After conducting an analysis of the obtained results, two focus groups were organized with students hailing from the western and eastern regions of Georgia. The aim of these focus groups was to gain a deeper understanding of the outcomes derived from the student survey. Subsequently, a total of four comprehensive interviews were

undertaken with professionals in order to gain insight into their perspectives on the empirical findings of this investigation. The results indicate that employment is the main expectation of university education. Additionally, a discrepancy existed between the primary expectations that students held and the expectations that administrators believed students ought to have.

In their study, Danbey et al. (2019) employed a revised version of the SERVQUAL tool to assess the manner in which students perceived six distinct quality dimensions, namely empathy, assurance, responsiveness, reliability, website content, and e-learning quality. The findings indicate that the responsiveness dimension exhibited the most significant expectation-perception gap, while the website content dimension displayed the least notable gap. The findings and subsequent identification of areas for improvement can serve as a basis for the formulation of strategies aimed at enhancing quality.

The challenge of fostering student engagement with learning analytics services in higher education is a crucial matter that requires attention. Despite the prevalent demand for increased stakeholder involvement, there remains a limited number of surveys that have been conducted to gauge the perspectives and anticipations of students regarding learning analytics services. Whitelock-Wainwright et al. (2019) introduced a descriptive tool for assessing student expectations, both ideal and predicted, regarding learning analytics services. The instrument employs a theoretical framework of expectations, namely ideal and predicted expectations, as the basis for its scale. Subsequently, articles are produced in accordance with four distinct themes that have been identified, namely ethical and privacy expectations, agency expectations, intervention expectations, and meaning expectations. The findings of the exploratory factor analysis, in conjunction with those of the exploratory structural equation modeling and validation factor analysis, provide evidence for a dual-factor model that offers the most optimal account of the data pertaining to both anticipated and desired expectations. Factor one pertains to the ethical and privacy expectations, whereas factor two pertains to the expectations related to service characteristics.

The study conducted by Boyle et al. (2020) involved the collection of data from 367 pharmacy students who were in their first through third years of study during the 2017 to 2018 academic year. The participants were drawn from Northeast Ohio Medical University and Cedarville University. The surveys employed a Likert scale questionnaire format to discern variations in the expectations and experiences of students. The inquiry pertains to demographic factors, as well as objectives and goals, interprofessional collaboration, knowledge application, and mentor involvement. This study included individuals who were enrolled in participating institutions and were 18 years of age or older. The participation in the survey was optional and

no form of compensation was offered to the students for their involvement. The findings suggest that a total of 66 participants underwent both pre- and post-surveys, and their matched and identifiable data were subjected to analysis. The statistical analysis revealed that 29 items exhibited significantly more negative perceptions in both the pre- and post-survey, with a p-value of less than 0.05. The results of the pre-survey indicated that the students' anticipated outcomes of their introductory pharmacy practice experiences (IPPEs) were considerably lower than those reported in the post-survey.

D'Uggento et al. (2021) examined the outcomes of the University of Bari's fair tuition policy in order to illustrate the significance of decision support systems in organizations. Low-income students benefited from the fair tuition policy, which gave it prominence in its purpose. To develop a prediction model of first-year students' performance given a number of explanatory factors, a longitudinal study of those enrolled in the 2015–2016 academic year was done. Through the use of suitable statistical techniques (logistic regression, survival analysis, and Cox regression models), a regular monitoring system was used to examine the data's utility. This allowed for the early identification of these factors and their modification to achieve the best outcomes in relation to student expectations and the standard of higher education.

Ford (2020) utilized the list of traits and actions linked with the mastery of teaching from the teacher's behavior inventory to ask students to name the top ten traits and actions. Based on the findings, it appears that students identified the following traits and behaviors: being approachable or polite, being authoritative, confident, and communicating effectively. They also indicated that they were encouraging or concerned about their students.

The study conducted by Heo et al. (2020) investigated the correlation between pedagogical approaches, discrepancies in student expectations and perceptions, and the overall assessment of the classroom. The present study employed validated factor analysis and limited mixed models to analyze data obtained from a sample of 332 students enrolled in an experimental business course. The participants were segregated into two distinct cohorts. The findings suggest that notable variations existed among the student groups, despite belonging to the same cohort. The teacher's core content and the teacher-student relationship had a significant impact on students who exhibited higher levels of variance in their expectations and perceptions. Furthermore, the aforementioned students demonstrated diminished evaluations. The results of the study indicate that it would be beneficial for educators to exhibit academic proficiency and cultivate positive rapport within laboratory settings.

2.2.3 Summary of literature of customer expectation

The study has summarized relevant studies on customer expectations and obtained the core viewpoints and enlightenment, as shown in Table 2.5.

Table 2.5 The core viewpoint and enlightenment of literature on customer expectation

Authors	Core viewpoints	Enlightenment
Grönroos (1984)	Customer expectations are divided into three levels from low to high: Level 1 is the basic expectation, and the corresponding service quality characteristics are the basic quality characteristics of course; Level 2 is the price-related expectations, and the corresponding service quality characteristics are customers related to the price level. Features that can be selected; Level 3 is the value to meet expectations, and the corresponding service quality features are high-value service quality features that make customers happy.	In the design of the customer expectation scale, the scale can be designed based on three expectations: basic expectation, price-related expectation, and over-value meeting expectation.
Webb (2000)	The expectations are clearly defined. The beliefs or concepts that customers have before purchasing products or services are used as a standard or frame of reference. They are compared with actual performance to form customers' judgments on the quality of products or services.	It is necessary to consider which reference system is based on and clearly understand the expectations of users before experiencing PEE training services, which has a certain guiding significance for the design of the customer expectation scale.
Ojasalo (2001)	The customer expectations are divided into three categories, vague expectations, explicit expectations and implicit expectations.	The customer expectation scale should be designed from three aspects. This requires research on PEE training students before the scale is designed to explore and understand the three types of expectations of customers: vague expectations, explicit expectations and implicit expectations.
X. Xu et al. (2017)	Deserved attribute expectations and appropriate attribute expectations have a greater impact on perceived service quality, while expected attribute expectations have the greatest impact on customer satisfaction.	It also divides expectations into different levels, due expectations, appropriate expectations, and expected attribute expectations. This can provide a reference for the design of the customer expectation scale in this study.

2.3 Customer satisfaction

Customer satisfaction is the central keyword of this study. This section provides a review of the concept of customer satisfaction and relevant empirical studies, aiming to clarify how previous literature has defined the concept of customer satisfaction. Additionally, it can serve

as a reference for the empirical methods employed in previous research on customer satisfaction.

2.3.1 Identification of customer satisfaction

Customer satisfaction degree is a measure of the degree of customer satisfaction. Customer satisfaction is a state of feeling of pleasure or disappointment when the perceived effect (or result) of a product is compared to the expected value. Early research in the area of satisfaction focused on the product, and increasing satisfaction made customers repeat their shopping behaviour and not switch to other products (Bashshur et al., 1967).

Customer satisfaction theory is a well-established theory and has been studied for a long time in China and abroad. Customer satisfaction is related to the quality of the product or service received by the consumer. Customer satisfaction has a positive contribution to customer loyalty, and high customer satisfaction leads to high customer loyalty (Tessler & Mechanic, 1975). Customer satisfaction is a comparison between consumers' actual perceptions of a product and their expectations, and the level of customer satisfaction is important to whether consumers will repeat their purchase.

Cardozo (1965) was the first to propose the concept of customer satisfaction and conduct empirical research, stating that customer satisfaction is the result of expectations, with a portion of expectations derived from prior experiences. Churchill and Suprenant (1982) regarded customer satisfaction as a result of the comparison between the costs paid by customers when purchasing a product and the benefits derived from its use. Parasuraman et al. (1985) introduced the SERVQUAL model, which suggests that customers' expected service exceeds their perceived service, leading to customer dissatisfaction.

Conversely, if customers' expected service is lower than their perceived service, they will experience satisfaction. Oliver (1980) initially presented the expectancy-reality inconsistency model (see Figure A.2), which was further refined in 2000 (see Figure A.3).

The modified expectancy-disconfirmation model argues that the extent and direction of customer satisfaction are influenced by inconsistency, which refers to the gap between customers' pre-purchase quality expectations and their post-purchase quality perceptions. Satisfaction is considered a pleasant feeling, and customers' expectations serve as the standard for measuring satisfaction.

Fornell et al. (1996) regarded customer satisfaction as an overall evaluation of the purchase and use of a product or service, which cannot be directly measured but inferred indirectly.

Fornell also developed the American Customer Satisfaction Index model (see Figure A.4).

Kofler (1997) proposed that customers experience pleasure or disappointment when comparing their perceived performance or outcomes of a product with their expectations. Spreng et al. (1996) suggested that customers' performance is the preferred standard for comparison over their expectations. Customers' desires refer to the attributes, levels, and benefits they believe they will obtain from a product. Anderson et al. (1994) observed a relationship between customer satisfaction and market share.

Existing research widely acknowledges that customer satisfaction is a psychological evaluation based on the comparison between actual experiences and customer expectations. Customer satisfaction is a determining factor in customer repeat purchase, word-of-mouth promotion, and loyalty, ultimately contributing to higher profitability for businesses.

Chinese scholars have also conducted extensive research on customer satisfaction. Zhao (2002) proposed the Chinese Customer Satisfaction Index (CCSI) model, which compared and analyzed other models such as SCSB, and employed the partial least squares structural equation modeling method to measure the customer satisfaction index (see Figure A.5).

Ye et al. (2009) emphasized that providing satisfactory products and services to customers is the fundamental goal of the modern hotel industry, and customer satisfaction serves as a key metric.

J. X. Zhang and Wang (2009) defined customer satisfaction as the state of pleasure or disappointment formed by customers when comparing their perceived results of a product or service with their expectations, and they viewed customer satisfaction as a quantifiable outcome.

We largely agrees with the International Organization for Standardization's definition of customer satisfaction in the 2000 version of ISO/DIS9000: The perception of the degree to which the customer's requirements and expectations have been fulfilled. The annotation provided states that a specific event at a specific time based on mutual requirements, expectations, and relevant communication. It is evident that customer satisfaction refers to the level of customers' perceived conditions, which results from comparing the performance of a company's products and services against customers' anticipated performance and expectations. It can to some extent influence the market share and customer loyalty of the company.

2.3.2 Empirical evidence of customer satisfaction

Chen et al. (2019) used the team-based learning (TBL)-Student Assessment Tool in order to

assess undergraduate students' acceptance of TBL. They adopted SEM to assess factors affecting satisfaction with TBL, including an attitude scale and an efficacy scale. The study indicates that contribution, distraction level, and recall level are important factors that affect student team learning. Results revealed that high contribution, low distraction levels, and high recall levels were significantly associated with high positive attitudes and high effectiveness. Attentional distraction levels were significantly and positively correlated with attitudes. Previous positive group work experiences, higher expected grades, and making close friends through TBL all contributed to overall satisfaction. As a classic adverse selection problem, those students who prepared more or reported a higher-grade point average were less satisfied with TBL. However, contributions to group work were considered essential by students (and employers) and were positively associated with their satisfaction with TBL. As students demonstrated better recall and fewer distractions in TBL sessions, this promoted a climate of higher engagement and better learning.

The study conducted by Darawong and Sandmaung (2019) investigated the influence of five distinct aspects of service quality on the contentment of students enrolled in international programs offered by higher education institutions. The study involved the collection of data from a sample of 398 students who had utilized the services offered by faculty and staff in international programs at higher education institutions in Thailand. The outcomes of the assessment pertaining to the model demonstrated satisfactory levels of both reliability and validity. The dimension of service quality that exerted the greatest impact on student satisfaction was responsiveness, succeeded by empathy and facilities. The present study underscores the crucial facets of service quality that, if enhanced by higher education institutions, can lead to a rise in student satisfaction.

The study conducted by Slaven et al. (2019) aimed to compare the effectiveness of two instructional approaches, namely the traditional approach of instruction and flipped classrooms, on students' behaviour guides technical studying (BGTs). The research endeavor aimed to ascertain the impact of teaching methods on students' comfort levels with BGTs, the efficacy of videos in enhancing learning and comfort with BGTs, and the potential gender disparities in the outcomes. The participants were allocated randomly into three distinct categories, namely the modern instruction group, the traditional video instruction group, and the traditional no-video instruction group. Each group was administered a questionnaire both prior to and upon completion of the course. The survey instrument evaluated the acquisition of knowledge and the subjective viewpoints of students regarding their educational encounter. The entirety of the student population took part in the sessions and evaluations, resulting in a response rate of

100%. The academic analysis revealed that the academic performance of students improved across all teaching modalities, namely traditional no-video instruction group, modern instruction group, and traditional video instruction group. However, the observed improvements were not statistically significant between the groups. The ratings of the comfort level of the BGTs and the usefulness of the videos were higher among the students belonging to the modern instruction group. However, the observed differences between the groups were not statistically significant. The participants across all cohorts expressed a high level of satisfaction and perceived usefulness regarding the sessions. Gender did not yield any statistically significant variations in children's learning styles and their level of comfort with the treatment. In general, the student body expressed contentment with the various pedagogical approaches employed. Despite the lack of statistical significance, the group that received modern instruction demonstrated the highest levels of satisfaction and perceived usefulness.

According to Gerard et al. (2019), the factors that contribute to the satisfaction of doctoral students have gained significance for universities due to the widespread use of student satisfaction rankings in undergraduate and master's programs, which have now expanded to include doctoral programs. Moreover, with the rise of internationalization in doctoral education and intensifying competition among universities, it is imperative to comprehend the shared factors that influence satisfaction across different nations. They drew on relevant satisfaction concepts and measurements from the psychology homology field, using cross-sectional data from doctoral candidates in various scientific fields, across social sciences and humanities majors in 63 universities from 20 universities. The findings of the study indicate that the contentment of medical trainees was influenced by various factors such as their mentors, academic departments, and colleagues. These factors encompassed the caliber of education and assistance provided to the candidates. The study revealed that the provision of support by supervisors was the most significant determinant of doctoral student satisfaction, whereas the academic caliber of supervisors did not exert a noteworthy impact on doctoral student satisfaction. However, both academic quality and departmental support significantly predicted doctoral student satisfaction. The results indicate that optimal collaboration between the graduate school department and the doctoral supervisor involves working together to attain high levels of doctoral student satisfaction. Furthermore, this collaboration should be more closely aligned than that of other departments.

The conceptual model of students' satisfaction with university education was proposed and empirically evaluated by Gargoum (2019) as originally proposed by Parasuraman, Zeithaml, and Berry in 1985. The findings suggest that the caliber of services or programs offered has a

noteworthy influence on the contentment and overall welfare of students. There was a significant correlation observed between the quality constructs and the satisfaction of students. The research takes into consideration that program quality, as evaluated by the reputation of the university, has the most significant influence on the contentment of students, among the various quality constructs. Furthermore, the results suggest that United Arab Emirates University has achieved a commendable level of student satisfaction. The results of this study suggest that academic institutions should prioritize their support for service and program quality as a means of enhancing student satisfaction and promoting their overall welfare.

The study conducted by Appuhamilage and Torii (2019) sought to investigate the potential direct impact of various factors, including university image, environment, facilities, student expectations, internationalization, services, financial support, and perceived value, on the satisfaction and loyalty levels of social science students enrolled in the College of Business Administration and the College of Economics at Meiji University in Japan. The study employed validated factor analysis to investigate the association between items and constructs. Additionally, structural equation modeling (SEM) was utilized to examine the relationship between constructs and R-programs. The research findings elucidated the correlation between the contentment of students and their allegiance to the academic institution. The results of the study indicate that the provision of university services and financial assistance has a significant positive impact on overall satisfaction levels. The attribute of loyalty is known to have a favorable impact on the level of contentment experienced by students. On the other hand, loyalty is significantly and positively influenced by satisfaction. Furthermore, it can be observed that the variables of image, service, and perceived value exert an indirect influence on customer loyalty. All measures of adequacy of fit are within acceptable thresholds. Therefore, it can be inferred that the level of contentment among students is indicative of the aforementioned factors such as institutional framework, reputation, provision of services, financial backing, and perceived worth.

The study conducted by Kardoyo et al. (2020) aimed to investigate the impact of academic and non-academic service quality on student satisfaction at Semarang College of Economics. The research employed an exploratory methodology to elucidate the correlation among hypothesis testing, prediction, and the acquisition of the implicit connotation of the problem under consideration. The data obtained from the study was subjected to analysis through the utilization of SEM partial least squares (PLS) technique, which was complemented by the implementation of a stratified sampling approach. The Slovin formula was employed to ascertain the various disciplines and levels of students that were included in the study. A sample

of 360 students was selected and the questionnaire was administered by statisticians who had received specialized training. Data collection in the study was conducted through a self-assessment questionnaire that utilized a five-point Likert scale. The data was subsequently analyzed using SEM PLS 6.0 Warp PLS. The findings indicate that the caliber of non-academic amenities exerted a favorable and noteworthy impact on the contentment of students. The level of support provided by the learning infrastructure is a significant determinant of student satisfaction, relative to the instructional techniques employed by educators. The research additionally revealed that academic attitudes and behaviors do not exert a noteworthy impact on enhancing student contentment. Thus, it is advisable for the Economics College of United Nations University to prioritize the enhancement and preservation of the non-academic facets of its offerings to effectively contend with other establishments of tertiary education. .

The study conducted by Amegbe et al. (2019) aimed to compare the levels of satisfaction and learning among third-grade dental students who underwent case-based learning (CBL) and team-based learning (TBL). Additionally, the researchers also examined the resources needed for both approaches. The assessment of learning levels was conducted based on the domains of knowledge and application, while resources were operationalized as the temporal and spatial dimensions of both students and instructors. Upon the conclusion of each course, both students and faculty advisors were tasked with completing surveys and gathering data from student knowledge and application examinations. The survey administered to students requested them to indicate their level of contentment with the learning approach employed, namely, Case-Based Learning (CBL) or Team-Based Learning (TBL). The survey administered to teacher-counsellors solicited information regarding the resources employed in conjunction with each respective method. In general, the level of contentment among students was greater in the CBL cohort compared to the TBL cohort, as evidenced by statistical analysis using the Mann-Whitney U test ($U=882.0$; $p<0.001$). Moreover, students expressed a more comprehensive grasp of the subject matter following their participation in CBL as opposed to TBL, as indicated by the results of the Mann-Whitney U test ($U=899.0$; $p<0.001$). The results indicate that the students exhibited superior performance compared to the CBL approach on the knowledge quiz items, with a score of 86% as opposed to 82%. However, both groups demonstrated comparable performance on the application quiz items, with an identical score of 86%. The findings of the study indicate that while students exhibited a preference for CBL over TBL, their performance in terms of knowledge acquisition was comparatively higher in TBL courses. According to the discussion, both CBL and TBL necessitate significant resources, with CBL demanding more infrastructure and TBL demanding more time from both students and

educators.

In their study, Muhsin et al. (2020) examined the correlation between university governance, faculty teaching quality, and student satisfaction, as well as the impact of learning facilities on university governance and student satisfaction. The findings indicate that student satisfaction is positively and significantly influenced by university governance, teaching quality, and learning facilities. The quality of teaching delivered by educators is significantly influenced by the governance structure of the university. Furthermore, the quality of learning facilities has a notable impact on effective university governance.

The study conducted by Caskurlu et al. (2020) investigated the correlation between academic performance of students and instructional presence, along with its three sub-dimensions, namely design and organization, facilitation, and direct instruction. The study also identified certain conditions that moderated the intensity of the relationship. A total of 82 effect values, both independent and dependent, were obtained from a sample of 30 studies. The findings indicate that there exist moderate positive correlations between instructional presence and perceived learning ($r=0.602$, $k=23$), as well as instructional presence and satisfaction ($r=0.59$, $k=26$). Furthermore, significant variations in correlations were observed, with a correlation coefficient of 96.24% for perceived learning and 95.31% for satisfaction. These findings suggest that there are systematic dissimilarities among all correlations, which can be attributed to differences in online course environments. The relationship between perceived instructional presence and learning was found to be moderated by the course's target audience and length. The instructional presence-satisfaction relationship was moderated by course length, subject range, and the instructional presence scale, as the fourth point of consideration. The findings indicate that every aspect of instructional presence has a significant impact on the academic achievement of students in a completely virtual learning environment. Through a meta-analysis, this study offers valuable insights into the correlation between instructional presence and student performance. The analysis explores this relationship across various contexts and disciplinary domains, while also considering measures that have practical implications for the design and facilitation of online courses. The study's findings and their potential real-world applications are analyzed.

According to Jaafar et al. (2020), there exists a positive correlation between service quality and customer loyalty. Nonetheless, the research pertaining to high technical and vocational education and training is notably scarce. The present study endeavors to delve deeper into the mediating effect that exists between the aforementioned constructs. Additionally, it seeks to examine the mediating function of student satisfaction in the association between service

quality and student loyalty within the context of higher education. This research employed a quantitative approach and utilized a questionnaire survey as the primary data collection method. The data obtained from 398 questionnaires was subjected to analysis using Smart PLS 3.0. The utilization of Partial Least Squares Structural Equation Modeling (PLS-SEM) demonstrated that there exists a statistically significant and positive correlation between the quality of service provided and the degree of loyalty exhibited by students towards the institution. The results of a mediation analysis indicated that the association between loyalty and service quality was partially mediated by student satisfaction.

According to Metzgar's (2020) definition, the degree of student contentment with the course is the determinant of a Massive Open Online Course's (MOOC) success. Enhancing the satisfaction levels of Massive Open Online Course (MOOC) students can potentially broaden the scope of an educational institution to a larger demographic, bolster the institution's reputation, and facilitate the generation of revenue through MOOCs. In conventional practice, the accomplishment of a MOOC is frequently measured by the rates at which students complete the course. Notwithstanding, this assertion is frequently imprecise as a considerable number of pupils exhibit reluctance towards fulfilling the requirements of the MOOC. The research employed supervised machine learning algorithms, sentiment analysis, and hierarchical linear modelling to investigate a randomly selected set of 249 MOOC course characteristics and the perceptions of 6,393 students regarding the MOOC course. The findings suggest that various factors such as the instructor, content, assessment, and progress of a course significantly influence student satisfaction. Conversely, factors such as course structure, major, class time, video, interaction, perceived course workload, and perceived difficulty were found to have no significant impact on student satisfaction. This research provided a novel viewpoint to the current body of literature by investigating how certain student-level and course-level factors can anticipate MOOC student satisfaction and gauge their relative influence. Furthermore, the paper offers implications for MOOC educators and professionals.

Krishnamoorthy et al. (2016) conducted a study to identify the factors that contribute to student satisfaction and to analyze the factors that have an impact on student satisfaction. The research was carried out between September 2019 and December 2019 at Dindigul District Arts and Science College, located in Tamil Nadu. The research delineated five crucial variables, namely teaching efficacy, evaluation, scholarly assistance, campus experience, and job placement. The study revealed that student satisfaction is significantly influenced by teaching performance, academic support, and campus life, whereas assessment and placement dimensions do not exert any impact on student satisfaction.

Cohen et al. (2020) developed an all-encompassing index system to evaluate students' contentment with extracurricular educational services. This was achieved by establishing clear definitions of the concepts associated with students' satisfaction with extracurricular education services in higher education institutions. The research utilized the SERVQUAL scale and employed a preliminary screening process to identify and select the most appropriate indicators. A comprehensive evaluation model for assessing college students' satisfaction with extracurricular education services was developed through the application of hierarchical analysis, entropy method, critic method, and combined assignment method to assign weights to various indicators. The model was further refined using grey correlation analysis. The feasibility of the concept was confirmed through the use of Minjiang University in China as a case study. Effective collaboration among diverse components, including the involvement of multiple stakeholders and the design of an information network, plays a crucial role in facilitating the thorough implementation and dissemination of this comprehensive evaluation framework.

According to Martínez-Jiménez and Ruiz-Jiménez (2020), flipped learning has surfaced as a learning approach in the past decade with the aim of enhancing student motivation, augmenting learning achievements, and amplifying student engagement. This novel methodology has been implemented across various fields and academic tiers. Predominantly, in the realm of higher education, the majority of research has been directed towards the fields of science, technology, engineering, and mathematics. The present investigation elucidated the process of executing a flipped classroom approach in two business management courses at a university in Spain. The findings suggest that the students exhibited a high level of contentment with both the pedagogical approach and the evaluative measures employed, including both summative and formative assessments. Furthermore, the adoption of this novel approach was perceived by students to have enhanced their learning experience. Undoubtedly, the implementation of flipped courses has yielded superior learning outcomes in contrast to conventional lectures. However, this approach has presented certain obstacles for both educators and students, with some exhibiting reluctance, and it is imperative to acknowledge the existence of certain limitations.

According to Martínez-Roget et al. (2020), the primary objective of the undergraduate dissertation is to evaluate the competencies linked to the degree. The level of contentment expressed by students regarding the training and competencies attained can serve as a metric for evaluating the caliber of tertiary education. The objective of this investigation was to assess the contentment levels of students enrolled in the Faculty of Economics at the University of

Santiago de Compostela, Spain, regarding their undergraduate theses. The study used 130 students (75.7% of the 172 students in the 2013-2014 academic year) as respondents and used structural equation modelling to analyze the impact of the perception of curiosity and acquired skills on student satisfaction. The results indicated that students' perceptions of acquired skills play a crucial role in university students' satisfaction, governed by their perceived future usefulness and supported by personality and motivational factors that encourage their acquisition. The findings validate the significant function fulfilled by the tutor, who emerges as a facilitator of the relationship at the core of the model.

The study conducted by Olaussen et al. (2020) aimed to investigate the variables associated with nursing students' contentment with simulation activities and their self-assurance in handling simulated patient scenarios. The research employed a scenario-based simulation approach to gather data. The present research has introduced an enhanced simulation as an instructional approach. The study employed student satisfaction and self-confidence learning scales as metrics to evaluate the effectiveness of active learning and simulation exercises. The researchers extended an invitation to 202 first-year nursing students enrolled at a Norwegian university to participate in a survey, of which 187 students responded. The results of the ultimate multiple linear regression analysis indicate that active learning was significantly linked with satisfaction regarding the simulation activity. Additionally, clear goals and active learning were significantly associated with self-confidence in managing the simulated patient situation.

The study conducted by Mensah and Luo (2021) investigated the determinants of student satisfaction with e-government services by employing the technology acceptance model (TAM) and structural equation modeling (SEM) through the utilization of Smart PLS 3.0 for statistical analysis. The findings suggest that several factors, namely perceived usefulness, perceived ease of use, student trust, content quality, and service quality, had a significant impact on student satisfaction with e-government services. The perceived usefulness of e-government services was significantly predicted by both the quality of content and the quality of service. The study's findings indicate that the degree of satisfaction that students experience with e-government services has a significant impact on their inclination to recommend the implementation of such services.

Pande and Mythili (2021) investigated how satisfied students were with the school's online courses and other support services, including academic coaching, homework assignments, and test marking procedures. Utilizing a 5-point structured Likert scale, a Google scale was applied. By suggesting statistical metrics, the data from 269 valid replies were quantitatively analyzed.

The study's findings showed that the university's academic counseling to students was conceptual, understandable, and informed. The assignments, tests, and grade reports met the expectations of the students. Additionally, he went into great depth on the projects, various support services, and online services provided by the university and gave suggestions for enhancements. Additionally, it was determined that the study center's employees provided excellent service to the students and that the facility's structure was suitable.

J. Y. Yang and Wang (2021) established a satisfaction evaluation index system for the survey of students' satisfaction. The relevant data of each evaluation index was obtained through a questionnaire survey. They used the fuzzy comprehensive evaluation to study the relationship between the perceptual characteristics of four typical campus node plazas and student satisfaction on the Qingyi campus of Southwest University of Science and Technology, so as to provide a reference for the humanized design of campus node spaces. The study shows that four indicators, namely humanistic atmosphere, interestingness, ground paving and ambience, are the focus of the design and construction of campus squares. Except for the Light of Science and Technology Square, the satisfaction rate of the other three squares was 67%, and most students were dissatisfied with the other three squares. Finally, suggestions were made to optimise the layout and improve the infrastructure and functional configuration of the four squares in response to the problems that existed.

The study conducted by Ho et al. (2021) aimed to identify the key determinants that influenced the satisfaction of undergraduate students (N=425) with the use of emergency remote learning (ERL) in various faculties at a self-financed university located in Hong Kong. The primary educational resources utilized within this academic institution are Moodle and Microsoft Teams. Through a comparative analysis of the predictive accuracy of multiple regression models and machine learning models, both before and after the implementation of random forest recursive feature elimination, it was observed that the predictive accuracy of all models improved. Notably, the elastic net regression model exhibited the highest predictive accuracy, with 65.2% of the variance being explained. The findings indicate that the overall satisfaction scores for ERL were neutral, with a mean score of 4.11 on a 7-point Likert scale. Despite the majority of students demonstrating technological proficiency and encountering minimal difficulties with utilizing educational technology and wireless internet, traditional classroom instruction was favored over remote learning. This preference was identified as the primary predictor. Furthermore, the level of teacher effort, consensus regarding the appropriateness of the modified assessment techniques, and the perception of effective implementation of online instruction were significant factors in influencing satisfaction ratings.

The findings indicate a requirement to evaluate the adequacy and volume of adjusted evaluations tailored to ERL, taking into account the educational culture and course characteristics, and to organize instructional methods in accordance with the suitable level of collaborative learning.

The study conducted by Fisher and Machirori (2021) investigated the effectiveness of combining Socratic Circles (a discussion method centered on students, based on text, focusing on cultivating students' intelligence and communication skills) with the case study in undergraduate classrooms as a way of helping students overcome their reluctance to speak publicly and as a way of experiencing the depth of learning associated with the case study. The statistical results show that the presence of a sense of class belonging and achievement explains the relationship between this teaching style and learning satisfaction. This positive, authentic teaching strategy leads to meaningful learning outcomes for students and maybe a powerful teaching strategy.

A study conducted by Alzahrani and Seth (2021) among 181 UK students using a learning management system. According to the research, service quality has little bearing on student happiness throughout the pandemic, however information quality and self-efficacy have a substantial influence. The results also demonstrate that although self-efficacy and satisfaction do not increase personal outcome expectations, personal experience and societal factors do. For educational developers, policymakers, and practitioners looking to create efficient learning management system techniques and enhance their utilization during the COVID-19 epidemic, the results have practical ramifications.

Yekefallah et al. (2021) evaluated variables associated with students' satisfaction with online learning during the COVID-19 pandemic based on the characteristics of online learning. Using a stratified random sample, the research was carried out in 2020 at Qazvin University of Medical Sciences among students from various areas. In four facets of e-learning, statistically significant disparities between the groups of students who were happy and unsatisfied were discovered. According to the findings, factors that contribute more to student happiness than discontent include teaching and learning, feedback and assessment, flexibility and appropriateness, and workload.

2.3.3 Summary of customer satisfaction

This study has summarized the relevant literature on customer satisfaction and obtained the core views and enlightenment of the relevant research on customer satisfaction in Table 2.6.

Table 2.6 Core views and enlightenment of research on customer satisfaction

Authors	Core viewpoints	Enlightenment
Bashshur et al. (1967)	Earlier research on satisfaction was mainly focused on products. Improving customer satisfaction causes customers to re-purchase.	Improving customer satisfaction is valuable, and it should start from the product perspective. The product of Pinrui Training Organization is the training service of postgraduate entrance examination.
Tessler and Mechanic (1975)	Customer satisfaction is related to the quality of products or services received by consumers. Customer satisfaction is the comparison between consumers' actual perception of a product and their expectations. The level of customer satisfaction is very important to whether consumers will purchase again. The difference between consumers' actual perception of goods or services and their expectations determines the level of customer satisfaction.	There is a great correlation between customer satisfaction and customer expectations. The level of correlation needs to be considered when developing the model.
Darawong and Sandmaung (2019)	If higher education institutions improve the quality of services, it will increase student satisfaction.	There is a positive correlation between service quality and customer satisfaction, which provides a basis for the research hypotheses of this thesis.
Muhsin et al. (2020)	Good university governance, teaching quality and learning facilities have a positive and significant impact on student satisfaction.	It supports the assumption that service quality positively affects customer satisfaction.
Jaafar et al. (2020)	There is a direct and significant relationship between service quality and student loyalty. Student satisfaction has a partial mediating effect between service quality and loyalty.	It provides support for the hypotheses of the main effect and the mediation effect of this study. Based on this viewpoint, the hypotheses between service quality, satisfaction and loyalty are further constructed.
Cohen et al. (2020)	Perceived value and quality are important predictors of student satisfaction.	It supports the hypothesis that service quality positively affects customer satisfaction.
Summary	Although the current researches are based on university service quality, satisfaction, and loyalty, the relationships can provide guidance for hypotheses about the relationship between Pinrui's service quality, satisfaction and loyalty of PEE students.	

2.4 Customer loyalty

Customer loyalty is the core keyword of this study. This section reviews the conceptualization of customer loyalty and relevant empirical research literature in order to clarify how previous studies have defined the concept of customer loyalty and to draw insights from the empirical methods used in prior research on customer loyalty.

2.4.1 Definition of customer loyalty

Cunningham (1956) defined customer loyalty as the proportion of a customer's purchases to the total number of purchases, with a higher proportion indicating higher loyalty to the company. Cardozo (1965) conducted experimental research in the field of marketing and proposed that customer satisfaction drives repeat purchase behavior. Dodds and Monroe (1985) suggested that purchase intention is a behavioral inclination of customers to purchase a particular product, and there is a positive and strong relationship between service quality and favorable behavioral intentions (including purchase intention), while there is a negative relationship with unfavorable behavioral intentions (including switching services).

Reichheld and Sasser (1990) argued that customer satisfaction increases customer loyalty, indicating a higher likelihood of future repurchase intentions. Kotler (1997) posited that customers experience a certain degree of satisfaction or dissatisfaction after purchasing goods or services, and if they feel satisfied, they are more likely to repurchase. Some scholars believe that customer satisfaction positively influences customers' repeat purchase behavior, and repeat purchase behavior, along with purchase intention, is an expression of customer loyalty.

Heskett and Shlesinger (1994) used repeat purchase or repurchase intentions as indicators of brand or service loyalty. Zeithaml et al. (1996) defined customer loyalty as a decision or inclination of customers, after careful consideration of their current situation and other relevant conditions, to continue purchasing or using products or services provided by a particular manufacturer. Oliver et al. (1997) argued that customer loyalty is a commitment to repeat purchase or use a certain product or service in the future, which remains unchanged even in the face of environmental influences and marketing efforts to trigger switching behavior. Many scholars, both domestic and international, have also identified repurchase intention as an important criterion for measuring customer loyalty.

Additionally, Baloglu (2002) pointed out that customers' willingness to cooperate with managers to improve or promote the quality of services or products is also considered a form of customer loyalty. Clemes et al. (2011) indicated that positive word-of-mouth is also an indicator of customer loyalty, including praising the purchased product or service or recommending it to others.

In summary, researchers have generally divided the study of customer loyalty into two directions: attitudinal loyalty and behavioural loyalty. Attitudinal loyalty refers to the willingness of customers to repurchase or recommend to others, while behavioural loyalty refers to the actual behaviour of customers in repeat purchasing, reflecting their preferences. In

addition, positive word-of-mouth and customers' willingness to cooperate with management are also considered indicators of customer loyalty.

Customer loyalty refers to the degree of customer loyalty and is a quantitative concept. Customer loyalty is the degree to which a customer becomes attached to a company's product or service. The customer develops a preference and repeats the purchase of that company's product or service over time due to a number of factors such as quality, price and service. Customer loyalty is the extent to which customers repeat purchases on a regular basis out of preference for a company or brand. True customer loyalty is a behaviour, whereas customer satisfaction is only an attitude (Gould, 1995). According to statistics, a five per cent increase in customer retention can increase profitability by 25% to 100%.

Loyal customers will be the main source of corporate competitive advantage, and customer loyalty refers to the trust, commitment, emotional maintenance and emotional dependence formed by customers on their preferred companies or brands (Gould, 1995). Kandampully (1997) considered that customer loyalty is a quantitative index of customer loyalty and can generally be measured using the three main indicators of overall customer satisfaction, probability of repeat purchases, and the likelihood of recommending to others.

Customers are loyal because they believe that they have received better products or praiseworthy services and favourable treatment from their service providers, and because they believe they have no better choice. However, these customers may not realise the impact or influence of their service provider's advertising on keeping them attractive or succumbing to their brand and customer loyalty.

2.4.2 Empirical studies of customer loyalty

Bitner (1990), Rust and Zahorik (1993), Reynolds and Beatty (1999), and others have conducted research on service products in industries such as banking, hotels, and retail, and have found a significant correlation between customer satisfaction and customer loyalty. Conversely, studies by Andreassen and Lindestad (1998), Mittal et al. (1999), and others have shown no significant correlation between customer satisfaction and customer loyalty. Clemes et al. (2011), Gracia et al. (2011), Wilkins et al. (2009), and others have pointed out that customer loyalty is difficult to observe directly and must be inferred from other related indicators. The measure of customer loyalty is reflected in the intention of customers to repeatedly patronize and purchase. Hunt et al. (1995), through empirical research, have found that customer satisfaction, determined by perceived quality, perceived value, and customer expectations,

enhances customers' intention to repurchase and reduces customer complaints.

There is also a significant amount of research on loyalty among students and teachers.

Yamani et al. (2017) examined the relationship between service quality and student satisfaction, student motivation, student loyalty, and the mediating role of student satisfaction on the relationship between service quality and motivation and loyalty. The data was analyzed using SEM, and variables were assessed using the Likert scale method. The results showed that service quality affects student satisfaction, motivation, and loyalty, but that neither high service quality nor student satisfaction have any mediating effects on these outcomes. Instead, service quality affects all three of these outcomes indirectly.

The study conducted by Amegbe et al. (2019) investigated the impact of employee behavioural factors on enhancing student loyalty. The study focused on analyzing the direct and indirect relationships that exist between employee service quality, trust, and intimacy. The researchers employed an empirical research paradigm to investigate the impact of service quality, trust, and intimacy on student loyalty. The results of their study revealed that intimacy holds significant predictive power for students' loyalty, whereas trust is strongly influenced by service quality. The confirmation of the indirect mediating effect of service quality, trust, and intimacy on students' loyalty remains unverified. The pressing necessity for university administrators to comprehend the conduct of their personnel during service encounters was emphasized. This study's distinctiveness lies in its quantitative analysis of the extent to which the aforementioned staff behavioral factors contribute to students' loyalty and intimacy.

The study conducted by Azeem et al. (2019) investigated the mediating effect of college reputation on the association between college social responsibility and student loyalty. The findings of their research indicate that there exists no discernible correlation between the social responsibility of a college and the degree of loyalty exhibited by its students. The mediating variable of college reputation serves as an intermediary in the relationship between college social responsibility and student loyalty. The reputation of a college is found to have a notable positive impact on the loyalty of its students.

The effect of service quality and university reputation on student loyalty and satisfaction was examined by Chandra et al. (2019). Twelve indicators made up the service quality construct. They discovered that there is no positive and significant relationship between service quality and student loyalty, but that there is a positive and substantial relationship between student happiness and loyalty.

El-Kassar et al. (2019) examined the significance of social responsibility in higher education by examining how it affects student loyalty and institution identity. Additionally,

they looked at the mediating impact of student-university identification and the moderating effect of USR relevance judgments. By giving university students an online questionnaire, they performed a comparison study of students from two distinct cultural backgrounds and students from two different developing market countries (Lebanon and Colombia). Using descriptive methods, cluster analysis, and multi-group analysis with partial least squares SEM, the data was examined using SmartPLS 3.0 software. It was discovered that USR impacts student loyalty directly or indirectly via student-university identity. The research presented here is an important contribution to the body of knowledge on university social responsibility and how it interacts with student-university identity. In addition to being a major driver of student enrollment and retention, university social responsibility is presented as a crucial marketing tool for fostering student identity and loyalty.

By including two relational variables, trust and commitment, two cognitive traits (service familiarity and communication), and one affective trait (opportunism) as moderators of the effects of trust and commitment on loyalty, Gallegos and Vasquez (2019) extended the understanding of student loyalty beyond its conventional relationship with student satisfaction. The student loyalty model was improved using the two relational components (trust and commitment), and significant comparisons were done to see whether profession, cohort, and source school had any bearing on the explanation of student loyalty. According to the data, the explanatory chain starts with student happiness and progresses as student trust grows, finally coming to a head with student loyalty. The model's explanatory power was greatly boosted by student opportunism, service familiarity, communication, age, and educationally accessible income. Along with the student population and the sort of high school the pupils attended, the profession was a significant difference in winning over the students' allegiance.

In order to design and test a model and investigate how these university brand elements translate into student loyalty in the context of higher education, Kaushal and Ali (2020) employed university reputation, university brand attachment, and university brand personality. This research examined the relationship between cause and effect as well as the impacts of moderating factors such age, gender, seniority, and scholarship money as well as the mediating impact of student happiness on the relationship between university reputation and university brand personality. The results of the empirical investigation showed that student loyalty behaviour is influenced by university reputation both directly and indirectly via satisfaction. The age of the students, the duration of their service, and the accessibility of financial help in the form of scholarships all have varied degrees of impact on the link between happiness and loyalty. A sample of college students enrolled in various programs at a large private institution

in India was utilized for this research.

Paul and Pradhan (2019) examined service value due to its multidimensional nature and its impact on customer satisfaction, behavioural loyalty, and firm performance. They explored the value dimensions of higher education service discourse and analyses the impact of these dimensions on student satisfaction and loyalty. The results indicated that functional value, customer intimacy, service quality, affiliation value, image and social value are dimensions of service value. Their research supports the view that HEIs gain a competitive advantage by focusing on service value.

In order to forecast the loyalty of foreign students to their host country, Pham, Lai, and Vuong (2019) expanded the disconfirmation-expectation model's applicability by including three components (achievement, usefulness, and intrinsic) derived from subjective task values. An international sample of 410 Vietnamese students from 15 different countries was used to evaluate the conceptual model using SEM. Their empirical research revealed that, as direct and indirect antecedents of foreign student loyalty, respectively, satisfaction and disaffirmation continue to play significant roles. The most significant predictor, however, is intrinsic worth, which has a direct or indirect impact on the mediating function of disaffirmation loyalty and satisfaction. The research also discovered that utility value had a reduced impact on loyalty compared to accomplishment value. The aforementioned findings have some consequences for college presidents and lawmakers in terms of how they approach internationalization in higher education.

In order to investigate the connection between the social advantages of intramural sports, the standard of university life, and student commitment to the institution, Shin et al. (2019) presented a model. They also contrasted how the seniors' group and the seniors' group differed in their social advantages of intramural sport on the standard of university life and student loyalty. According to their research, intramural sports' perceived social benefits have a good impact on college students' quality of life on campus, which in turn has a beneficial impact on those students' loyalty to their school. The social advantages of intramural sports and loyalty, however, have not been linked. Additionally, the multi-group study identified significant differences between juniors and seniors. The social advantages of intramural sports, in particular, had a bigger effect on seniors' satisfaction with university life and loyalty. According to the results, schools should provide a range of intramural sports programs and services to cater to the demands of students and further strengthen their school ties.

Gao (2020) conducted an empirical study on students' satisfaction and loyalty towards the quality of administrative services in universities. The results signify that the quality of

university administrative services significantly affects students' loyalty to the university through student satisfaction. For parents who are attending university or who are concerned about education, their confidence in the university and their sense of mission to participate in university affairs can be further enhanced if they can understand the performance of the university administration through objective university evaluation. Universities are professional organisations should establish mechanisms for self-renewal. Therefore, the ultimate aim of university evaluation is to promote the development of self-evaluation mechanisms so that they can operate regularly and inject a constant flow of energy into the sustainable operation of universities.

The antecedents of student loyalty, such as service escape from the institution, relationship quality, university image, and student happiness, were examined by Mulyono (2020). The study's findings indicate that: a). service leaving the university had an impact on university image and student satisfaction but not on student loyalty; b). service leaving the university had an impact on student loyalty through university image; c). service leaving the university had an impact on student loyalty through student satisfaction; d). relationship quality had an impact on university image and student satisfaction but not on student loyalty; and e). relationship quality had an impact on student loyalty. This research discovered that service escape universities, relationship quality, university image, and student happiness are the four antecedents of student loyalty in Islamic environment universities.

Snijders et al. (2020) investigated the link between student involvement and students' assessments of the caliber of their connections with teaching personnel (i.e., relationship quality). The goal of the relationship quality metric, which takes into account students' interactions with all members of the teaching staff, is to forecast student involvement and loyalty. The research indicated that the relationship quality dimensions of emotional commitment and emotional conflict had a significant impact on the engagement dimensions of student attention, devotion, and energy. The key finding is that relationship management strategies are effective in higher education for achieving good academic results like student loyalty and engagement.

The construction of loyalty in the university sector is determined by the results and predictors of satisfaction, according to a study by Toledo and Martínez (2020). According to the study's findings, image, satisfaction, and loyalty are all determined by perceived value, and there is a direct causal link between these three variables. There is no difference in the choice of employment when determining the impact of value on satisfaction. However, a graduate's future is heavily influenced by their job situation. These factors' effects have not been studied in

the literature. Their results may aid managers and administrators of HEIs in making decisions and in enhancing graduate happiness and loyalty as well as the reputation of institutions given the fierce competition that exists in higher education today.

According to Yousaf et al. (2020), the establishment of trust via proficient service delivery, coupled with sufficient institutional dedication, is the sole means of fostering student loyalty and diminishing the expenses of future acquisitions. The study investigated the effects of four distinct dimensions of brand trust, namely credibility, trustworthiness, benevolence, and integrity, on student loyalty. Additionally, the research explored the mediating role of institutional commitment in this association. The findings suggest that loyalty is primarily influenced by credibility, followed by integrity, while benevolence is only a significant factor in fostering loyalty when there is a clear demonstration of commitment. The results of this study hold significant implications for senior management in Higher Education Institutions (HEIs), particularly with regard to the role of trust in fostering greater student loyalty.

Latif, Bunce, and Ahmad (2021) tested the idea that university social responsibility predicts student loyalty, but that this relationship is mediated by perceived service quality, student satisfaction, and student trust in the university. They did this by using a theoretical framework developed by consumer researchers. According to this study, university social responsibility fosters student loyalty by having a favourable effect on how well services are viewed, how happy students are with their experiences, and how trustworthy they feel toward the institution. The results revealed that, providing university social responsibility activities raise students' views of service quality, contentment, and confidence in the institution, they may be used as a marketing strategy to encourage student loyalty.

Borishade et al. (2021) examined customer experience management and student loyalty in HEIs using a case study of a private institution in Ogun State, Nigeria. Their research showed that whereas humanistic signals considerably affected students' tendency to identify with the HEI, mechanical cues significantly affected student retention. The study's suggestions include the idea that university administration should intentionally concentrate on mechanical indications to provide students a conducive atmosphere, particularly one that is constantly clean.

2.4.3 Summary of literature on customer loyalty

This study has summarized the related research on customer loyalty and obtained the core views and enlightenment of the related research on customer loyalty in Table 2.7.

Table 2.7 The core viewpoints and enlightenment of literature on customer loyalty

Authors	Core viewpoints	Enlightenment
Gould (1995)	Customer loyalty refers to the degree to which customers repeat purchases frequently because of their preference for companies or brands. True customer loyalty is a behavior, while customer satisfaction is an attitude.	In the design of the customer loyalty scale, it is important to design the scale from the behavioral perspective, which means considering whether the customer has repurchased or referral behavior.
Kandampully (1997)	Customer loyalty can be measured by three main indicators, overall customer satisfaction, the probability of repeat purchases, and the possibility of recommending to others.	The design of the customer loyalty scale provides a basis for guidance.
Amegbe et al. (2019)	The role of employee behavior factors in improving student loyalty.	The customer loyalty of Pinrui can be improved through employee behavior.
Chandra et al. (2019)	Student satisfaction has a positive and significant impact on student loyalty.	It can provide a basis for the hypotheses of this study, so it is assumed that student satisfaction positively affects student loyalty.
Summary	The above viewpoints can provide guidance for the design of customer loyalty scales. They also show the relationship between service quality, customer satisfaction, and customer loyalty, providing guidance for the research hypotheses of this study.	

2.5 Review of existing studies in the education and training industry

In this section, an extensive review of existing studies in the education and training industry will be presented, aiming to provide a comprehensive analysis of the current state of research, identify gaps in knowledge, key findings, and emerging trends. This review is essential to establish a solid foundation for our research and contribute to the existing scholarly discourse in this field.

2.5.1 Studies in the education and training industry

This study conducted a literature review on research related to PEE training. Currently, the depth of research on PEE training is relatively shallow, and existing studies indicate that the current PEE training market is characterized by confusion and the presence of varying degrees of issues among PEE institutions.

D. H. Chen et al. (2019) conducted a SWOT analysis on the emerging PEE training education industry, analyzing the opportunities and challenges it faces. Several suggestions were proposed, including focusing on developing high-quality courses, continuously updating and upgrading them to enhance core competitiveness; diversifying promotional methods to

increase the visibility of PEE institutions and attract a broader range of potential consumers; and customizing exclusive courses and implementing differential pricing based on the specific needs of different consumer groups.

H. Y. Wang (2019) pointed out that in recent years, the number of PEE candidates in China has been increasing rapidly, leading to a proliferation of various PEE coaching classes and creating a chaotic and disorderly market. This study analyzed the development of the PEE industry from the perspectives of demand, supply, and risks. Based on this analysis, predictions were made about the development of the PEE industry, and several recommendations for the industry's development were proposed.

Y. X. Liu et al. (2020) stated that with the increase in the number of undergraduate students pursuing postgraduate studies in recent years, the number of PEE training organizations has also been growing. Analyzing the current status of the business models of existing PEE training organizations, this study identified the existing problems and proposed innovative strategies and suggestions for the diversification of projects, minimizing costs, and making pricing more affordable to improve the business models of PEE training organizations.

Wei (2021) indicated that the dramatic increase in the number of PEE candidates in recent years has intensified competition in the PEE field. Consequently, many candidates choose to participate in PEE training to enhance their competitiveness. This trend has driven the development of the PEE training market but has also exposed certain issues. By analyzing the problems existing in the PEE training market, this study provided recommendations for the development of the market from the perspectives of candidates, training organizations, and government departments.

2.5.2 Service quality in the education and training industry

In the field of education and training, there exist two broad categories delineated by distinct target audiences. The first category primarily caters to students, encompassing learners across various age groups and educational levels. The second category within the realm of education and training is specifically tailored towards adult continuing education. This facet recognises the importance of lifelong learning and the evolving educational needs of adults in both personal and professional contexts.

2.5.2.1 Service quality in the education and training industry

In the field of education and training, some scholars have also conducted relevant research on

service quality.

Ma (2015) believed that the fundamental reason for the disparities in the advancement of educational and training establishments is attributed to the caliber of their provisions. In order for educational training organizations to progress in a sustainable manner, it is imperative that they prioritize the quality of their offerings and cater to the demands of both students and parents. The author utilized service quality management theories to suggest tactics for enhancing the service quality of Guomeng Education. This was achieved by analyzing the current state of service quality and identifying the multiple factors that impact the improvement of educational service quality.

Drawing on existing service quality evaluation systems, H. Yang and Wang (2015) constructed an evaluation system for the quality of teachers' support services in the online community, based on the characteristics of teachers' support services. The evaluation system not only reflects the universal evaluation criteria of service quality, but also reflects the special requirements of social support, cognitive support, academic support, and management support for teachers' QoS in the online community.

Dužević et al. (2015) conducted an analysis of the perceptions of Croatian higher education students regarding the quality of services provided, while also exploring potential variations in relation to individual student characteristics. Data was collected from 1454 students across 93 higher education institutions (HEIs) in the Republic of Croatia, utilizing the Higher Education performance (HEdPERF) tool. The researchers performed a principal components analysis in order to identify the primary dimensions of quality. The results revealed five distinct dimensions, namely access, non-academic dimensions, academic dimensions, space and study programmes, and reputation of the higher education institution. The findings indicate that there are notable statistical disparities in the students' perceptions of the majority of the observed control variables.

Based on the SERVQUAL model, L. L. Wang (2016) constructed the service quality satisfaction measurement system of Zhongwu Yayun In-service Post Graduate Entrance Examination Training Organization and designed a questionnaire accordingly. Using a combination of questionnaires and in-depth interviews, she obtained primary information and conducted the statistical analysis, applied the Ingenuity Pathway Analysis (IPA) method and the service quality gap model, and deeply analyzed the main problems in the services of Zhongwu Yayun's In-service Post Graduate Entrance Examination Training Organization, and combined them with the actual situation, The six service quality improvement strategies were proposed, including strengthening communication and feedback, accurately understanding customers'

needs, changing publicity strategies and conducting experiential promotions, providing personalized life care services, taking multiple measures to promote the comprehensive quality of teachers, flexible pricing strategies and standardized charging procedures, and providing convenient teaching places and a good teaching environment.

Xiong (2016) combined the perceived-expected difference of service quality in the service quality gap model with the Analytic Hierarchy Process (AHP), solving the drawback that the service quality gap model can only produce the perceived-expected difference of service quality but cannot measure the importance of service elements, thus guiding focusing resources and improving key service elements to effectively improve the teaching service quality of after-school tutoring institutions. The method enriches the research theories and methods in the field of service quality of after-school tutoring institutions in primary and secondary schools and provides certain theoretical references and methodological references for future research in this field.

The adaptability of SERVQUAL in measuring the quality of higher education services in the Russian university environment was demonstrated by Galeeva (2016). The researcher enhanced the initial research methodology by incorporating an importance-quality analysis grid and augmenting it with inventive graphical aids to communicate outcomes to stakeholders using region-specific ratios as opposed to variance scores. Further research is needed to ascertain the validity and reliability of summary scores pertaining to importance, expectation, and perception.

Bae et al. (2016) investigated how educational service quality, service landscape and learning motivation affect service commitment. They proposed a conceptual model and tested it through a survey of 322 financial institution employees. Findings show that tangibles, reliability, assurance and environmental conditions, physical structures, symbolic artefacts and intrinsic and extrinsic motivation significantly affect educational satisfaction. Tangibles, reliability and environmental conditions, physical structures, symbolic artefacts and intrinsic motivation significantly influenced affective service orientation, while tangibles, reliability, assurance and extrinsic motivation significantly influenced altruistic service orientation.

The study conducted by Kashif et al. (2016) explored the pathways linking service quality and loyalty within a cultural context characterized by collectivism. This research holds significance for marketing professionals who aim to enhance the holistic student experience throughout their academic pursuits.

The study conducted by Viraiyan et al. (2016) aimed to evaluate the caliber of services offered by Higher Education Institutions (HEIs) in Mauritius. The research was carried out by

using the Higher Education Service Quality (HESQUAL) model developed specifically for the higher education sector in Mauritius. The findings indicate that the dimensions pertaining to the quality of administration, supporting facilities, and the physical environment were evaluated as suboptimal, whereas those pertaining to the quality of core education and innovation were appraised as satisfactory.

Chai (2017) conducted a questionnaire survey on employees and customers with the data from international students at Huaqiao University. A distribution of 600 questionnaires was conducted, yielding a return of 467 valid questionnaires, resulting in a return rate of 78%. The findings indicate that service recovery has an impact on service failure and relationship quality. Additionally, service failure has a negative impact on relationship quality. Furthermore, service recovery mitigates the negative impact of service failure on relationship quality.

Hong (2017) employed the method of documentary analysis to synthesize and evaluate the scholarship of international researchers on the quality of higher education services. The research indicates that the SERVQUAL framework is applicable to assess the quality of services in higher education. Furthermore, the quality of higher education services is contingent upon the disparity between students' anticipated standards and their actual experiences of such services.

Jia (2018) used the satisfaction index model to determine the customer satisfaction values of EF schools in J City through reliability testing and descriptive analysis of the observed variables. She then analyzed the four key areas that require urgent improvement in the quality of teaching services, namely teaching capacity, teaching and coaching, service quality, and training effectiveness, and finally proposed solutions to address these problems for people other than teachers.

In non-Chinese vocational institutions, Choi (2018) looked at the connection between academic success and employment happiness. The findings show that academic success in the independent variables is influenced by the quality of educational services and the demand for vocational education. Academic success will thus rise if educational institutions value and raise the quality of vocational education services and the demand for such education. Academic success is anticipated to have a favorable effect on work satisfaction after employment.

X. M. Li (2019) examined the service quality of Hongzhi Education and Training Organization using the SERVQUAL model. The degree of expectations that parents and students have on each dimension and the difference between those expectations show that Hongzhi Education and Training Organization does not, to a greater or lesser extent, satisfy the demands of parents and students in every area. The Hongzhi Education and Training

Organization chose the SERVQUAL model, which has seven characteristics of tangibles, dependability, responsiveness, assurance, care, information, and monitoring.

The methodology employed by Fatimatuazzahro (2019) involved the utilization of a questionnaire survey for data collection, followed by the application of a path analysis technique for data analysis. The findings indicate that several factors influence the quality of educational services. Firstly, the study reveals that organisational culture significantly affects the quality of educational services. Secondly, headmasters' entrepreneurial competencies do not have a significant impact on the quality of educational services. Thirdly, the study shows that organisational culture has a significant impact on organisational climate. Fourthly, headmasters' entrepreneurial competencies have a significant impact on organisational climate. Fifthly, the study reveals that organisational climate significantly affects the quality of educational services. Sixthly, both organisational culture and headmasters' entrepreneurial competencies have a significant impact on the quality of educational services. Lastly, the study shows that organisational culture and headmasters' entrepreneurial competencies have a significant impact on organisational climate, and there is no mediation effect of educational service quality. The aforementioned statement suggests that in order to enhance the quality of educational services, it is imperative to optimize the organizational culture, entrepreneurial competencies of headmasters, and the organizational climate.

To assess the degree of service quality in HEIs, Latif et al. (2019) created and validated the Higher Education Service Quality Model. Using information gathered from seven different HEIs, the scale was verified. The research found six factors that determine the quality of services provided by higher education, based on exploratory and validation factor analysis. They were identified as the following: leadership quality, administrative services, knowledge services, activities, and continuous improvement.

L. Z. Li (2019) addressed the shortcomings of the quality of educational services in universities and proposed a model for evaluating the satisfaction of the quality of educational services in universities based on the feature selection algorithm of big data based on categorical attributes.

The study conducted by Tavakoli et al. (2019) examined the quality of educational services for health information technology students at Isfahan University of Medical Sciences based on the SERVQUAL model. The results of the study indicate that the gaps in various quality dimensions and high expectations compared to the students' perceptions are needed to assess the quality of higher education, improve knowledge skills and creativity through the implementation of students.

Teeroovengadam et al. (2019) employed a validation methodology to authenticate the HESQUAL scale and assessed an enhanced structural model that forecasts student loyalty based on image, perceived value, satisfaction, and service quality. The proposed model categorizes service quality into two distinct dimensions, namely functional and transformational (technology) aspects. Additionally, the model considers functional service quality as a higher-order factor, comprising nine sub-dimensions.

In the framework of Islamic higher education, Asnawi and Setyaningsih (2020) established the elements of service quality. They outlined the factors that influence how well a service is viewed generally by customers as well as how Indonesian students' perceptions of quality vary depending on their gender, academic year, and educational level. Seven quality dimensions were identified for the new Islamic higher education model that students felt were significant, including teaching and academic staff competence, service dependability, university reputation, staff responsiveness, staff empathy, internalization of Islamic values, and library service support.

Lakal et al. (2020) used exploratory factor analysis to test the model's validity and dependability. Research orientation, personal growth, higher-order learning, effective teaching, support processes, program opportunities, workload, and infrastructure are some of the eight dimensions that make up the faculty perspective model of engineering education service quality, according to the study's findings.

L. Xu and Zhang (2019) developed a preschool service quality model and further conducted simulation reasoning in order to identify the key factors for improving the service quality. The simulation results of the study suggest that regulatory bodies and government environment and policies are two key factors affecting the quality of pre-school education services, which should be given more attention and corresponding measures should be proposed to ensure the quality of pre-school education services.

2.5.2.2 Service quality in the on-the-job education industry

Relevant studies on the quality of in-service education services are scarce and have been collected and collated as follows.

S. Y. Wang (2019) constructed a service quality management system for an education and training company in terms of corporate image enhancement strategy, teacher strength enhancement strategy, management strengthening strategy, service innovation strategy and staff training innovation.

M. Y. Li (2018) chose the service performance model with higher feasibility and reliability as a diagnostic tool to summarise the problems and shortcomings of Xiezheng Education

Company in terms of service quality, analyse the causes of the problems, and make suggestions for service quality improvement.

With an emphasis on non-academic internationalization initiatives, Jager and Soontiens (2015) examined the significance of service delivery in relation to the market positioning of academic institutions in Australia and South Africa. According to key data, successful onboarding programs are the most crucial factor in the non-academic category.

L. Zhu (2016) investigated the factors that influence vocational training participants' satisfaction with training organizations and analyses the relationship between these factors and satisfaction. Based on the research on perceived quality, perceived value and customer satisfaction, a research model was constructed using customer satisfaction theory, perceived value theory and Kirkpatrick's four-level model to evaluate the index system of training effectiveness, with perceived quality and perceived value as independent variables, trainee satisfaction as the dependent variable and trainee expectation as moderating variable. The results show that trainee perceived quality and perceived value have a significant impact on satisfaction, and that trainee perceived quality is mainly measured by two dimensions: course quality and service quality; trainee perceived value is measured by two dimensions: perceived benefits and economic costs; trainee perceived value plays a part in mediating between trainee perceived quality and satisfaction. Therefore, for training companies, the key to winning the satisfaction of trainees lies in improving the perceived quality and perceived value of trainees.

Fei (2018) analyzed the current situation of service quality in Huangshi Renren Education and Training School, understood the problems of service quality in the school through practical and theoretical analysis, and proposed corresponding suggestions to solve the problems in service quality provided by Huangshi Renren Education and Training School.

Based on the five dimensions of the SERVQUAL model, Guan (2020) proposed five groups of strategies to improve the customer satisfaction of Lanzhou New Oriental School. The strategies for improving the tangible dimension are optimizing teaching service facilities, controlling class size, improving the teaching service environment. The strategies for improving the reliability dimension are strengthening staff professional training, strengthening marketing and teaching service supervision. The strategies for improving the responsiveness dimension are improving student service speed and providing business training for teachers. The strategies for improving the assurance dimension are ensuring the correct implementation of marketing activities and strengthening professional skills training for business department staff. The strategies for improving the empathy dimension are ensuring the continuity of course offerings, supervising the scheduling of courses in the teaching department, and improving the

bad reputation of teaching programs. Finally, this study proposed ways to improve customer satisfaction in Lanzhou New Oriental School based on the five dimensions of the SERVQUAL model. Therefore, this study is important for Lanzhou New Oriental School to shift it from the external marketing environment to the products and services it provides, thus improving customer satisfaction.

Khoi (2020) assessed the quality of agricultural extension training in Vietnam. An analysis of the research model shows that farmers' satisfaction with the quality of agricultural extension training is reflected in assurance and empathy.

2.6 Theoretical review and the conceptual model

From the literature on service quality, customer expectations, customer satisfaction and customer loyalty, it can be seen that service quality directly affects customer satisfaction, so the core of improving customer satisfaction is to improve service quality. How customers perceive service quality is based on their own expectations, and different customers' expectations are not the same, and the lower the customer's expectations, the easier it to be satisfied. The research on customer satisfaction and customer loyalty shows that customer satisfaction and customer loyalty are directly positive, that is, customer satisfaction can promote customer loyalty. These studies provide strong literature support for the model construction in the next steps.

However, it should be noted that existing studies rarely combine the dimensions of service quality, customer expectations, customer satisfaction and customer loyalty. Existing studies support that customer satisfaction is influenced by service quality and customer expectations, customer satisfaction promotes customer loyalty, and service quality can promote customer satisfaction and thus customer loyalty. However, research exploring the relationship between these four dimensions needs to be further developed, such as the moderating role of customer expectations between service quality and customer satisfaction, and the mediating effect of customer satisfaction between service quality and customer loyalty.

Based on this chapter, the conceptual model of this thesis was proposed. The conceptual model is constructed by incorporating the paths proposed in each hypothesis. The model is presented below in Figure 2.3, where each arrow represents the hypothesized influence between two variables.

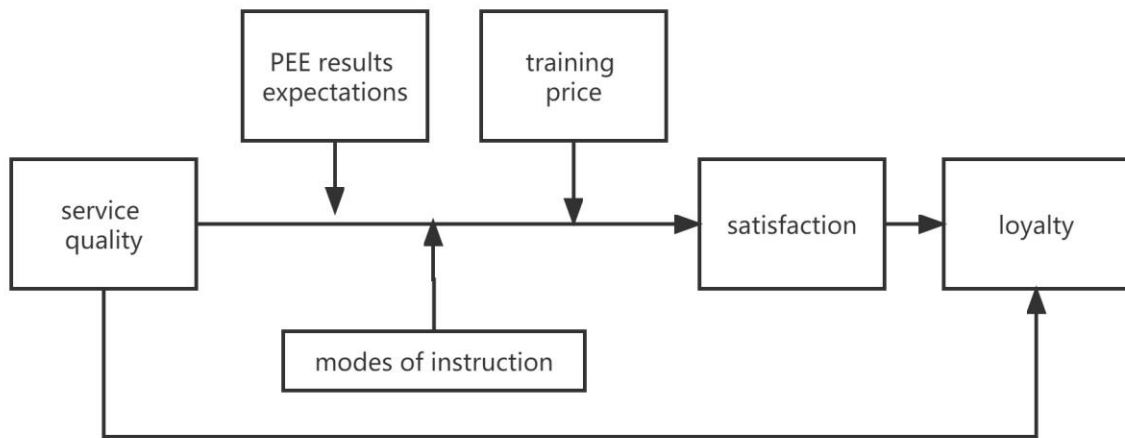


Figure 2.3 The conceptual model in this study

Chapter 3: Research Design and Research Methods

This chapter puts forward research hypotheses and builds a conceptual model based on the research hypotheses.

3.1 Research Hypotheses

3.1.1 Hypotheses on the main effects

3.1.1.1 Hypotheses on the relationship between service quality and student satisfaction

In terms of the relationship between service quality and satisfaction, a large number of studies have shown that: service quality has an impact on customer satisfaction, and this impact is positive, which means that improving service quality can improve customer satisfaction.

Nugraheni et al. (2014) proved a correlation between the quality of educational services and student satisfaction at the Semarang Institute of Technology, Ministry of Health. The study by Ali et al. (2016) showed that all five dimensions of educational service quality in Malaysian public universities affect student satisfaction. Research by Krishnamoorthy et al. (2016) argued that student satisfaction is influenced by teaching methods, curriculum, and faculty competence. The study by Chang et al. (2017) revealed that courses, academic advisors, and administrative services are important for improving educational service satisfaction. The study by Hwang and Choi (2019) showed that service quality directly affects student satisfaction and perceived institution image. Darawong and Sandmaung (2019) pointed out that improving service quality in higher education institutions can increase student satisfaction. Khalid et al. (2019) put forward that non-academic aspects, academic aspects, course issues, and access are significant predictors of job satisfaction in Malaysian Polytechnics. The study conducted by Mwiya et al. (2019) demonstrates a significant correlation between each of the five dimensions of service quality performance (tangibility, reliability, responsiveness, empathy, and assurance) and student satisfaction. The study by Massoud et al. (2020) indicated that non-academic aspects of service quality are the most influential variables in learners' satisfaction.

In the training service process of management-oriented PEE training organizations, there is a direct relationship between service quality and service satisfaction. Without considering

other factors, better service provided by the training institution can improve the service quality that the trainees can perceive. Good service experience and perception make learners satisfied with the training organization.

There is a direct relationship between service quality and service satisfaction in management-oriented PEE training organizations. In the absence of considering other factors, the better the services provided by the training organizations, the higher the perceived service quality and the better the learners' service experience will be, leading to increased satisfaction with the training institution.

Based on this, the present study proposes Hypothesis 1 (H1): In the training process of management-oriented PEE training organizations, service quality has a positive impact on learners' satisfaction.

3.1.1.2 Hypotheses on the relationship between service quality and learners' loyalty

On the relationship between service quality and loyalty, a large number of studies have shown that there is a certain relationship between service quality and customer loyalty, and service quality will have an impact on customer loyalty.

Hunt et al. (1995) found through empirical research that perceived quality increases the repurchase intentions of customers. Yamani et al. (2017) revealed that service quality imposes some impacts on learners' loyalty. Amegbe et al. (2019) pointed out that the indirect mediation effect between service quality, trust, and intimacy on student loyalty is not yet proven, but service quality affects student loyalty. The study by Paul and Pradhan (2019) indicated that service quality increases students' loyalty to higher education institutions. Gao (2020)'s conducted a study and found that the quality of university administrative services significantly affects students' loyalty to the university through student satisfaction. Mulyono(2020) proposed that service relationship quality is one of the antecedents of student loyalty. Yousaf et al. (2020) argued that creating trust through effective service delivery backed by adequate institutional commitment remains the only way to create student loyalty and reduce subsequent acquisition costs. The study conducted by Latif et al. (2021) demonstrated that university social responsibility supports student loyalty through its positive impact on service quality perception, student satisfaction, and student trust.

However, there are also some studies implying that service quality does not impose an impact on student loyalty. For example, the study by Chandra et al. (2019) showed that service quality has no positive or significant impact on student loyalty. Overall, most studies tend to recognize that service quality has a significant impact on loyalty.

During the training service process of management-oriented PEE training organizations, the service quality allows learners to have a better service experience. Based on this service experience, the loyalty of the learners to the management-oriented PEE training organizations may increase accordingly. When the service quality is better, learners are more willing to recommend the training organization to their friends and relatives. If trainees need to receive similar training again, they are highly likely to choose the same training organization.

Based on this, this study proposes Hypothesis 2 (H2): During the training service process of management-oriented PEE training organizations, service quality has a positive impact on learners' loyalty.

3.1.1.3 Hypotheses on the relationship between learners' satisfaction and learners' loyalty

In terms of the relationship between customer satisfaction and loyalty, a large number of research results have confirmed that customer satisfaction will have an impact on customer loyalty, and this impact is positive, which means that improving customer satisfaction can improve customer loyalty.

Appuhamilage and Torii (2019) argued that loyalty has a positive impact on student satisfaction, while satisfaction also has a strong positive direct impact on loyalty. Many studies have verified that there is a significant correlation between customer satisfaction and customer loyalty (Bitner, 1990; Reynolds & Beatty, 1999; Rust & Zahorik, 1993). Hunt et al. (1995) found that customer satisfaction determined by perceived quality, perceived value and customer expectations will increase customers' intention to repurchase and reduce customer complaints through empirical research. Chandra et al. (2019) pointed out that student satisfaction has a positive and significant impact on student loyalty. Gao's (2020) study revealed that the quality of administrative services in universities can significantly affect students' loyalty to universities through student satisfaction. Mulyono (2020) also pointed out that student satisfaction affects student loyalty in his empirical study.

Some studies also believe that there is no significant correlation between customer satisfaction and customer loyalty. Both the studies conducted by Andreassen and Lindestad (1998), and Mittal et al. (1999) found that there is no significant correlation between customer satisfaction and customer loyalty. Studies done by Clemen et al. (2011), Gracia et al. (2011) and Wilkins et al. (2009) showed that customer loyalty is difficult to be observed, so it is necessary to infer customer loyalty from other indexes. The measurement of customer loyalty is the customer's intention to purchase repeatedly. Yamani et al. (2017) also argued that

student satisfaction has no direct impact on student motivation and student loyalty.

Overall, more studies tend to have a significant relationship between customer satisfaction and loyalty. In the training service process of management-oriented PEE training organizations, when students are more satisfied with postgraduate entrance examination training, it is often accompanied by students' higher recognition of the PEE training organization. In this case, students are more likely to recommend their friends and relatives to the PEE training organization. If students need to receive training again, it is very possible that they will choose the same PEE training organization again.

Based on this, this study proposes Hypothesis 3 (H3): During the training service process of management-oriented PEE training organizations, learners' satisfaction has a positive impact on learners' loyalty.

3.1.2 Hypotheses on the mediating effect

The aforementioned three main effects in this study examine the pairwise correlation of the relationship between service quality, customer satisfaction, and customer loyalty. At the same time, there are also studies that have explored the relationship between the three factors. For example, Jaafar et al. (2020) verified that student satisfaction has a partial mediation effect between service quality and loyalty. However, the study conducted by Yamani et al. (2017) revealed that good service quality has no mediating effect on student motivation and student loyalty. Therefore, whether customer satisfaction mediates the impact of service quality on student loyalty is worth investigating.

Combined with the Swedish customer satisfaction index model (see Figure A.6), the good service quality of management postgraduate entrance examination training organizations makes students a better experience and improves their satisfaction. When the satisfaction is high, the students are more likely to recommend the management postgraduate entrance examination training organization to friends and relatives. If students need to prepare for the PEE again, they may be more willing to choose this management postgraduate training institution.

The present study proposes Hypothesis 4 (H4): In the training process of management-oriented PEE training organizations, student satisfaction mediates the impacts of service quality on learners' loyalty.

3.1.3 Hypotheses on the moderating effect

In the models of service quality, various models such as Grönroos' (1984) service quality model, the perception-based service quality model, the revised service quality gap model, expectation-disconfirmation model, revised expectation-disconfirmation model, Swedish Customer Satisfaction Barometer (SCSB) model, and American Customer Satisfaction Index (ACSI) model have indicated that customer expectations influence the perception of service quality and customer satisfaction. It is suggested that expectations may moderate the impact of service quality on customer satisfaction.

In the context of management-oriented postgraduate entrance examination training organizations, customer expectations encompass the anticipated training outcomes (initial expectations) and training fees (price may affect expectations). When learners have different expectations, even if they receive the same level of service, their satisfaction levels may vary, thus indicating the presence of moderating effects.

Based on the above, this study proposes the following two hypotheses regarding moderating effects:

H5: In the training process of management-oriented PEE training organizations, customer expectations moderate the impact of service quality on satisfaction.

H6: In the training process of management-oriented PEE training organizations, the level of acceptance of training fees moderates the impact of service quality on satisfaction.

Research conducted by Sriharsha et al. (2022), Vadivel et al. (2022), Y. H. Zhu et al. (2022), Daulatabad et al. (2022), and others has shown that the mode of instruction may influence students' learning experiences, indicating differences between online and on-site teaching modes.

In the training process of management-oriented PEE training organizations, considering the circumstances of the COVID-19 pandemic in China, the perceived service quality and satisfaction of students may vary depending on the mode of instruction, including online teaching, hybrid teaching combining online and offline elements, and purely offline teaching.

Based on this, the following hypothesis regarding moderating effects is proposed:

H7: In the training process of management-oriented PEE training organizations, the mode of instruction moderates the impact of service quality on satisfaction.

3.1.4 Summary of research hypotheses

The summary of research hypotheses is presented in Table 3. 1.

Table 3.1 Summary of research hypotheses

No.	Hypothesis
H1	In the training process of management-oriented PEE training organizations, service quality has a positive impact on learners' satisfaction.
H2	During the training service process of management-oriented PEE training organizations, service quality has a positive impact on learners' loyalty.
H3	During the training service process of management-oriented PEE training institution, learners' satisfaction has a positive impact on learners' loyalty.
H4	In the training process of management-oriented PEE training organizations, learners' satisfaction mediates the impacts of service quality on learners' loyalty.
H5	In the training process of management-oriented PEE training organizations, customer expectations moderate the impact of service quality on satisfaction.
H6	In the training process of management-oriented PEE training organizations, the level of acceptance of training fees moderates the impact of service quality on satisfaction.
H7	In the training process of management-oriented PEE training organizations, the mode of instruction moderates the impact of service quality on satisfaction.

3.2 Research methods

The research method employed in this study is empirical analysis.

The hypotheses and model were derived by reviewing relevant theories and literature on service quality and customer satisfaction. The initial questionnaire was revised based on preliminary surveys. Subsequently, a large-scale questionnaire was distributed to previous learners of management-oriented PEE training organizations, and statistical software such as SPSS and Mplus was utilized for descriptive statistics, correlation analysis, and regression analysis.

A questionnaire was distributed to previous learners of management-oriented PEE training organizations, and the collected data were analyzed using statistical software such as SPSS and Mplus to conduct statistical analyses on the survey results.

Chapter 4: Scale Design and Survey Overview

In this chapter, survey scales were designed based on the research hypotheses and models. The scale design process consisted of two stages: pre-survey scale design, followed by the distribution of questionnaires on a small scale to test the reliability and validity; and the revision of the pre-survey scale to form the formal scale, which was then distributed.

4.1 Questionnaire design

This section will introduce how the questionnaire was designed from two perspectives: the process of designing the questionnaire which contains four steps and how the six variables were measured in the survey.

4.1.1 Questionnaire design process

The questionnaire was designed on six aspects: service quality, expectations of training, training prices, teaching modes, learners' satisfaction, and learners' loyalty. The following process was followed in this study.

Step One: Review the literature and refer to similar studies for scale design methodologies. The questionnaire design in this study was based on relevant literature, which provided insights into questionnaire design for service quality, customer expectations, customer satisfaction, and customer loyalty.

Step Two: Utilizing relevant theories as a basis. Chapter Two of this study elaborated on relevant theories, including SERVQUAL, customer expectations, customer satisfaction, and customer loyalty.

Step Three: Incorporating customer feedback into the questionnaire design. Since the survey targeted learners regarding service quality, expectations of training, training prices, teaching modes, learners' satisfaction, and learners' loyalty, the questionnaire design process should not rely solely on theories and personal imagination. It was necessary to incorporate learner interviews to understand their concerns and design a reliable questionnaire accordingly.

Step Four: After the previous three steps, the author continuously communicated and

exchanged ideas with the management of Pinrui Education for PEE and sought opinions from external industry experts. The questionnaire was further revised through follow-up interviews with well-established relationships with trainees.

4.1.2 Measurement of variables

This study employed a 6-point Likert scale, where a score of 1 represented “completely disagree” and a score of 6 represented “completely agree.” The scoring ranged from low to high, indicating the degree of agreement. The specific evaluation criteria are detailed in Table B.1: Descriptions corresponding to Likert scale scores. The scale was designed for service quality, expectations of training, training prices, teaching modes, learners' satisfaction, and learners' loyalty (see Table 4.1).

Table 4.1 Preliminary design of scales and items

	Dimension	Item
Part 1: service quality	Assurance	1. Pinrui Education provides the necessary knowledge and skills.
		2. The environment and atmosphere of Pinrui Education meet the needs of the learners and are conducive to learning.
		3. Pinrui Education understands the learning needs of the learners.
		4. Pinrui teachers possess professional knowledge and teaching abilities.
		5. Learner opinions and complaints receive effective and timely handling.
	Reliability	6. Pinrui Education strives to fulfill the demands of the learners.
		7. Learning and living at Pinrui Education are safe and reliable.
		8. Pinrui Education can fulfill its commitments to the learners.
		9. Pinrui Education can fairly and reliably evaluate the learners.
		10. The staff at Pinrui Education treats learners equally and respects them.
	Empathy	11. Pinrui Education provides necessary learning consultation services to the learners.
		12. The staff at Pinrui Education make efforts to help resolve learners' difficulties.
		13. The staff at Pinrui Education are friendly, caring, and genuinely concerned about the learners.
	Tangibles	14. Pinrui has modern teaching facilities.
		15. Pinrui possesses abundant learning resources.
	Convenience	16. The learning costs at Pinrui (including fees and time) are acceptable.
		17. Pinrui Education has a high academic reputation and social standing.
		18. The course schedule at Pinrui Education is reasonable in

- terms of time.
19. The training service hours at Pinrui Education are convenient for the learners.
 20. The various service procedures provided by Pinrui are simple and standardized.
- Part 2: Teaching modes
- Part 3: Expectations of Training
21. Please select the teaching mode you received at Pinrui Education.
 22. When I attended training at Pinrui, I had high expectations for the overall training results.
 23. When I attended training at Pinrui, I had high expectations for the written test scores.
 24. When I attended training at Pinrui, I had high expectations for the interview scores.
 25. When I attended training at Pinrui, I expected to be admitted to my desired universities.
 26. When I attended training at Pinrui, I expected to invest a significant amount of time and effort into studying.
- Part 4: Training Prices
27. I believe that the price of the written test training at Pinrui is acceptable to me.
 28. I believe that the price of the interview training at Pinrui is acceptable to me.
 29. I believe that the overall training price at Pinrui is acceptable to me.
- Part 5: Learners' satisfaction
30. I am satisfied with the qualifications of the teaching faculty.
 31. I am satisfied with the teaching attitudes of the teachers.
 32. I am satisfied with the teaching skills and methods of the teachers.
 33. I am satisfied with the course content and schedule.
 34. I am satisfied with the training outcomes.
 35. I am satisfied with the classroom environment and facilities.
 36. I am satisfied with the professionalism of the consultants.
 37. I am satisfied with the service attitude of the staff.
 38. I am satisfied with the timeliness of various notifications from Pinrui Education.
 39. I am satisfied with the convenience of the location in relation to the training venues.
- Part 6: Learners' loyalty
40. Even if Pinrui Education is slightly more expensive than other similar institutions, I would still choose it for training.
 41. If Pinrui Education makes a mistake, I am willing to be understanding and provide suggestions to help improve it.
 42. I hope that Pinrui Education will continue to improve.
 43. I am willing to recommend Pinrui Education to family and friends.
 44. If someone asks me about the quality of training at Pinrui, I would respond positively.
 45. I have introduced and recommended Pinrui Education to others.
 46. I would reject other training organizations.
 47. When I see promotions for Pinrui Education, I am willing to read or share them with friends.
-

4.1.2.1 Service quality

Regarding the design of the service quality scale, this study primarily relied on the five dimensions of the SERVQUAL scale (assurance, reliability, empathy, tangibles, and responsiveness) as a foundation. Additionally, referencing the study by H. Zhang and Yu (2014), five dimensions with a total of 20 items were set to investigate the service quality of the

postgraduate entrance examination training institution. Please refer to Part 1 of Table 4.1 for the specific items to measure the service quality.

4.1.2.2 Teaching modes

In the context of PEE training, three teaching modes were considered: online teaching, on-site face-to-face teaching, and a combination of online and on-site teaching. Based on this, one question was designed as shown in Part 2 of Table 4.1. This question was a nominal variable, where online teaching corresponded to a score of 1, a combination of online and on-site teaching corresponded to a score of 2, and on-site face-to-face teaching corresponded to a score of 3. Higher scores mean a stronger preference for face-to-face teaching.

4.1.2.3 Expectations of training

For the design of the pre-survey scale measuring expectations of training, the study primarily considered the expectations of Pinrui Education for PEE learners. Five items were set to investigate overall training results: written test scores, interview scores, admission to desired universities, and expected time and effort investment. Please refer to Part 3 of Table 4.1 for the specific items to measure expectations of training.

4.1.2.4 Training prices

The investigation on training prices mainly focused on two major services provided to learners: written test training and interview training. The total training price, by summing the prices of both services, was also included as an item. Please refer to Part 4 of Table 4.1 for the specific items to measure the training prices.

4.1.2.5 Learners' satisfaction

The design of the Pinrui learners' satisfaction scale referred to theories on customer satisfaction and studies conducted by Dai (2018). It was designed based on the characteristics of products and services provided by Pinrui Education for PEE learners. The pre-survey learners' satisfaction scale of Pinrui included dimensions such as teachers' qualifications, teaching attitudes, teaching skills and methods, course content and schedule, training outcomes, classroom environment and facilities, consultants' expertise, staff service attitude, timeliness of various notifications from Pinrui Education, and convenience of location in relation to training venues. Please refer to Part 5 of Table 4.1 for the specific question settings related to learners' satisfaction.

4.1.2.6 Learners' loyalty

The design of the student loyalty scale referred to studies conducted by Gould (1995), Kandampully (1997), Chandra et al. (2019), and Bai (2015). Eight items were included. Please refer to Part 6 of Table 4.1 for the specific items to measure student loyalty.

4.2 Pre-survey

After designing the pre-survey questionnaire, a small-scale pre-test was conducted to ensure the validity of the scale. The pre-test questionnaire was distributed, collected, and analyzed to examine the reliability and validity of the pre-survey questionnaire. A total of 230 questionnaires were distributed, and 199 valid questionnaires were collected.

The basic demographic information of the pre-survey sample is summarized in Table B.2. In the pre-survey, male learners accounted for 39.70% of the sample, while female learners accounted for 60.30%. The average age was 33.93 years. In terms of education, 10.10% had a college degree, 82.90% had a bachelor's degree, and 7% had a master's degree. The distribution of entry years was as follows: 2010 (1.00%), 2011 (1.00%), 2012 (0.50%), 2014 (1.00%), 2015 (3.00%), 2016 (3.50%), 2017 (1.50%), 2018 (7.00%), 2019 (7.00%), 2020 (15.10%), 2021 (52.30%), and 2022 (7.00%), with the majority of learners enrolled between 2018 and 2022.

4.2.1 Reliability test

The reliability of the pre-survey questionnaire was assessed for each of the six parts. The reliability test included three aspects: Cronbach's alpha coefficient for reliability statistics, item analysis for the overall item performance, and aggregate reliability (see Table 4.2).

Table 4.2 Summary of reliability test results

Dimension		Type of statistics	Statistical results			
Quality of Service	of Total project statistics	Reliability	Cronbach's alpha		Number of items	
			0.964		20	
			Average of scales after deletion of items	Average of scales after removal of items	Scaled variance after removal of items	Corrected item to total score correlation
						Cloning factor after item deletion
			Q1	106.78	79.729	0.701
			Q2	106.69	81.436	0.683
			Q3	106.79	80.521	0.674
			Q4	106.77	80.573	0.707
			Q5	106.82	78.378	0.726
			Q6	106.81	78.973	0.797
						0.963
						0.963
						0.963
						0.963
						0.963
						0.962

Teaching modes Expectations for training	Aggregate confidence	Q7	106.67	80.191	0.774	0.962			
		Q8	106.81	79.061	0.766	0.962			
		Q9	106.76	79.141	0.759	0.962			
		Q10	106.7	79.836	0.712	0.963			
		Q11	106.66	81.216	0.762	0.962			
		Q12	106.75	78.954	0.824	0.961			
		Q13	106.66	80.357	0.765	0.962			
		Q14	106.88	78.507	0.772	0.962			
		Q15	106.76	79.608	0.783	0.962			
		Q16	106.93	77.955	0.751	0.962			
		Q17	106.82	79.775	0.69	0.963			
		Q18	106.79	79.561	0.767	0.962			
		Q19	106.75	80.005	0.783	0.962			
		Q20	106.73	80.653	0.752	0.962			
		Reliability.							
		Omega	0.978	1 item, no unidimensional reliability test					
		Q21							
		Training prices	Reliability statistics	Cronbach's alpha		Number of items			
				0.869		5			
			Total project statistics	Average of scales after deletion of items		5		Correlation of corrected items to total score	Cloning Bach factor after item deletion
				Q22	21.19	7.297	0.588	0.865	
			Q23	21.43	6.226	0.796	0.816		
			Q24	21.5	5.878	0.779	0.818		
			Q25	21.27	6.522	0.634	0.856		
			Q26	21.38	6.298	0.685	0.844		
			Reliability.						
			Omega	0.876					
Learners' satisfaction	Reliability statistics		Cronbach's alpha		Number of items				
			0.938		3				
	Total project statistics		Average of scales after deletion of items		Scaled variance after removal of items		Correlation of corrected items to total score	Cloning Bach factor after item deletion	
			Q27	10.3	3.535	0.872	0.911		
	Q28		10.45	3.107	0.857	0.931			
	Q29	10.25	3.56	0.903	0.891				
	Aggregate confidence	Reliability .							
		Omega	0.939						
	Aggregate confidence	Reliability statistics	Cronbach's alpha		Number of items				
			0.947		10				
Aggregate confidence	Total	Average of		Scaled	Corrected	Cloning			

	project statistics	scales after deletion of items	variance after removal of items	item to total score correlation	Bach factor after item deletion
Learners' loyalty	Q30	50.4	20.464	0.83	0.939
	Q31	50.34	20.962	0.789	0.941
	Q32	50.46	20.34	0.821	0.939
	Q33	50.4	20.301	0.864	0.937
	Q34	50.42	20.285	0.801	0.94
	Q35	50.48	20.19	0.771	0.942
	Q36	50.37	20.77	0.816	0.94
	Q37	50.27	21.287	0.773	0.942
	Q38	50.28	21.454	0.761	0.942
	Q39	50.5	21.181	0.597	0.95
	Aggregate confidence	Reliability.			
	Omega	0.947			
	Reliability statistics	Cronbach's alpha	Number of items		
		0.858	8		
	Total project statistics	Average of scales after deletion of items	Scaled variance after removal of items	Corrected item to total score correlation	Cloning Bach factor after item deletion
	Q40	39.44	11.814	0.666	0.834
	Q41	39.38	12.167	0.674	0.833
	Q42	39.1	13.753	0.66	0.843
	Q43	39.15	13.044	0.753	0.832
	Q44	39.15	13.115	0.768	0.832
	Q45	39.14	13.189	0.538	0.848
	Q46	39.72	11.292	0.488	0.877
	Q47	39.3	12.189	0.654	0.835
	Aggregate confidence	Reliability.			
	Omega	0.851			

4.2.1.1 Service quality (20 items)

The reliability test results for the pre-survey questionnaire on service quality are presented in Part 1 of Table 4.2. The Cronbach's alpha coefficient for reliability statistics was 0.964, indicating high internal consistency. After removing individual items, Cronbach's alpha coefficients remained above 0.9, and the aggregate reliability (Omega) was 0.978, demonstrating the high reliability of the service quality pre-survey questionnaire.

4.2.1.2 Teaching mode (1 item)

This part consists of only one item, which does not require reliability and validity testing.

4.2.1.3 Expectations for training (5 items)

The reliability test results for the pre-survey questionnaire on expectations for training are presented in part 2 of Table 4.2. The Cronbach's alpha coefficient for reliability statistics was 0.869, indicating satisfactory internal consistency. After removing individual items, Cronbach's alpha coefficients remained above 0.8, and the aggregate reliability (Omega) was 0.876, indicating a relatively high reliability of the expectations for training pre-survey questionnaire.

4.2.1.4 Training prices (3 items)

The reliability test results for the pre-survey questionnaire on training prices are presented in Part 3 of Table 4.2. The Cronbach's alpha coefficient for reliability statistics was 0.938, indicating high internal consistency. After removing individual items, Cronbach's alpha coefficients remained above 0.8, and the aggregate reliability (Omega) was 0.939, demonstrating the high reliability of the training prices pre-survey questionnaire.

4.2.1.5 Learners' satisfaction (10 items)

The reliability test results for the pre-survey questionnaire on learners' satisfaction are presented in Part 4 of Table 4.2. The Cronbach's alpha coefficient for reliability statistics was 0.947, indicating high internal consistency. After removing individual items, Cronbach's alpha coefficients remained above 0.9, and the aggregate reliability (Omega) was 0.947, demonstrating the high reliability of the learners' satisfaction pre-survey questionnaire.

4.2.1.6 Learners' loyalty (8 items)

The reliability test results for the pre-survey questionnaire on learners' loyalty are presented in Part 5 of Table 4.2. The Cronbach's alpha coefficient for reliability statistics was 0.858, indicating satisfactory internal consistency. After removing individual items, Cronbach's alpha coefficients remained above 0.8, and the aggregate reliability (Omega) was 0.851, indicating relatively high reliability of the learners' loyalty pre-survey questionnaire. It should be noted that one item in the part on teaching modes does not require a separate reliability and validity analysis.

4.2.2 Validity test

After assessing the reliability of the pre-survey questionnaire, the validity of the

questionnaire's results was further examined. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity are presented in Table 4.3.

It can be observed that the KMO measure of sampling adequacy is 0.945, which is greater than 0.9, and the significance value is 0.000, which is less than 0.05, indicating satisfactory results for both the KMO measure and Bartlett's test. Principal component analysis was conducted to extract the main components, and the results are shown in Table 4.3. It can be observed that the total variance explained is divided into six dimensions, indicating a good factor structure. After further rotation, the results presented in Table 4.3 shows that all factor loadings are above 0.4, meeting the criteria for validity testing and indicating a high level of validity for the pre-survey questionnaire.

Table 4.3 Validity test of the pre-survey questionnaire

Test content		Test results						
KMO and Bartlett's test	KMO Number of sample suitability measurements.		.945					
	Bartlett's test for sphericity		8849.104					
			Freedom					
			Significance					
Total variance explained (Extraction method: Principal component analysis)	Initial Eigenvalue		Sum of squared rotating loads					
	Componen							
	ts	Total	Percenta	Cumulative	Total	Percenta	Cumulative	
			ge	%		ge	%	
			variance			variance		
	1	23.344	49.667	49.667	23.344	49.667	49.667	
	2	2.458	5.230	54.897	2.458	5.230	54.897	
	3	2.121	4.512	59.409	2.121	4.512	59.409	
	4	1.723	3.666	63.076	1.723	3.666	63.076	
	5	1.367	2.908	65.983	1.367	2.908	65.983	
	6	1.306	2.779	68.762	1.306	2.779	68.762	
	7	1.125	2.393	71.155				
	8	1.049	2.231	73.386				
	9	.993	2.113	75.499				
	10	.829	1.765	77.263				
	11	.796	1.694	78.958				
	12	.699	1.487	80.445				
	13	.630	1.340	81.785				
	14	.578	1.229	83.014				
	15	.556	1.182	84.196				
	16	.532	1.132	85.328				
	17	.463	.985	86.313				
	18	.448	.954	87.267				
	19	.438	.933	88.200				

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	20	.419	.892	89.092					
	21	.372	.792	89.883					
	22	.368	.782	90.665					
	23	.321	.684	91.349					
	24	.302	.643	91.992					
	25	.293	.623	92.616					
	26	.285	.606	93.221					
	27	.266	.566	93.787					
	28	.249	.529	94.316					
	29	.241	.512	94.829					
	30	.239	.509	95.338					
	31	.221	.469	95.807					
	32	.208	.444	96.251					
	33	.193	.411	96.662					
	34	.175	.371	97.034					
	35	.163	.346	97.380					
	36	.155	.329	97.709					
	37	.144	.306	98.016					
	38	.128	.273	98.288					
	39	.124	.264	98.552					
	40	.115	.244	98.796					
	41	.107	.229	99.025					
	42	.096	.205	99.230					
	43	.088	.188	99.417					
	44	.088	.187	99.604					
	45	.072	.153	99.757					
	46	.062	.132	99.889					
	47	.052	.111	100.000					
Rotated component matrix Extraction method:		Components							
		1	2	3	4	5	6		
	Q1	0.526							
	Q2	0.526							
	Q3	0.598							
	Q4	0.556							
	Q5	0.658							
	Q6	0.656							
	Q7	0.628							
	Q8	0.575							
	Q9	0.695							
	Q10	0.702							
	Q11	0.728							
	Q12	0.767							
	Q13	0.719							
	Q14	0.684							
	Q15	0.642							
	Q16	0.606							
	Q17	0.539							
	Q18	0.672							
	Q19	0.684							
	Q20	0.664							
	Q21							0.582	

Q22	0.783		
Q23	0.764		
Q24	0.702		
Q25	0.686		
Q26	0.627		
Q27		0.712	
Q28		0.672	
Q29		0.824	
Q30			0.565
Q31			0.797
Q32			0.795
Q33			0.821
Q34			0.722
Q35			0.679
Q36			0.664
Q37			0.675
Q38			0.545
Q39			0.531
Q40			0.599
Q41			0.717
Q42			0.677
Q43			0.549
Q44			0.54
Q45			0.526
Q46			0.714
Q47			0.732

Note: Principal component analysis.

Rotation method: Kaiser standardised maximum variance method.

a. Rotation has converged after 9 iterations

4.3 Data collection

This section will explain the rational of how the sample was selected, the procedures of how the data were collected in the survey, and methods that were adopted to analyzed the data collected in the previous step.

4.3.1 Sample selection and source

The sample for this study was selected from Pingrui PEE Training Organization. Pingrui is a well-established pre-exam coaching institution for the national PEE in the southwestern region of China. It covers a wide range of samples and has a certain level of representativeness. The basic information about Pingrui Education was introduced in the introduction section of this thesis. Each year, the institution covers over 30% of the postgraduate entrance examination training market in Chengdu, Sichuan Province, China, making the sample highly representative.

4.3.2 Sample collection

After the pre-survey questionnaire passed the tests for reliability and validity, it was assigned identification numbers, as shown in Table B.3. The formal questionnaire was then distributed on a large scale. From August 28, 2022, to September 30, 2022, the formal questionnaire was distributed and collected online through WeChat and QQ groups of Pingrui Education's alumni classes. A total of 1,300 questionnaires were distributed, and 1,057 valid questionnaires were collected, resulting in a response rate of 81.3%.

The basic information of the formal questionnaire sample is summarized in Table 4.4. From Table 4.4, it can be seen that among the respondents, 41.1% were male and 58.9% were female. The average age was 33.93. In terms of education level, 10.6% held a college degree, 80.2% held a bachelor's degree, and 9.2% held a master's degree. Regarding the year of enrollment, the proportions were as follows: 0.38% in 2010, 0.47% in 2011, 0.85% in 2012, 0.47% in 2013, 0.57% in 2014, 1.89% in 2015, 1.70% in 2016, 3.88% in 2017, 8.23% in 2018, 13.34% in 2019, 20.62% in 2020, 40.11% in 2021, and 7.47% in 2022. In terms of instructional format, 34.9% received face-to-face offline instruction, 18.2% received online instruction, and 46.9% received a combination of online and offline instruction.

Table 4.4 Basic information statistics of the formal questionnaire sample (N=1057)

	Type	Percentage
Gender	Male	41.1%
	Female	58.9%
Age	Average	33.93
Academic qualifications	Tertiary	10.6%
	Undergraduate	80.2%
Year of entry	Postgraduate learners	9.2%
	2010	0.38%
	2011	0.47%
	2012	0.85%
	2013	0.47%
	2014	0.57%
	2015	1.89%
	2016	1.70%
	2017	3.88%
	2018	8.23%
	2019	13.34%
	2020	20.62%
Acceptance of teaching style	2021	40.11%
	2022	7.47%
	Off-line face-to-face teaching	34.9%
	Online classes	18.2%
	Combination of online and offline classes	46.9%

Table B.4 presents the average values for various dimensions. The average score for service quality is 5.388, the average score for training expectations is 5.142, the average score for training price is 4.947, the average score for learners' satisfaction is 5.363, and the average score for learners' loyalty is 5.381. Overall, the average scores for service quality, training expectations, training price, learners' satisfaction, and learners' loyalty are all higher than the midpoint score of 3.5 on a scale of 1 to 6. This indicates that the surveyed Pingrui learners rated Pingrui positively in these five dimensions, indicating an above-average evaluation.

4.3.3 Data analysis methods

This study first proposed hypotheses and constructed models based on relevant theories and literature on service quality and customer satisfaction (Chapter Two and Chapter Three). Then, based on mature scales and preliminary questionnaire surveys, the scales were revised. Finally, a large-scale questionnaire was distributed to mobilize alumni of Pingrui Institution to fill out the online questionnaire. Descriptive statistical analysis, correlation analysis, and regression analysis were conducted using statistical software such as SPSS and Mplus. The data analysis methods in this study mainly include the following two aspects:

4.3.3.1 Data reliability and validity

Factor analysis was primarily employed to examine the reliability and validity of the data. In the analysis process, the KMO measure of sampling adequacy and Bartlett's test of sphericity were first conducted for all items. Then, after conducting the common method bias-Harman single-factor test, further reliability and validity tests were conducted, and the aggregated validity and discriminant validity of the model were analyzed through the average extracted variance (AVE) of each latent variable.

4.3.3.2 Hypothesis test

In the hypothesis testing, the main analysis was performed using Mplus to assess model fit and VIF, determining the reliability of the model and the presence of multicollinearity, and verifying the hypotheses. For the mediation hypothesis testing, based on the conclusions of the main effects hypothesis testing, the testing was conducted step by step following the procedures for testing mediation effects. For the moderation hypothesis testing, based on the conclusions of the main effects hypothesis testing, the testing was conducted step by step following the procedures for testing moderation effects.

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Chapter 5: Data Analysis

Data analysis was conducted by collecting a wide range of formally distributed scales and performing data analysis on them. SPSS software and Mplus software were used in the data analysis process. SPSS software was primarily employed for descriptive statistics, reliability, and validity testing, while Mplus was mainly utilized for hypothesis testing through regression analysis.

5.1 Reliability and validity tests

Reliability test was conducted on the formal questionnaire sample, and the results are presented in Table 5.1. The reliability statistics based on standardized items yielded a Cronbach's alpha coefficient of 0.926, which exceeded 0.9, indicating high reliability. After removing items, all Cronbach's alpha coefficients remained above 0.8, demonstrating a high level of reliability.

Table 5.1 Results of reliability test

Reliability statistics	Cronbach's alpha coefficient	Cronbach's alpha coefficient based on standardised items			Number of items	
Total project statistics	0.902	Average of scales after deletion of items	Scaled variance after removal of items	Corrected item to total score correlation	47 Square Multiple Related	Cloning Bach factor after item deletion
	1	182.14	849.197	.156		.902
	4	182.07	846.416	.229		.902
	7	184.16	811.575	.527		.899
	9	184.18	806.649	.554		.898
	8	183.92	808.551	.523		.899
	6	184.18	806.649	.554		.898
	2	182.05	848.723	.159		.902
	3	182.10	851.233	.103		.903
	5	182.00	846.967	.200		.902
	10	184.18	811.166	.529		.899
	11	183.94	808.969	.519		.899
	12	184.09	808.745	.568		.898
	13	182.43	825.449	.386		.901
	14	182.28	831.666	.307		.901
	15	182.51	824.790	.376		.901
	16	182.40	826.235	.397		.900

17	184.81	858.720	-.139	.904
18	143.34	778.135	.139	.934
19	184.06	850.322	.105	.903
20	178.60	828.821	.180	.905
21	182.25	836.031	.299	.901
22	182.11	837.976	.269	.902
23	182.10	834.791	.306	.901
24	182.31	836.864	.239	.902
25	182.56	827.470	.351	.901
26	182.68	828.034	.342	.901
27	182.48	828.320	.403	.901
28	182.49	830.246	.402	.901
29	184.27	793.577	.749	.896
30	184.21	795.433	.744	.896
31	183.94	793.829	.721	.896
32	184.26	794.426	.745	.896
33	184.22	795.451	.742	.896
34	183.95	794.742	.718	.896
35	184.17	794.440	.775	.896
36	184.18	793.434	.770	.896
37	184.05	795.367	.767	.896
38	184.14	793.738	.775	.896
39	184.10	793.475	.772	.896
40	184.04	794.405	.762	.896
41	183.99	794.980	.747	.896
42	182.25	836.031	.299	.901
43	182.11	837.976	.269	.902
44	182.10	834.791	.306	.901
45	182.14	849.197	.156	.902
46	182.05	848.723	.159	.902
47	182.10	851.233	.103	.903

After conducting reliability testing on the results of the formal questionnaire survey, overall validity was performed. The validity test results are presented in Table B.5. Table B.5 reveals that the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy yielded a value of 0.982, exceeding 0.9, and the significance of Bartlett's sphericity test was 0.000, less than 0.05. Both the KMO measure and the Bartlett's test indicate high overall validity of the questionnaire.

Following the reliability and validity tests for the overall questionnaire, factor analysis was conducted. Firstly, a common method bias test known as the Harman's single-factor test was performed. Table 5.2 presents the results of the Harman's single-factor test for common method bias. Based on the test results, the percentage of variance explained by the first principal component is 25.904%, which is less than 50%. This indicates the absence of significant common method bias, thereby confirming that the data obtained in this study are suitable for regression analysis.

Table 5.2 Harman's single-factor test for common method bias

Component	Total variance explained			Sum of squared rotating loads		
	Initial Eigenvalue	Percentage variance	Cumulative %	Total	Percentage variance	Cumulative %
1	14.606	31.078	31.078	12.175	25.904	25.904
2	9.880	21.022	52.100	8.152	17.344	43.248
3	4.598	9.783	61.883	6.486	13.799	57.047
4	3.693	7.858	69.741	4.335	9.224	66.271
5	2.636	5.609	75.350	4.128	8.782	75.053
6	2.236	4.757	80.106	2.375	5.054	80.106
7	2.049	4.360	84.466			
8	1.079	2.295	86.761			
9	.778	1.656	88.418			
10	.758	1.612	90.030			
11	.668	1.422	91.452			
12	.598	1.272	92.724			
13	.563	1.197	93.921			
14	.459	.976	94.897			
15	.421	.896	95.793			
16	.347	.739	96.531			
17	.299	.636	97.168			
18	.259	.551	97.719			
19	.217	.463	98.181			
20	.176	.374	98.555			
21	.166	.354	98.908			
22	.157	.335	99.244			
23	.084	.179	99.422			
24	.057	.122	99.544			
25	.048	.101	99.645			
26	.039	.084	99.729			
27	.027	.057	99.785			
28	.022	.046	99.832			
29	.016	.035	99.867			
30	.014	.029	99.896			
31	.011	.024	99.920			
32	.009	.019	99.939			
33	.008	.018	99.956			
34	.006	.012	99.968			
35	.004	.009	99.977			
36	.004	.007	99.985			
37	.003	.007	99.992			
38	.002	.004	99.995			
39	.001	.003	99.998			
40	.001	.002	100.000			
41	1.521E-15	3.236E-15	100.000			
42	4.189E-16	8.913E-16	100.000			
43	3.201E-16	6.811E-16	100.000			
44	2.784E-17	5.923E-17	100.000			
45	-3.208E-18	-6.825E-18	100.000			
46	-1.760E-16	-3.745E-16	100.000			
47	-2.045E-15	-4.351E-15	100.000			

Note: Extraction Method: Principal Component Analysis.

If the percentage of variance explained by the first principal component is less than 50%, it indicates the absence of significant common method bias.

After conducting the Harman's single-factor test for common method bias, this study proceeded with further reliability and validity testing. The results of the reliability and validity testing are presented in Table 5.3.

Table 5.3 Results of reliability and validity tests

	1	2	3	4	5	6
1. Quality of service	0.708					
2. Teaching modes	0.531	0.872				
3. Expectations for training	0.587	0.540	0.755			
4. Training prices	0.505	0.433	0.514	0.832		
5. Learners' satisfaction	0.490	0.456	0.416	0.495	0.726	
6. Learners' loyalty	0.322	0.362	0.469	0.385	0.417	0.720
Combined Reliability (CR)	0.952	0.76	0.869	0.871	0.917	0.896
Average Variance Extracted Values (AVE)	0.501	0.876	0.57	0.693	0.527	0.519

Note: The values on the diagonal represent the square root of the AVE for each construct.

The values on the diagonal represent the square root of the average variance extracted (AVE) for each construct. The AVE for each latent variable exceeds 0.7, indicating good convergent validity of the measurement model. To assess discriminant validity, two methods were employed for analysis. The criterion was whether the square root of AVE is greater than the correlations between the variable and other variables, indicating a favorable outcome.

Based on the aforementioned method and the data presented in Table 5.3, it can be observed that the square root of the AVE for each construct exceeds the correlations between the variable and other variables, yielding positive results. Thus, it can be concluded that the discriminant validity is satisfactory.

Factor loading analysis was conducted on the data, and the results of the factor loading analysis are shown in Table 5.4. The evaluation criterion for factor loadings is a minimum threshold of 0.4. For the components corresponding to the dimensions of service quality (A1-A20), the factor loadings are as follows: 0.686, 0.721, 0.689, 0.653, 0.707, 0.75, 0.744, 0.708, 0.774, 0.766, 0.788, 0.779, 0.775, 0.652, 0.679, 0.547, 0.605, 0.669, 0.69, 0.717. All these values exceed the threshold of 0.4. Similarly, the components of teaching methods, expectations towards training, training cost, learners' satisfaction, and learners' loyalty in their respective dimensions also have factor loadings greater than 0.4. This indicates that the divisions of the scale dimensions are reasonable, thereby demonstrating high validity of the formal questionnaire survey.

Table 5.4 Results of factor loadings after rotation

Rotated Component matrix		Components					
		1	2	3	4	5	6
A1		0.686					
A2		0.721					
A3		0.689					
A4		0.653					
A5		0.707					
A6		0.75					
A7		0.744					
A8		0.708					
A9		0.774					
A10		0.766					
A11		0.788					
A12		0.779					
A13		0.775					
A14		0.652					
A15		0.679					
A16		0.547					
A17		0.605					
A18		0.669					
A19		0.69					
A20		0.717					
B1					0.872		
C1							0.731
C2							0.794
C3							0.731
C4							0.765
C5							0.754
D1				0.784			
D2				0.857			
D3				0.854			
E1			0.642				
E2			0.755				
E3			0.633				
E4			0.623				
E5			0.744				
E6			0.764				
E7			0.759				
E8			0.854				
E9			0.764				
E10			0.688				
F1						0.768	
F2						0.794	
F3						0.684	
F4						0.746	
F5						0.758	
F6						0.726	
F7						0.637	
F8						0.634	

Note : Extraction Method: Principal Component Analysis.

Rotation Method: Kaiser Normalization with Maximum Variance.

a. Convergence was achieved after 7 iterations of rotation.

5.2 Hypotheses test for main effects

Hypotheses of the main effects in this study are H1: In the training process of management-oriented PEE training organizations, service quality has a positive impact on learners' satisfaction; H2: During the training service process of management-oriented PEE training organizations, service quality has a positive impact on learners' loyalty; and H3: During the training service process of management-oriented PEE training institution, learners' satisfaction has a positive impact on learners' loyalty. Statistical results supported all three Hypotheses and the statistical reports are as follow.

5.2.1 Hypothesis test for the impacts of service quality on learners' satisfaction

Mplus 8.3 was used to fit a regression model for H1. The summary of model fit indices for the relationship between service quality and learners' satisfaction is presented in Table 5.5, Part 1. Firstly, the model fit indices were examined. The Root Mean Square Error of Approximation (RMSEA) was 0.093, indicating a good fit as it is below the threshold of 0.10. The χ^2/df (chi-square divided by degrees of freedom) value was 2.69, below the threshold of 3, suggesting a reasonable fit. The Comparative Fit Index (CFI) was 0.913, above the threshold of 0.9, indicating a good fit. The Tucker-Lewis Index (TLI) was 0.926, also above the threshold of 0.9, indicating a good fit. The Standardized Root Mean Square Residual (SRMR) was 0.036, below the threshold of 0.1, indicating a good fit. These results indicate that the model for H1 fits well and meets the requirements, allowing for further analysis.

Once it was established that the H1 model had a good fit, the regression results of the model were reported. The reported results of the hypothesis regression for the relationship between service quality and learners' satisfaction are shown in Table 5.5. None of the results for the Lower 5% and Upper 5%, Lower 2.5% and Upper 2.5%, and Lower 0.5% and Upper 0.5% crossed zero, indicating support for the hypothesis. The corresponding coefficient for the relationship between service quality and learners' satisfaction was 0.86.

Table 5.5 Model fit results for the impacts of service quality on learners' satisfaction

Indicators	Indicators	RMSEA	χ^2/df	CFI	TLI	SRMR	VIF	
	Judgement criteria	<0.10	<3-5	>0.9	>0.9	<0.1	1-10	
	Value	0.093	2.69	0.913	0.926	0.036	2.36	
Regression results	Path of action	Lower .5%	Lower 2.5%	Lower 5%	Estimate	Upper 5%	Upper 2.5%	Upper .5%
	Service quality-Learner	0.756	0.784	0.799	0.86	0.901	0.907	0.918

5.2.2 Hypothesis test for the impacts of service quality on learners' loyalty

Mplus 8.3 was used to fit a regression model for H2. The summary of model fit indices for the relationship between service quality and learners' loyalty is presented in Table 5.6, Part 1. Firstly, the model fit indices were examined. The RMSEA was 0.091, indicating a good fit as it is below the threshold of 0.10. The χ^2/df value was 2.65, below the threshold of 3, suggesting a reasonable fit. The CFI was 0.911, above the threshold of 0.9, indicating a good fit. The TLI was 0.903, also above the threshold of 0.9, indicating a good fit. The SRMR was 0.042, below the threshold of 0.1, indicating a good fit. These results indicate that the model for H2 fits well and meets the requirements, allowing for further analysis.

Once it was established that the H2 model had a good fit, the regression results of the model were reported. The reported results of the hypothesis regression for the relationship between service quality and learners' loyalty are shown in Table 5.6. None of the results for the Lower 5% and Upper 5%, Lower 2.5% and Upper 2.5%, and Lower 0.5% and Upper 0.5% crossed zero, indicating support for the hypothesis. The corresponding coefficient for the relationship between service quality and learners' loyalty was 0.926.

Table 5.6 Model fit results for the impacts of service quality on learners' loyalty

Model Judgement Indicators	Judgement indicators	RMSEA	χ^2/df	CFI	TLI	SRMR	VIF
	Judgement criteria	<0.10	<3-5	>0.9	>0.9	<0.1	1-10
	Value	0.091	2.65	0.911	0.903	0.042	4.69
Regression results	Path	Lower .5%	Lower 2.5%	Lower 5%	Estima te	Upper 5%	Upper 2.5%
	Service quality - Learners' loyalty	0.725	0.771	0.795	0.926	1.046	1.07
							1.114

5.2.3 Hypothesis test for the impacts of learners' satisfaction on learners' loyalty

Mplus 8.3 was used to fit a regression model for H3. The summary of model fit indices for the relationship between learners' satisfaction and learners' loyalty is presented in Table 5.7. Firstly, the model fit indices were examined. The RMSEA was 0.092, indicating a good fit as it is below the threshold of 0.10. The χ^2/df value was 2.45, below the threshold of 3, suggesting a reasonable fit. The CFI was 0.911, above the threshold of 0.9, indicating a good fit. The TLI was 0.917, also above the threshold of 0.9, indicating a good fit. The SRMR was

0.050, below the threshold of 0.1, indicating a good fit. These results indicate that the model for H3 fits well and meets the requirements, allowing for further analysis.

Once it was established that the H3 model had a good fit, the regression results of the model were reported. The reported results of the hypothesis regression for the relationship between learners' satisfaction and learners' loyalty are shown in Table 5.7. None of the results for the Lower 5% and Upper 5%, Lower 2.5% and Upper 2.5%, and Lower 0.5% and Upper 0.5% crossed zero, indicating support for the hypothesis. The corresponding coefficient for the relationship between learners' satisfaction and learners' loyalty was 0.86.

Table 5.7 Model fit results for the impacts of learners' satisfaction on learners' loyalty

Model	Judgement	RMSEA	χ^2/df	CFI	TLI	SRMR	VIF	
Judgement	indicators							
Indicators								
	Judgement	<0.10	<3-5	>0.9	>0.9	<0.1	1-10	
	criteria							
	Value	0.092	2.45	0.911	0.917	0.050	8.32	
Regression	Path	Lower .	Lower	Lower	Estima	Upper	Upper	Upper
results		5%	2.5%	5%	te	5%	2.5%	.5%
	Learners'							
	satisfaction →	0.764	0.788	0.8	0.865	0.926	0.938	0.957
	Learners'							
	loyalty							

5.3 Hypothesis test for the mediation effect

In this study, there is only one mediation effect, H4: The training process of management-oriented PEE training organizations, learners' satisfaction mediates the impacts of service quality on learners' loyalty. The mediator is supported based on the following rationale.

In the study of mediation effects, there are multiple approaches. Two common approaches include the causal stepwise regression method, which utilizes hierarchical regression, and the product coefficient method, which can be further divided into the Sobel test and the Bootstrap sampling test. The first approach is relatively simple and widely used, but it has lower statistical power. Therefore, the more suitable approach in the current study is the second approach, the product coefficient method, with the implementation of the Bootstrap sampling test for mediation analysis. The mediation effect model consists of three regression models:

Model 1: Regression analysis of the independent variable X and the dependent variable Y, aimed at obtaining the total effect (c value).

Model 2: Regression analysis of the independent variable X, the mediator M, and the

dependent variable Y, aimed at obtaining the direct effect (c') and the intermediate effect (b).

Model 3: Regression analysis of the independent variable X and the mediator M, aimed at obtaining the intermediate effect (a).

The difference between Model 1 and Model 2 lies in the inclusion of the mediator variable M in Model 2, based on the Model 1.

Based on the previously tested H1 and H2, which have been supported, the correlation between the independent variable and the mediator variable, as well as between the independent variable and the dependent variable, has been established. Therefore, only the third step of hypothesis testing needs to be conducted.

Mplus 8.3 was used to fit a regression model for H4, the third step. The summary of model fit indices for the mediation effect of learners' satisfaction on the relationship between service quality and learners' loyalty is presented in Table 5.8. Firstly, the model fit indices were examined. The RMSEA was 0.087, indicating a good fit as it is below the threshold of 0.10. The χ^2/df value was 2.66, below the threshold of 3, suggesting a reasonable fit. The CFI was 0.905, above the threshold of 0.9, indicating a good fit. The TLI was 0.918, also above the threshold of 0.9, indicating a good fit. The SRMR was 0.042, below the threshold of 0.1, indicating a good fit. These results indicate that the model for Hypothesis H4 fits well and meets the requirements, allowing for further analysis.

Table 5.8 Model fit results for the mediation effect of learners' satisfaction on the impacts of service quality on learners' loyalty

Model	Judgement	RMSEA	χ^2/df	CFI	TLI	SRMR	VIF
Judgement	indicators						
Indicators							
	Judgement	<0.10	<3-5	>0.9	>0.9	<0.1	1-10
	criteria						
	Value	0.087	2.66	0.905	0.918	0.042	2.77
Regression	Path	Lower	Lower	Lower	Estimate	Upper	Upper
results		.5%	2.5%	5%		5%	2.5%
	Total	0.709	0.735	0.748	0.81	0.856	0.864
	Direct	0.073	0.099	0.112	0.197	0.313	0.339
	Total indirect	0.488	0.523	0.541	0.613	0.687	0.698
							0.721

Once it was established that the H4 model had a good fit, the regression results of the model were reported. The reported results of the hypothesis regression for the relationship between service quality and learners' loyalty, mediated by learners' satisfaction, are shown in Table 5.8. Firstly, the total effect: None of the results for the Lower 5% and Upper 5%, Lower 2.5% and Upper 2.5%, and Lower 0.5% and Upper 0.5% crossed zero, indicating support for the total effect with a coefficient of 0.81. Secondly, the direct effect (Direct): None of the results for the Lower 5% and Upper 5%, Lower 2.5% and Upper 2.5%, and Lower 0.5% and

Upper 0.5% crossed zero, with a coefficient of 0.197. Lastly, the indirect effect (Total indirect): None of the results for the Lower 5% and Upper 5%, Lower 2.5% and Upper 2.5%, and Lower 0.5% and Upper 0.5% crossed zero, with a coefficient of 0.613. H4 is supported, which means that learners' satisfaction mediates the impacts of service quality on learners' loyalty. The direct effect is 0.197, and the indirect effect is 0.613, suggesting a partial mediation.

5.4 Hypotheses test for the moderation effects

In this study, moderation effects are H5: In the training process of management-oriented PEE training organizations, customer expectations moderate the impact of service quality on satisfaction; H6: In the training process of management-oriented PEE training organizations, the level of acceptance of training fees moderates the impact of service quality on satisfaction; and H7: In the training process of management-oriented PEE training organizations, the mode of instruction moderates the impact of service quality on satisfaction. All three moderators are supported according to the statistical analysis, and procedures are as follow.

5.4.1 Hypothesis test for the training expectations as a moderator

Moderation refers to the interference of a moderating variable Z in the relationship between X and Y. For example, the impact of driving speed (X) on the likelihood of a car accident (Y) may be influenced by whether or not the driver is drinking alcohol (Z). The magnitude of this impact may differ significantly when comparing the influence of alcohol consumption to that of non-consumption.

Testing for moderation effects involves three regression steps, as described below:

Step 1: The independent variable is X, the dependent variable is Y. This step is relatively less significant and sometimes can be ignored.

Step 2: The independent variables are X and Z, and the dependent variable is Y. Model 2 builds upon Model 1 by including the moderating variable Z. This step is also relatively less significant and can sometimes be ignored.

Step 3: The independent variables are X, Z, and $X*Z$ (interaction term), and the dependent variable is Y. Model 3 incorporates the interaction term into Model 2. This is the core model, and if the interaction term ($X*Z$) is significant, it indicates the presence of a moderation effect.

Mplus 8.3 was used to fit a regression model for H5. The summary of model fit indices for the moderation effect of training expectations on the relationship between service quality and learners' satisfaction is presented in Table 5.9. Firstly, the model fit indices were examined. The RMSEA was 0.089, indicating a good fit as it is below the threshold of 0.10. The χ^2/df value was 2.77, below the threshold of 3, suggesting a reasonable fit. The CFI was 0.901, above the threshold of 0.9, indicating a good fit. The TLI was 0.910, also above the threshold of 0.9, indicating a good fit. The SRMR was 0.044, below the threshold of 0.1, indicating a good fit. These results indicate that the model for H5 fits well and meets the requirements, allowing for further analysis.

Once it was established that the H5 model had a good fit, the regression results of the model were reported. The reported results of the hypothesis regression for the moderation effect of training expectations on the relationship between service quality and learners' satisfaction are shown in Table 5.9. It can be observed that the P-value for the relationship between service quality and learners' satisfaction is $0.000 < 0.01$, indicating a significant relationship. Similarly, the P-value for the relationship between training expectations and learners' satisfaction is $0.000 < 0.01$, indicating a significant relationship. Additionally, the P-value for the interaction term (service quality * training expectations) and its relationship with learners' satisfaction is $0.000 < 0.01$, indicating a significant relationship. These results support the hypothesis that training expectations moderate the impact of service quality on satisfaction, with a moderation coefficient of 0.06. Figure A.7 shows the simple efficiency of moderating effect.

Table 5.9 Regression results for the moderation effect of training expectations on the impacts of service quality on learners' satisfaction

Model Judgement Indicators	Judgement indicators	RMSEA	χ^2/df	CFI	TLI	SRMR	VIF
	Judgement criteria	<0.10	<3-5	>0.9	>0.9	<0.1	1-10
	Value	0.089	2.77	0.901	0.910	0.044	6.59
Regression results	Path	Estimate	Est./S.E.	Two-Tailed P-Value			
	Service Quality → Learners' satisfaction	0.756	10.843	0.000			
	Expectations for training→Learner s' satisfaction	0.149	5.434	0.000			
	Service Quality * Expectations of training→Learner s' satisfaction	0.06	4.374	0.000			

5.4.2 Hypothesis test for the training prices as a moderator

Mplus 8.3 was used to fit a regression model for H6. The summary of model fit indices for the moderation effect of training prices on the relationship between service quality and learners' satisfaction is presented in the first part of Table 5.10. Firstly, the model fit indices were examined. The RMSEA was 0.088, indicating a good fit as it is below the threshold of 0.10. The χ^2/df value was 2.73, below the threshold of 3, suggesting a reasonable fit. The CFI was 0.905, above the threshold of 0.9, indicating a good fit. The TLI was 0.914, also above the threshold of 0.9, indicating a good fit. The SRMR was 0.041, below the threshold of 0.1, indicating a good fit. These results indicate that the model for H6 fits well and meets the requirements, allowing for further analysis.

Once it was established that the H6 model had a good fit, the regression results of the model were reported. The reported results of the hypothesis regression for the moderation effect of training prices on the relationship between service quality and learners' satisfaction are shown in the second part of Table 5.10. It can be observed that the P-value for the relationship between service quality and learners' satisfaction is $0.000 < 0.01$, indicating a significant relationship. Similarly, the P-value for the relationship between training prices and learners' satisfaction is $0.000 < 0.01$, indicating a significant relationship. Additionally, the P-value for the interaction term (service quality * training prices) and its relationship with learners' satisfaction is $0.009 < 0.01$, indicating a significant relationship. These results support the hypothesis that the acceptance level of training prices moderates the impact of service quality on satisfaction, with a moderation coefficient of 0.018. Figure A.8 is the simple efficiency of moderating effect.

Table 5.10 Regression results for the moderation effect of training prices on the impacts of service quality on learners' satisfaction

Model	Judgement indicators	RMSEA	χ^2/df	CFI	TLI	SRMR	VIF
Judgement Indicators	Judgement criteria	<0.10	<3-5	>0.9	>0.9	<0.1	1-10
Regression results	Value	0.088	2.73	0.905	0.914	0.041	9.17
	Path	Estimate	Est./S.E	Two-Tailed P-Value			
	Service Quality → Learners' satisfaction	0.671	10.5	0.000			
	Expectations for training → Learners' satisfaction	0.295	5.306	0.000			
	Service Quality* Expectations of training → Learners' satisfaction	0.018	4.467	0.000			

5.4.3 Hypothesis test for the teaching modes as a moderator

Mplus 8.3 was employed to fit a regression model for H7. The summary of model fit indices for the moderation effect of teaching methods on the relationship between service quality and learners' satisfaction is presented in the first part of Table 5.11. Firstly, the model fit indices were examined. The RMSEA was 0.089, indicating a good fit as it is below the threshold of 0.10. The χ^2/df value was 2.44, below the threshold of 3, suggesting a reasonable fit. The CFI was 0.904, above the threshold of 0.9, indicating a good fit. The TLI was 0.912, also above the threshold of 0.9, indicating a good fit. The SRMR was 0.039, below the threshold of 0.1, indicating a good fit. These results indicate that the model for H7 fits well and meets the requirements, allowing for further analysis.

Once it was established that the H7 model had a good fit, the regression results of the model were reported. The reported results of the hypothesis regression for the moderation effect of teaching methods on the relationship between service quality and learners' satisfaction are shown in the second part of Table 5.11. It can be observed that the P-value for the relationship between service quality and learners' satisfaction is $0.000 < 0.01$, indicating a significant relationship. Similarly, the P-value for the relationship between teaching methods and learners' satisfaction is $0.000 < 0.01$, indicating a significant relationship. Additionally, the P-value for the interaction term (service quality * teaching methods) and its relationship with learners' satisfaction is $0.009 < 0.01$, indicating a significant relationship. These results support the hypothesis that teaching methods moderate the impact of service quality on satisfaction, with a moderation coefficient of 0.021. Figure A.9 shows the simple efficiency of moderating effect.

Table 5.11 The teaching modes for the moderation effect of teaching modes on the impacts of service quality on learners' satisfaction

Model	Judgement indicators	RMSEA	χ^2/df	CFI	TLI	SRMR	VIF
Judgement Indicators	Judgement criteria	<0.10	<3-5	>0.9	>0.9	<0.1	1-10
	Value	0.089	2.44	0.904	0.912	0.039	4.94
Regression results	Path	Estimate	Est./S.E.	Two-Tailed P-Value			
	Service Quality → Learners' satisfaction	0.731	14.548	0.000			
	Teaching modes → Learners' satisfaction	0.191	4.233	0.000			
	Service Quality* Teaching modes → Learners' satisfaction	0.021	3.751	0.000			

5.5 Summary of hypotheses test results

The results of the hypothesis tests outlined above are summarized in Table 5.12. All seven hypotheses proposed in Chapter 3 of this study have been supported. This indicates that in the context of management postgraduate entrance exam training organizations, service quality has a positive impact on learners' satisfaction and loyalty. Furthermore, when service quality positively affects loyalty, it imposes the impacts through the mediating effect of learners' satisfaction. Additionally, the expectations of training, training prices, and teaching modes all moderate the impact of service quality on satisfaction.

Table 5.12 Summary of hypothesis test results

Hypothesis No.	Hypothesis	Test results
H1	In the training process of management-oriented PEE training organizations, service quality has a positive impact on learners' satisfaction.	Supported
H2	During the training service process of management-oriented PEE training organizations, service quality has a positive impact on learners' loyalty.	Supported
H3	During the training service process of management-oriented PEE training institution, learners' satisfaction has a positive impact on learners' loyalty.	Supported
H4	In the training process of management-oriented PEE training organizations, learners' satisfaction mediates the impacts of service quality on learners' loyalty.	Supported
H5	In the training process of management-oriented PEE training organizations, customer expectations moderate the impact of service quality on satisfaction.	Supported
H6	In the training process of management-oriented PEE training organizations, the level of acceptance of training fees moderates the impact of service quality on satisfaction.	Supported
H7	In the training process of management-oriented PEE training organizations, the mode of instruction moderates the impact of service quality on satisfaction.	Supported

Chapter 6: Research Conclusions and Prospects

This final chapter presents the research conclusions and prospects, synthesizing the findings and implications derived from the study. By reflecting on the research outcomes and providing a broader perspective, this chapter paves the way for further advancements in the field.

6.1 Research conclusions

The research hypotheses and the conceptual model constructed in this study are rational, and all seven research hypotheses have been supported. Based on the literature review, theoretical analysis, questionnaire survey, and empirical analysis, this study has discovered and demonstrated the impact of service quality in management-oriented PEE training organizations on learners' satisfaction and loyalty. This indicates that service quality positively influences learners' satisfaction and loyalty in the context of management postgraduate entrance exam training organizations. Moreover, when service quality positively affects loyalty, it does so through the mediating effect of learners' satisfaction. Additionally, the expectations of training, training prices, and teaching methods moderate the impact of service quality on satisfaction.

(1) In the process of training services provided by management-oriented PEE training organizations, service quality has a positive impact on learners' satisfaction. This study tested the hypothesis regarding the relationship between service quality and learners' satisfaction, demonstrating that service quality has a positive influence on customer satisfaction. This finding is consistent with the research conducted by Nugraheni et al. (2014), Ali et al. (2016), Krishnamoorthy et al. (2016), Chang et al. (2017), Hwang and Choi (2019), Darawong and Sandmaung (2019), Khalid et al. (2019), and Massoud et al. (2020), among others. The relationship between service quality and customer satisfaction could be applicable in a wider range of fields, providing valuable insights for other businesses.

(2) In the process of training services provided by management-oriented PEE training organizations, service quality has a positive impact on learners' loyalty. This study tested the hypothesis regarding the relationship between service quality and loyalty, indicating that service quality positively influences customer loyalty. This finding aligns with the research

conducted by Hunt et al. (1995), Yamani et al. (2017), Amegbe et al. (2019), Paul and Pradhan (2019), Gao (2020), Mulyono (2020), Yousaf et al. (2020), Latif et al. (2021), and Chandra et al. (2019). The relationship between service quality and loyalty could be applicable in a wider range of fields, providing valuable insights for other businesses.

(3) In the process of training services provided by management postgraduate entrance exam training organizations, learners' satisfaction has a positive impact on learners' loyalty. This study tested the hypothesis regarding the relationship between learners' satisfaction and loyalty, revealing that learners' satisfaction positively influences learners' loyalty. This finding is consistent with the research conducted by Appuhamilage and Torii (2019), Bitner (1990), Rust and Zahorik (1993), Reynolds and Beatty (1999), Hunt et al. (1995), Chandra et al. (2019), Gao (2020), Mulyono (2020), while contradicting the findings of Andreassen and Lindestad (1998), Mittal et al. (1999), Clemes et al. (2011), Gracia et al. (2011), and Wilkins et al. (2009), and Yamani et al. (2017). The relationship between customer satisfaction and loyalty could be applicable in a wider range of fields, providing valuable insights for other businesses.

(4) In the process of training services provided by management postgraduate entrance exam training organizations, learners' satisfaction mediates the impact of service quality on learners' loyalty. This study tested the hypothesis that learners' satisfaction mediates the relationship between service quality and learners' loyalty, demonstrating the pathway through which service quality affects learners' loyalty. This finding is consistent with the research conducted by Jaafar et al. (2020) and contradicts the findings of Yamani et al. (2017). It also provides some validation for the Swedish Customer Satisfaction Index model. This indicates that customer satisfaction can be enhanced through improving service quality, thereby increasing customer loyalty.

(5) In the process of training services provided by management postgraduate entrance exam training organizations, the expectations of training moderate the impact of service quality on satisfaction. This study tested the hypothesis that the expectations of training moderates the impacts of service quality on customer satisfaction, suggesting that learner expectations regarding training may help adjust the influence of service quality on learners' satisfaction. This finding aligns with the Service Quality Model proposed by Grönroos (1984), the Perceived SERVQUAL Model, the Revised SERVQUAL Gap Model, the Expectation-Disconfirmation Model, the Revised Expectation-Disconfirmation Model, the Swedish Customer Satisfaction Index Model (SCSB Model), and the Chinese Customer Satisfaction Index Model (CCSI Model), among others. This indicates that adjusting customer expectations can strengthen the mechanisms through which service quality affects customer satisfaction.

(6) In the process of training services provided by management-oriented PEE training organizations, the acceptance level of training prices moderates the impact of service quality on satisfaction. This study tested the hypothesis that the acceptance level of training prices moderates the relationship between service quality and customer satisfaction, suggesting that learner expectations regarding training prices may help adjust the influence of service quality on learners' satisfaction. This finding aligns with the Service Quality Model proposed by Grönroos (1984), the Perceived SERVQUAL Model, the Revised SERVQUAL Gap Model, the Expectation-Disconfirmation Model, the Revised Expectation-Disconfirmation Model, the Swedish Customer Satisfaction Index Model (SCSB Model), and the Chinese Customer Satisfaction Index Model (CCSI Model), among others. This indicates that adjusting customer expectations can strengthen the mechanisms through which service quality affects customer satisfaction.

(7) In the process of training services provided by management-oriented PEE training organizations, the teaching mode moderates the impact of service quality on satisfaction. This study tested the hypothesis that the teaching mode moderates the impacts of service quality on customer satisfaction, indicating that the more face-to-face classroom teaching is employed, the more pronounced the impact of service quality on customer satisfaction. This suggests that presenting the same service content in different formats can have varying effects on learners, thus influencing their satisfaction and loyalty. This finding highlights the importance of attracting learners to experience offline services first when providing training services in management postgraduate entrance exam institutions. Additionally, it suggests that a combination of online and offline modes should be considered, with offline mode being the least preferred. Similarly, in the design of service quality for businesses in other fields, the potential effects of different service formats should be taken into account. Currently, there is a lack of research addressing the differences between online, offline, and blended modes of service delivery in the context of entrance exam services. This study contributes significantly to filling this gap in the literature.

6.2 Research contributions

This study makes the following contributions:

6.2.1 Theoretical contribution

This study discovers and demonstrates the impact of service quality provided by management

postgraduate entrance exam training organizations on learners' satisfaction and loyalty. Based on literature review and theoretical analysis, a model illustrating the relationship between service quality, learners' satisfaction, and loyalty in management postgraduate entrance exam training organizations is constructed. This model is validated through questionnaire surveys and empirical analysis. It contributes to the existing research on service quality, satisfaction, and loyalty by enriching the understanding of these concepts in the context of management postgraduate entrance exam training organizations.

6.2.2 Practical contribution

This research helps Pinrui Training Organization clarify the relationship between service quality, satisfaction, and loyalty and provides recommendations to enhance service quality. It also provides insights for the future development of Pinrui Training Organization, suggesting that improving service quality can enhance customer satisfaction, loyalty, and referral rates, thereby facilitating better development. Furthermore, it offers reference and inspiration for similar management postgraduate entrance exam training organizations in terms of their development strategies.

6.3 Research recommendations

Based on the research findings, it is evident that service quality in management postgraduate entrance exam training organizations positively influences customer satisfaction, loyalty, and referral. Therefore, it is crucial for these institutions to prioritize the establishment of a comprehensive service quality system. Specifically, they should focus on two fundamental aspects and strive for high-quality and standardized service quality systems. Moreover, considering the specific circumstances of Pinrui Training Organization, this study provides concrete recommendations for enhancing service quality.

6.3.1 Establishing a high-quality service system

A high-quality service system is beneficial for improving learners' satisfaction and loyalty. Therefore, "Pinrui" training institution should prioritize the optimization of five key aspects: assurance, reliability, empathy, tangibles, and convenience, in order to establish a "Five Highs" service quality system characterized by high assurance, high reliability, high empathy, high tangibles, and high convenience.

To enhance the assurance of services, the following areas can be optimized: knowledge and skills, teaching environment and atmosphere, learner learning needs, teachers' professional knowledge and teaching abilities, and effective and timely handling of learner feedback and complaints.

To improve the reliability of services, the following areas can be optimized: making efforts to meet learner demands, providing reliable learning and living conditions, fulfilling commitments to learners, ensuring fair and reliable learner evaluations, and treating learners equally and with respect.

To enhance the empathy of services, the following areas can be optimized: providing necessary learning consultation services to learners, assisting learners in solving difficulties to the best of the faculty and staff's abilities, and displaying enthusiasm, friendliness, and genuine care towards learners.

To improve the tangibles of services, the following areas can be optimized: constructing modern teaching and service facilities, creating abundant learning resources, reducing learner learning costs (such as fees and time), and enhancing academic reputation and social prestige.

To enhance the convenience of services, the following areas can be optimized: arranging course schedules reasonably, ensuring convenience for learners, and simplifying, standardizing, and streamlining the provided services as much as possible.

6.3.2 Specific strategies for improving service quality

6.3.2.1 Enhancing teaching quality

Teaching quality is an indicator of the educational level of teachers and the effectiveness of their instruction in evaluating the training organizations. It mainly refers to learners' perceptions of the teachers' classroom performance, including the value of course content and the competence of the teachers themselves. Therefore, to improve teaching quality, efforts should be made in two aspects: improving the curriculum system and enhancing the teaching staff's qualifications.

(1) Improving the curriculum system

The curriculum is the primary product of training organizations and serves as the main vehicle for delivering training. In order to achieve training objectives, training organizations must have a complete and rational curriculum system. The curriculum system consists of two aspects: course content and teaching process, which collectively represent the teaching content and procedures. Key elements include assessing the training needs of learners,

establishing clear training objectives, planning learning activities systematically, and periodically evaluating learners' learning outcomes. The design of the curriculum system is the core task of the training institution. It should be based on learner needs, available resources and conditions, and the qualifications of the teaching staff. A comprehensive teaching plan should be developed and implemented.

Currently, however, many institutions have not adequately focused on curriculum system development. They often offer courses based on the availability of teachers or schedule courses at convenient times, neglecting the systematic nature of the curriculum and the importance of learner-centeredness. In particular, some training organizations concentrate a single course within a short period, overlooking learners' receptiveness and absorption capacity.

Furthermore, the development of the curriculum in training organizations often lacks dedicated professionals. Many training courses are decided by teachers without thorough research and discussion from a professional teaching and research team. Some institutions even rely on online courses provided by larger organizations and gather learners in classrooms to watch these courses. As learners have varying levels of knowledge and different learning capacities, this learning model does not facilitate systematic learning.

While developing a comprehensive curriculum system and creating new courses require significant investment in human, material, and financial resources for training organizations, having a complete curriculum system is crucial for their flourishing and sustainable development. Therefore, institutions should balance the relationship between capital and education, prioritize learner-centeredness, and better serve learners to enhance learners' satisfaction and, in turn, increase the value of the institution.

(2) Enhancing the overall teaching staff's qualifications

Many training organizations in the education industry face the issue of frequent teacher turnover. According to communication with these institutions, high teacher attrition rates are cited as the primary reason. After a teacher leaves, another teacher is assigned to take over the classes, leading to learner complaints and attrition. Teaching staff is a core resource for educational training organizations. Therefore, it is essential to prioritize teacher development, address the issue of teacher turnover, and establish a sound teacher management mechanism. Based on professional knowledge, this thesis proposes the following suggestions for improving the overall teaching staff's qualifications in the context of PEE training organizations:

a). Design corporate culture training

For newly hired teachers, they should be provided with a comprehensive understanding of and insight into the educational training institution. This will enable them to effectively align their personal development goals and values with the institution's development goals and values, fostering a unified sense of purpose and values.

b). Establish a comprehensive career development plan for teachers

Training organizations should offer teachers a platform for training and development. Through training, teachers can enhance their overall capabilities to meet the requirements of the training institution and improve their job skills. Motivating teachers to engage in self-directed learning and providing opportunities for comprehensive development are crucial.

c). Set promotion standards for teaching positions

Training organizations should clearly define promotion standards for teachers. For example, promotion can be based on factors such as the number of teaching hours and learner evaluations, with corresponding salary increases. In terms of positions, assistant teachers can be promoted to subject leaders, subject supervisors, academic managers, and other teaching management positions.

d). Establish a reasonable incentive mechanism and improve the salary structure

A significant reason for teacher turnover in PEE training organizations is often attributed to salary and limited opportunities for advancement. In addition to clarifying promotion standards, training organizations should conduct thorough market research on salary structures. This ensures that the institution's salary structure aligns with the local talent market, providing competitive compensation to teachers. The salary structure directly affects the self-interest of training teachers. Therefore, a competitive salary structure is conducive to motivating teachers' enthusiasm for work and reducing talent attrition.

(3) Ensuring the quality of teaching in the classroom

The classroom is the most direct product presented to learners by PEE training organizations and is the most crucial factor influencing the quality of training. It is the key determinant of learners' satisfaction. Therefore, PEE training organizations must guarantee the quality of teaching in the classroom. In some PEE training organizations in Chengdu, issues such as promoting additional textbooks or courses during class, deviating from the exam requirements in course content, and failing to consider the needs of all learners during the teaching process have been observed. This indicates a lack of awareness in managing the quality of courses in some PEE training organizations.

To address the aforementioned issues, this thesis proposes the following suggestions:

a). Determine the teaching content

Define the objectives of learner guidance, select course content based on the exam syllabus, and grasp the key points and difficulties in teaching by incorporating past exam questions.

b). Enhance teaching methods

Conduct pre-teaching research to discuss teaching strategies that help learners better understand the key points. Clarify teaching steps and promote teacher-learner interaction during class.

c). Foster a proper teaching attitude among teachers

d). Implement assessment of teaching effectiveness

For example, use exams to evaluate whether learners have achieved their learning goals, conduct learner evaluations, and analyze learners' satisfaction.

e). Improve the feedback system for teaching quality issues: Promptly address any problems that arise during the teaching process.

By implementing these recommendations, PEE training organizations can ensure that the quality of teaching in the classroom meets the highest standards and effectively supports learners' learning outcomes.

6.3.2.2 Enhancing service quality

PEE training organizations fundamentally belong to the service industry. In addition to providing high-quality training courses, it is crucial to offer learners a high standard of service. Insufficient service provision by training organizations can impact learners' learning experience and consequently affect their satisfaction. Therefore, improving the service quality of PEE training organizations is imperative. This thesis analyzes several aspects to enhance the service quality of PEE training organizations.

(1) Enhancing information collection and feedback system

Information forms the foundation of training work. For PEE training organizations, both internal and external information hold significant importance for learners and the institution's own development.

Internally, PEE training organizations should establish a comprehensive learner database, placing learners at the center. From the moment of enrollment, detailed records of learners' personal information and academic background should be maintained. Throughout their enrollment, learners' learning progress, including course completion and test scores, should be documented. By being familiar with each learner's achievements and areas for improvement, targeted measures can be taken to address their specific needs.

Externally, collecting accurate information about universities can better serve learners' choices and needs. For example, information about enrollment majors, admission quotas, admission cutoff scores, and transfer opportunities. For learners preparing for the postgraduate entrance examination, it is challenging to have firsthand access to up-to-date information about universities due to time constraints and limited resources. Information asymmetry often results in high-scoring learners failing to enroll in suitable university programs. Therefore, PEE training organizations should establish broader channels to provide learners with tailored information matching their academic interests, industry preferences, and learning abilities. This will enhance learners' satisfaction.

Accurate information also assists institutions in formulating appropriate development plans and helps them identify their weaknesses, enabling improvements in training strategies. The information collection department should establish a comprehensive network for collecting information in all areas.

By improving the information collection and feedback system, PEE training organizations can better understand learner needs, provide tailored services, and enhance overall learners' satisfaction. Additionally, the institution itself can benefit from the gathered information for strategic planning and continuous improvement.

(2) Emphasizing and strengthening post-class services

Many learners have raised concerns that after completing classes, their post-class questions often go unanswered, leading to a decrease in their evaluation of training organizations. As PEE training organizations belong to the service industry, a good service attitude is a prerequisite for enhancing customer satisfaction. Post-class consultation should be an integral part of the teaching process, and training organizations should provide the necessary services to learners. Additionally, some learners have provided feedback stating, "When the institution fails to meet expectations, we are unsure of how to file complaints, and the issues raised through complaints often go unanswered." Customer complaints are an inevitable part of the business operation process, and they should be handled promptly. By providing appropriate feedback channels and addressing the concerns of learners, training organizations can easily find solutions. The following points can be considered:

a). Listen and understand learners' demands. When dealing with complaints, it is essential to first listen to the learners' needs and understand the reasons for their dissatisfaction, whether it is related to the course, the instructor, or other factors. Collecting feedback from other learners is also valuable in this process.

b). Investigate and verify the complaint. Conduct a thorough investigation to determine

whether the complaint stems from institutional management, the instructor, course quality, classroom equipment, learning environment, or other issues. Verify the specific reasons behind the complaint and gain a better understanding of the learners' genuine demands.

c). Develop problem-solving solutions. Once the complaint issues are identified, it is crucial to promptly devise a solution. Analyze each specific issue individually and ensure that the learners are satisfied with the proposed resolution.

d). Provide timely feedback to learners. After the solution is determined, promptly communicate it to the learner involved to gauge their satisfaction with the proposed resolution. If the learner is dissatisfied, engage in further communication to understand their needs and make improvements to the solution within the institution's acceptable limits.

e). Effectively address complaint issues. When resolving complaints, it is advisable to set a specific timeline for each department or instructor to address and resolve the issue. The longer the complaint is left unresolved, the more uncontrollable factors may arise.

f). Summarize and reflect on the issues. After resolving the problem, training organizations should summarize the issues, analyze the causes and difficulties encountered during the resolution process, and consider ways to further improve and prevent similar problems from arising in the future.

By emphasizing and strengthening post-class services, PEE training organizations can effectively address learner concerns, improve customer satisfaction, and maintain a positive reputation in the industry.

(3) Improving fee and refund management

Based on my own research findings, it is evident that fees and refunds are points of concern for learners and greatly influence their expectations regarding the quality of services provided by educational training organizations. Therefore, enhancing fee management is crucial for improving learners' satisfaction. This article suggests focusing on the following two aspects:

a). Establishing clear and reasonable fee standards. Currently, in the rapidly developing market of Chengdu's PEE training organizations, fees are complex, and both fee items and standards are largely determined by the institutions themselves, allowing for significant variation. As a result, there is a lack of unified fee standards among training organizations. For the same type of class, different instructors may charge different fees. Even for one-on-one tutoring, the price can range from 100 to 500 per session. The courses are similar, but the fees vary. It is undeniable that factors such as investment in facilities, educational research, and faculty development can influence the level of fees for training organizations.

However, it is important for training organizations to establish a set of clear and reasonable fee standards, avoiding learner skepticism. Fee standards should be clearly stated in learners' training contracts, including training content, materials, duration, total class hours, fee items, etc. Additionally, specific teaching plans should be provided to learners.

b). Improving the refund mechanism. There may be instances where learners request refunds due to various reasons, and training organizations often find excuses to delay or deny such requests. To address this issue, involvement and assistance from the education department are necessary. The education department should strengthen the management of fee collection and refund processes in educational training organizations, supervising the implementation of relevant regulations regarding fees and refunds. This would help prevent situations where training organizations use excuses to coax, postpone, or refuse learners' refund requests. Training organizations should also improve their mechanisms for delayed services or refunds.

By enhancing fee and refund management, PEE training organizations can establish a transparent and fair fee system, build trust with learners, and provide a higher level of satisfaction. The active involvement of the education department in regulating fee and refund practices would contribute to a more reliable and accountable training environment.

6.3.2.3 Improving the teaching environment

(1) Providing study spaces

For learners preparing for postgraduate entrance examinations, having a quiet and comfortable study environment greatly enhances their learning efficiency. However, most learners often lack such a conducive study environment. Although universities have established self-study rooms for postgraduate exam preparation, the rapid increase in the number of candidates in recent years has made it difficult to secure a spot in these university facilities. As for working professionals preparing for postgraduate exams, they are unable to study at their workplaces and may face difficulty concentrating at home. Therefore, every learner attending a PEE training institution requires a dedicated study space. For PEE training organizations, providing learners with a quiet and comfortable study environment not only facilitates their learning but also contributes to higher learners' satisfaction. It enables the institutions to better serve the learners and to some extent ensures the effectiveness of the teaching.

(2) Enhancing Teaching Facilities

The teaching environment and facilities are integral components of the courses and can

impact the quality of training. Based on surveys conducted with learners at PEE training organizations in Chengdu, some institutions face issues such as small classrooms, unclear projections, learners at the back unable to see the projected content, and inadequate seating comfort. These problems indicate that some PEE training organizations have not recognized the importance of developing teaching facilities. PEE training organizations should realize that the teaching environment and facilities are prerequisites for ensuring the quality of educational training. Firstly, institutions should select appropriate training locations in relatively quiet areas to avoid disturbances that may affect the courses. Secondly, training organizations should upgrade their hardware facilities, including projectors, comfortable desks and chairs, air conditioning, and modern teaching equipment.

By improving the teaching environment and facilities, PEE training organizations can create a conducive study atmosphere, enhance the quality of instruction, and ultimately increase learners' satisfaction. Recognizing the significance of teaching facilities is essential for institutions to deliver effective and satisfactory training services.

6.3.2.4 Improving teacher-learner relationships

Teacher-learner relationships refer to the interactions between teachers and learners in the training process, including classroom interactions, as well as the extent to which teachers show individual care for learners outside the classroom. A positive teacher-learner relationship in PEE training enhances the rapport between learners and the training institution, leading to increased learners' satisfaction. This study found, through surveys, that learners expressed relatively low satisfaction with the indicator of teachers taking the initiative to individually care for learners. Institutions and teachers can provide learners with more attention during and after classes to enhance the teacher-learner relationship and, consequently, improve learners' satisfaction.

During classes, teachers can create a relaxed classroom atmosphere and give individual attention to learners. This approach allows learners to better absorb the content and feel acknowledged. After class, teachers can provide personalized follow-up services based on individual learner performance, showing individual care and offering post-class assistance to strengthen the teacher-learner bond.

By fostering a supportive teacher-learner relationship, PEE training organizations can create a positive learning environment and enhance learners' satisfaction. Recognizing the importance of individual care and attention from teachers contributes to a more engaging and effective learning experience for learners.

6.4 Research Limitations

This study has certain limitations, which can be identified in two aspects.

6.4.1 Literature limitations

The research on learners' satisfaction in postgraduate entrance exam (PEE) training organizations is relatively scarce based on the literature search results. Although extensive searches were conducted for this study, the number of relevant literature obtained was relatively limited. This may introduce some limitations to this research. However, at the same time, this represents the research's innovative contribution. Due to the lack of empirical studies on the relationship between service quality, learners' satisfaction, and loyalty in the PEE training industry, this research holds significant value.

6.4.2 Sample limitations

The sample used in this study was restricted to Pinrui PEE Training Organization, which may raise concerns about the generalizability of the research findings to other PEE training organizations. Although the research hypotheses were tested and supported within the confines of this specific organization, caution should be exercised when applying these conclusions to a broader population of PEE training providers. To ensure the external validity of the results, further investigation is required using diverse samples from various PEE training organizations.

6.4.3 Methodological limitations

A notable methodological limitation of this study is its exclusive focus on Pinrui PEE Training Organization, which has hindered the ability to capture variations in services offered by different organizations. By incorporating data from multiple PEE training providers, researchers could gain a comprehensive understanding of the disparities in service quality and customer satisfaction across the industry. To address this limitation, future studies should adopt a stratified approach to ensure a representative sample that accounts for the diversity of services in the PEE training sector.

6.4.4 Variable limitations

It is worth noting that this study did not account for the potential influence of postgraduate

entrance exam results on customer loyalty. Although the initial research model acknowledged the significance of exam results as a factor affecting loyalty, the constraints imposed by the time lag associated with exam results prevented further exploration of this variable. Subsequent investigations should consider integrating exam results into the research model to shed light on their impact on customer loyalty and further refine the analysis

6.5 Research prospects

This thesis presents important findings regarding service quality, customer satisfaction, and loyalty in Pinrui PEE Training Organization. However, it also acknowledges the limitations associated with the sample, methodology, and variables used in the study. To strengthen the research and advance knowledge in this area, future investigations should focus on expanding the sample, deepening the analytical methods, and including additional relevant variables. By addressing these prospects, scholars can make meaningful contributions to the field of management and improve the quality of service in the PEE training industry. Considering the limitations of this study, the following research prospects are suggested for further investigation.

6.5.1 Sample expansion

To bolster the credibility and applicability of the findings, future research should strive to expand the sample size and include data from multiple PEE training organizations. By incorporating a broader range of organizations, researchers can analyze variations in service quality, customer satisfaction, and loyalty across the industry. Employing a more diverse sample would enhance the external validity of the study and enable more robust conclusions.

6.5.2 Deepening methods

As the sample size increases with data from various PEE training organizations, it becomes imperative to account for potential between-group differences. Employing a cross-level structural equation modeling approach in future research would allow researchers to explore the unique characteristics and performance of individual organizations while maintaining a broader perspective on the industry. This advanced statistical technique would enable a more comprehensive analysis and enrich the understanding of the relationships between service quality, customer satisfaction, and loyalty.

6.5.3 Inclusion of more variables

To provide a more comprehensive analysis of the factors influencing customer loyalty, future studies should consider including postgraduate entrance exam results as an additional variable. By incorporating this crucial element, researchers can delve deeper into the complex interplay between exam performance and customer loyalty in the context of PEE training organizations. This enriched research model would contribute to a more comprehensive understanding of the underlying mechanisms that drive customer loyalty in the industry.

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Annex A: Other Figures

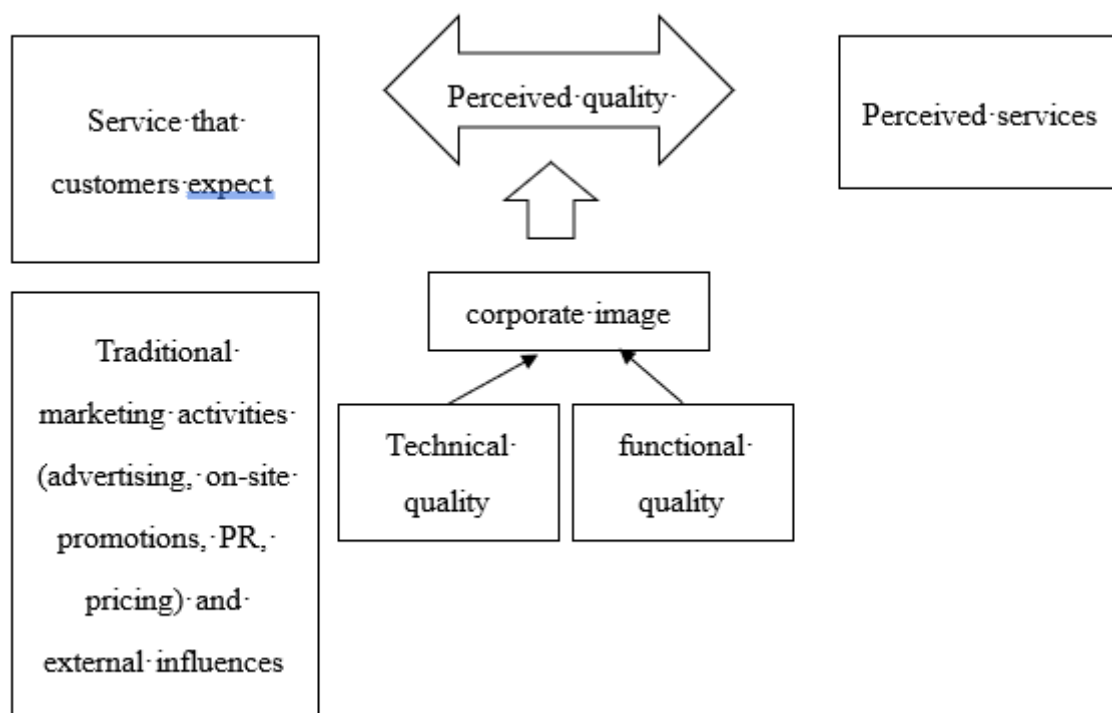


Figure A.1 Perceived quality of service model

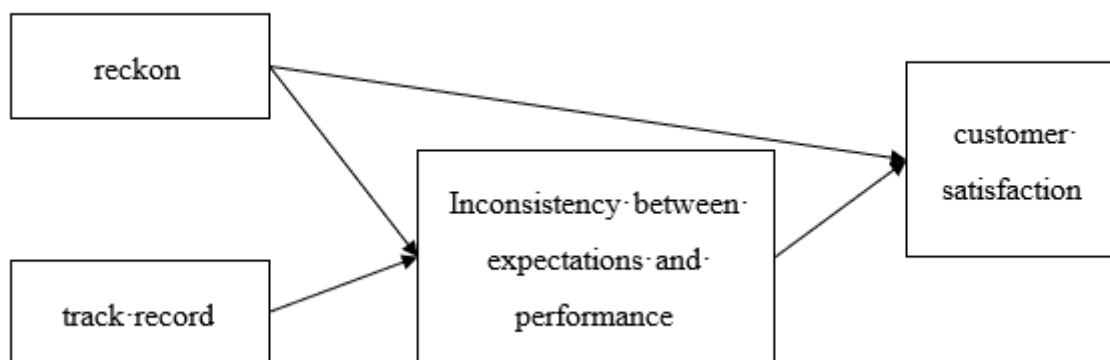


Figure A.2 Expectation-realities inconsistency model

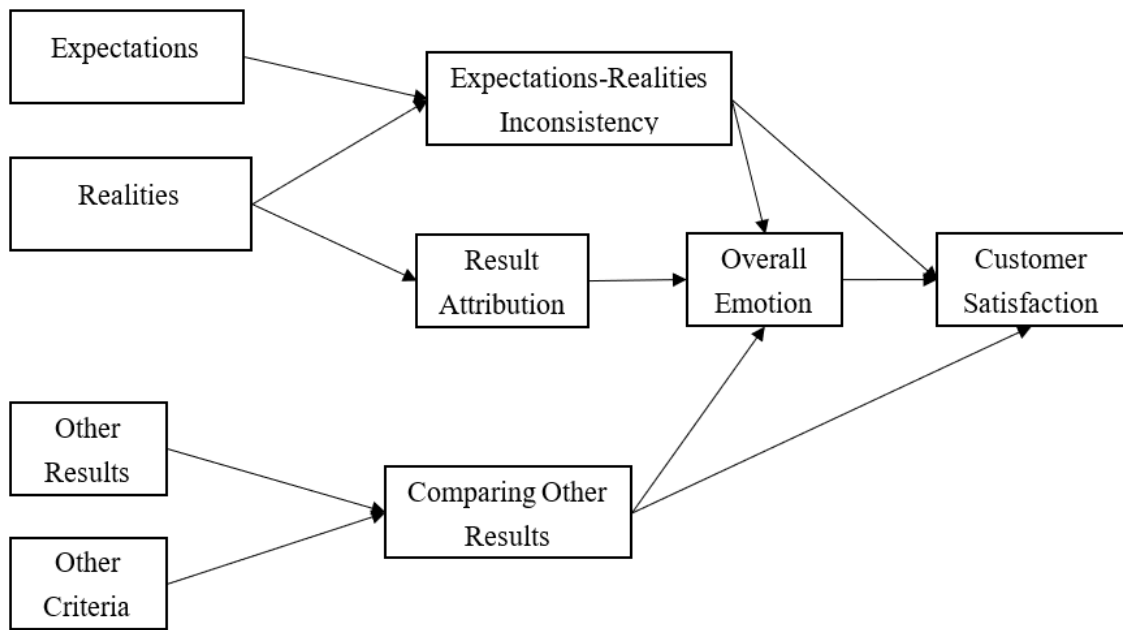


Figure A.3 Revised rational expectations-realities inconsistency model

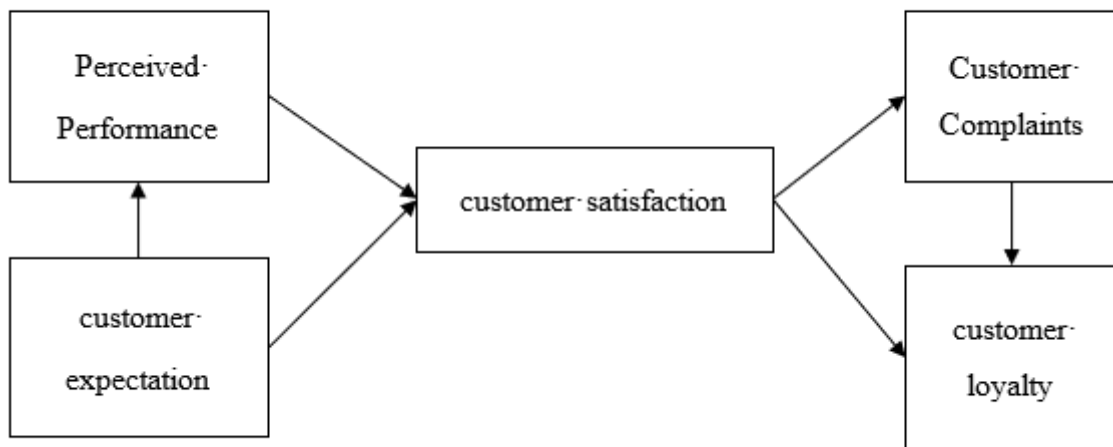


Figure A.4 US customer satisfaction index model

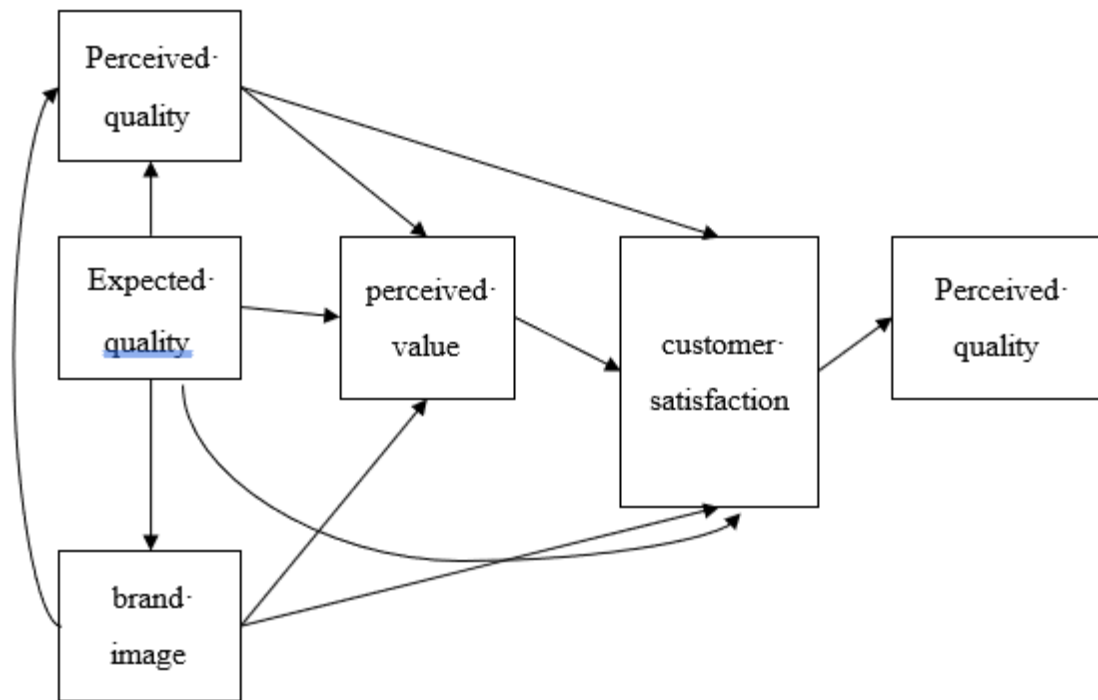


Figure A.5 China customer satisfaction index model (CCSI model)

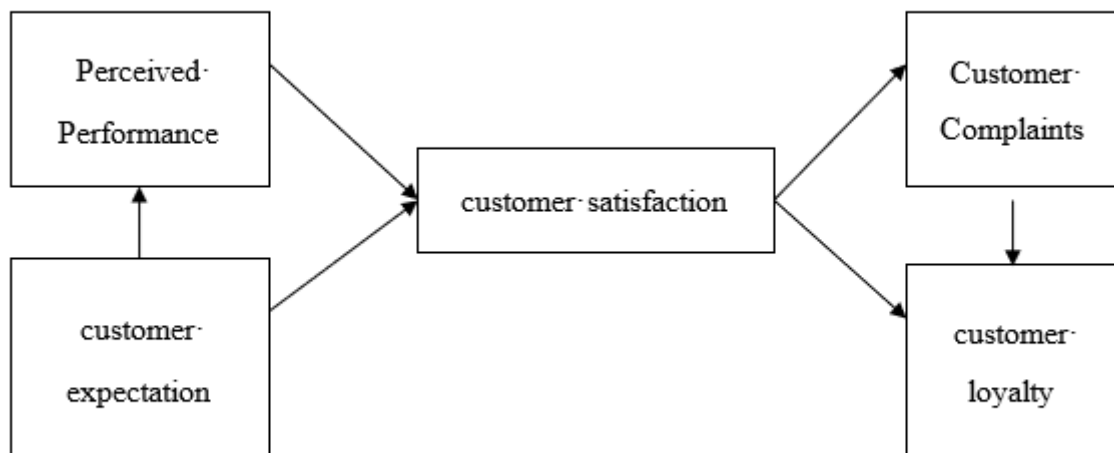


Figure A.6 Swedish customer satisfaction index model (SCSB model)

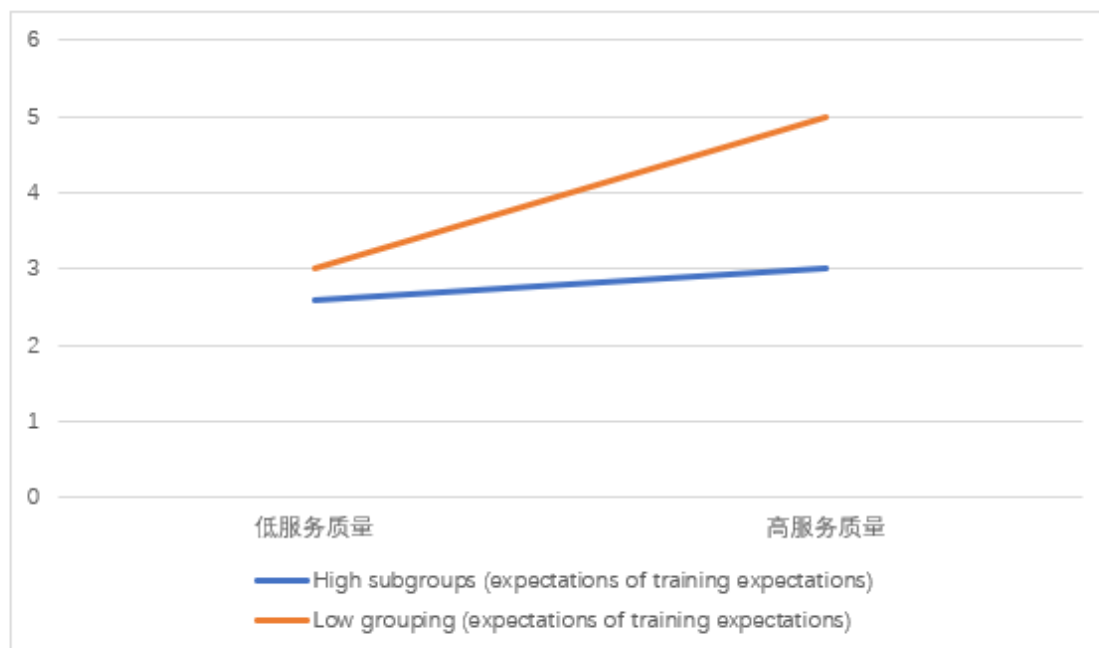


Figure A.7 Simple efficiency of moderating effects

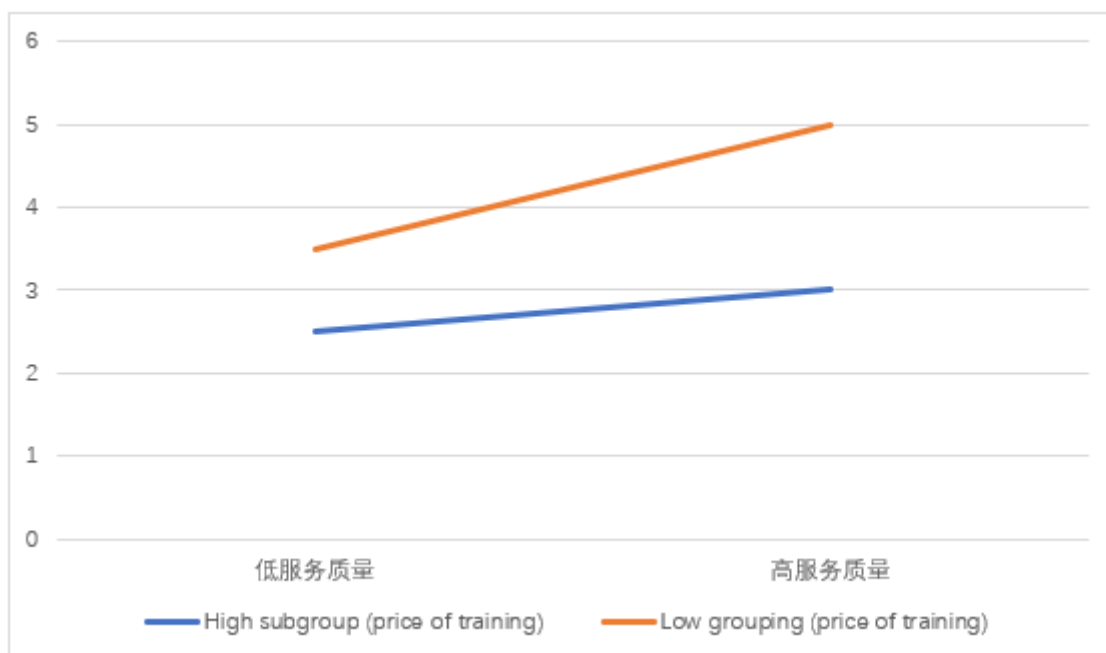


Figure A.8 Simple efficiency of moderating effects

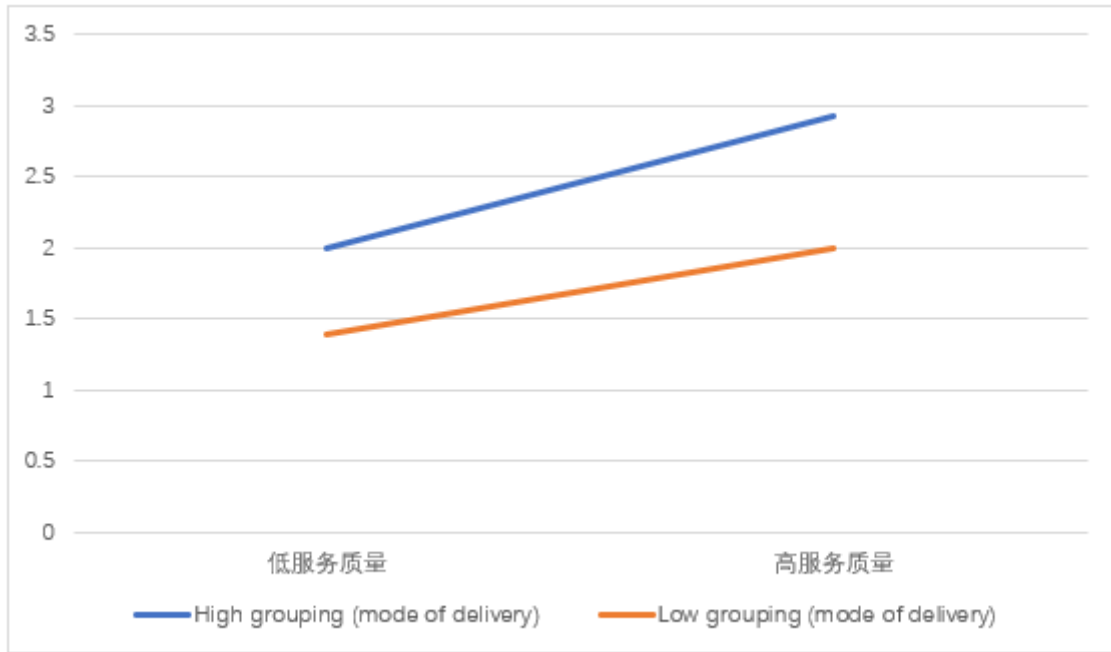


Figure A.9 Simple efficiency of moderating effects

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Annex B: Other Tables

Table B.1 Descriptions corresponding to Likert scale scores

Description	far from agree with	disa gree	Some disagree.	some agree with	of agree with	couldn't agree more
Options	1	2	3	4	5	6
correspondi ng score						

Table B.2 Statistics on the basic information of the sample of the pre-survey scale (N=199)

	typology	per cent
distinguishing between the sexes	male	39.70 per cent
	women	60.30 per cent
(a person's) age	average value	33.93
academic qualifications	three-year college	10.10%
	undergraduate (adjective)	82.90 per cent
	postgraduates	7 per cent
Year of enrolment	2010	1.00 per cent
	2011	1.00 per cent
	2012	0.50 per cent
	2014	1.00 per cent
	2015	3.00 per cent
	2016	3.50 per cent
	2017	1.50 per cent
	2018	7.00 per cent
	2019	7.00 per cent
	2020	15.10%
	2021	52.30 per cent
	2022	7.00 per cent

Table B.3 Official scale numbers

dimension		
QOS	1. Pinrui education provides the knowledge and skills needed.	A1
	2. The environment and atmosphere of Pinrui Education can meet the needs of students and is suitable for learning.	A2
	3. Pinrui Education understands the learning needs of the students.	A3
	4. Pin Rui teachers have professional knowledge and teaching ability	A4
	5. Trainees' opinions and complaints can be dealt with effectively and in a timely manner	A5
	6. Pinrui Education can endeavour to realise the demands of the students.	A6
	7. Learning and living in Pinrui Education is safe and reliable.	A7
	8 Pinray Education is able to honour its commitments to students.	A8
	9. Pinrui Education can evaluate the students fairly and reliably.	A9
	10. Pinrui staff can treat students equally and respect them.	A10
	11 Pinray Education provides the necessary learning consulting services for students.	A11
	12 Pinray staff try their best to help students to solve their problems.	A12
	13. Pinrui staff are warm and friendly to students and sincerely care about	A13

	them.	
	14. Pin Rui has modern teaching and learning service facilities.	A14
	15. Pinrui has a wealth of learning resources.	A15
	16. Learning costs (fee costs, time costs, etc.) are acceptable at Pinrui.	A16
	17. Pinrui Education has a high academic and social reputation.	A17
	18. Pinrui's programmes are timetabled and reasonable.	A18
	19. Pinrui's training service hours are convenient for students	A19
	20. The various service procedures provided by Pinrui are simple and standardised.	A20
	21 Please choose the teaching service you receive	B1
Expectations for training	22. When I participated in Pinrui training, I had high expectations for the overall training outcome	C1
	23. When I attended Pinrui training, I had high expectations for my written exam score	C2
	24. When I attended Pinrui training, I had high expectations for interview scores	C3
	25. When I attended the Pinrui training, I expected to be admitted to the college of my choice	C4
Training Prices	26 When I participate in Pinrui training, I expect to invest a lot of time and energy to learn	C5
	27. I think the price of Pinrui's written test training is in line with my level of acceptance.	D1
	28. I think the price of Pinrui's interview training is in line with my level of acceptance.	D2
	29. I think the overall price of training at Pinrui is in line with my level of acceptance	D3
Student Satisfaction	30. I am satisfied with the qualifications of the lecturers	E1
	31. I am satisfied with my teacher's teaching attitude	E2
	32. I am satisfied with my teacher's teaching skills and methods	E3
	33. I am satisfied with the content and duration of the course	E4
	34. I am satisfied with the effectiveness of the training	E5
	35. I am satisfied with the classroom environment and facilities.	E6
	36. I am satisfied with the professionalism of the consultant	E7
	37. I am satisfied with the service attitude of the staff	E8
	38, I am satisfied with the timeliness of all kinds of notices from PinYi Education	E9
	39. I am satisfied with the accessibility of my location to the training venue	E10
Trainee Loyalty	40 Even if the price of Pinrui Education is a little more expensive than other similar institutions, I am willing to choose this training institution	F1
	41, Pin Rui if there is a mistake, I am willing to tolerate and put forward suggestions to help improve it	F2
	42. I hope that Pinrui Education will be better and better.	F3
	43, I would recommend Pinrui Education to friends and family.	F4
	44. If someone asks me about the quality of training at Pinrui, I'll be positive.	F5
	45. I have introduced and recommended Pinrui Education to others.	F6
	46. I will refuse other training organisations	F7
	47. When I see the publicity of Pinrui Education, I would like to check it or share it with my friends.	F8

Table B.4 Results of descriptive statistics (N=1057)

dimension	average value
QOS	5.388
Expectations for training	5.142
Training Prices	4.947
Training results	5.158
Student Satisfaction	5.363
trainee loyalty	5.381

Table B.5 KMO and Bartlett's test

KMO	and	KMO Number of Sample	0.982
Bartlett's test		Suitability Measures.	
		Cardinality of last	59667.52
		reading	
		(number of) degrees	1275
		of freedom (physics)	
		significance	0

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Annex C: Questionnaire

Dear Pinrui Alumni and Participants:

Hello! Pinrui Education and Training School is conducting a research on the topic of "The **impact of the quality of training service provision in management examination centres on student satisfaction and loyalty**". This questionnaire is a necessary part of this research. The data is collected for research purposes only, in the hope of discovering general and objective patterns, and is not intended to be personal information about you. The information you provide will be statistically analysed and used to draw scientific conclusions. We solemnly promise that **the data and personal information you provide will be kept strictly confidential**. If you are interested in the **conclusions** of this study, we will send you an electronic copy of the report for your reference.

Your answers are of great value to this study and will directly affect the results, so please answer each question as honestly as possible. Your support is greatly appreciated!

The questionnaire is available at <https://www.wenjuan.com/s/UZBZJvFe7g/#> or scan this QR code.



Pinrui Education
September 2022

Please tick the one that most closely matches. From "1" to "6", "strongly disagree", "disagree", "somewhat disagree", "somewhat agree", "agree", "strongly agree", "Somewhat disagree", "Somewhat agree", "Agree", "Strongly agree".

Part I: Quality of services (20)

No.		degree of conformity					
		1	2	3	4	5	6
1	Pinrui Education provides the knowledge and skills that are required						

2	The environment and atmosphere of Pinrui Education can meet the needs of students and is suitable for learning						
3	Pinrui Education understands the learning needs of its students.						
4	Pinrui teachers have professional knowledge and teaching skills						
5	Trainees' comments and complaints can be dealt with effectively and in a timely manner						
6	Pinrui Education can endeavour to realise the demands of our students						
7	Learning and living at Pinrui is safe and secure.						
8	Pinrui Education is able to deliver on its promises to its students						
9	Pinrui Education can evaluate students fairly and reliably.						
10	Pinrui's staff treats students with equality and respect.						
11	Pinrui Education provides the necessary study counselling services for students						
12	Pinrui staff try to help students when they have difficulties.						
13	Our staff are friendly and genuinely care about our students.						
14	Pinrui has modern teaching and service facilities						
15	Pinrui has a wealth of learning resources						
16	Acceptable learning costs (fees, time, etc.) at Pinrui						
17	Pinrui's academic reputation and social prestige are high						
18	Pinrui's programmes are timetabled to make sense.						
19	Pinrui Education's training service hours are convenient for students						
20	Pinrui offers a wide range of services that are simple and standardised.						

Part II: Modes of attendance

Please select the teaching services you received at Pinrui Exam Institute (optional)

Online classes Combined online and offline classes Offline face-to-face classes

Part III: Expectations for training (5)

No.		degree of conformity					
		1	2	3	4	5	6
1	When I attended the Pinrui training, I had high expectations for the overall training outcome						
2	When I attended Pinrui training, I had high expectations for my written test scores						
3	When I attended Pinrui training, I had high expectations for interview scores						
4	When I attended Pinrui training, I expected to be accepted into the college of my choice						
5	When I attend a Pinrui training, I expect to invest a lot of time and effort in learning to						

Part IV: Prices of training (3)

No.		degree of conformity					
		1	2	3	4	5	6
1	I think the price of Pinrui's written exam training is in line with my level of acceptance.						
2	I think the price of interview training at Pinrui is in line with my level of acceptance.						
3	I think the overall price of the training at Pinrui is in line with my level of acceptance						

Part V: Participant satisfaction (10)

No.		degree of conformity					
		1	2	3	4	5	6
1	I am satisfied with the qualifications of the lecturers						
2	I am satisfied with the teachers' attitude towards						

	teaching						
3	I am satisfied with my teacher's teaching skills and methods						
4	I am satisfied with the content and duration of the course						
5	I am satisfied with the results of the training						
6	I am satisfied with the classroom environment and facilities						
7	I am satisfied with the professionalism of the consultant						
8	I am satisfied with the staff's service attitude						
9	I am satisfied with the timeliness of the various notifications from Pinray Education						
10	I am satisfied with the ease of travelling from my location to the training venue						

Part VI: Trainee Loyalty (8)

No.		degree of conformity					
		1	2	3	4	5	6
1	Even if the price of Pinrui Education is a little more expensive than other similar institutions, I would still choose this training organisation!						
2	If Pinrui makes a mistake, I'm willing to tolerate it and offer suggestions to help it improve.						
3	I hope Pinrui Education will be better and better.						
4	I would recommend Pinrui to friends and family!						
5	If someone asked me about the quality of training at Pinrui, I would be positive!						
6	I have introduced and recommended Pinrui Education to others.						
7	I'll turn down other training organisations.						
8	When I see the promotion of Pinrui Education, I would like to check it out, like it or share it with my friends!						

Your basic information: (demographic characteristics, used to control variables)

1. Gender:

A. Male B. Female

2. Age:

year (of crop harvests)

3. Highest level of education prior to the exam:

College Undergraduate Postgraduate

4. Your year of enrolment at Pinrui: (there have been epidemics in the last 3 years, and the way in which the classes are conducted can lead to a significant impact on the quality of the lessons delivered).

20 years