Service quality, teaching management and effectiveness in Chinese universities: Basis for a proposed continuous improvement plan

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Abstract

This study investigates the interrelationships between service quality, teaching management, and teaching effectiveness in Chinese universities. While prior research has addressed these factors individually, their combined impact remains under-explored. A survey was conducted among 762 teachers from 75 universities, measuring their perceptions on five dimensions of service quality, five aspects of teaching management, and six indicators of teaching effectiveness. Descriptive statistics analyzed the current state of service quality and teaching management. Correlation analysis examined the relationships between the variables. Results revealed that most teachers were aged 26-40 with Master's degrees. Tangibility and empathy emerged as the most crucial aspects of service quality, while all dimensions were seen as influential. Daily teaching management, curriculum management, and classroom management were deemed highly important. Similarly, teaching ability, content, and effectiveness were considered central to effective teaching. Statistically significant differences were found in service quality, teaching management, and effectiveness based on age, education, and teaching experience. Importantly, a significant positive correlation existed between all three variables, suggesting that improved service quality fosters better teaching management and subsequently stronger teaching effectiveness. Building on these findings, the study proposes a university development plan for continuous improvement in these interconnected areas.

Keywords: effectiveness, service quality, teaching management, curriculum management, classroom management

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1. Introduction

With the rapid development of China's socialist education, universities, as the main battlefield of talent training, are in a key position for high-quality education development. How to improve the service quality, teaching management and efficiency of the university directly affects the talent training strategy of the university. The output of education is educational service, and the quality of service will directly affect the teaching management and teacher effectiveness. Under the background of education marketization and diversification of school-running subjects, the quality of education must be improved if the education market wants to stand. Hao (2022) mentioned that teachers are the carrier of teaching, teaching effectiveness is the basis of education quality, and teaching management is also the favorable guarantee of teacher effectiveness.

Moreover, the service quality of universities directly affects the life quality, emotional quality and teaching effect of university teachers, and is related to the quality of talent training and the survival and development of universities. Service quality is regarded as the difference between expectation and reality, and the difference between service expected by customers and service perceived by customers. As defined by Cronin and Brady in Zhou et al., (2024), service quality is the actual level of service and the experience of the interaction process, environment and service result between customers and service providers. In addition, the quality of service is defined as the degree to which customer needs are met.

Moreover, service quality the degree to which service providers interact with customers and bring benefits to customers or meet customer needs in the process of intangible service activities, that is, the actual perceived quality of the service received by customers. According to Xu (2023), higher education service quality is the actual perceived quality value in the process of providing services and meeting the needs of teachers and students.

In 2018, China issued the policy document "the Guiding Opinions on Accelerating the Construction of 'Double First-class' Universities", which clearly pointed out that the work of university administrators in the new era is more demanding. However, under the influence of bureaucracy, many university administrators cannot advance with the times and fail to provide satisfactory service quality for university teachers, which seriously restricts the effectiveness of teachers. According to Shen et al., (2020), in China, which is developing with high quality, the quality of university service still has a complicated problem, such as poor service consciousness, poor service attitude and low work efficiency, resulting in more and more prominent conflicts between teachers and administrative personnel, and teachers' satisfaction with administrative personnel is getting lower and lower.

The contents of university teaching and management are gradually clarified and standardized with the accumulation of the perfection and practice of management departments. It includes teaching plan management, teaching objectives management, teaching and learning process management, teaching and learning quality management, teacher management, student management, and teaching and learning file management.

The policy documents issued by the state, such as "the Opinions of the Ministry of Education on Accelerating the construction of high-level Undergraduate Education and Comprehensively Improving the ability to Cultivate Talents" and "the Notice of the Ministry of Education on the Implementation of the Spirit of the National Conference on Undergraduate Education in Universities in the New Era" put the focus of college education reform on teaching management, and proposed to comprehensively improve the level of talent training and rectify the order of education and teaching. The emphasis on teaching management makes universities return

to personnel training and teacher teaching. Therefore, how to gradually improve the teaching management system and improve the teaching quality in universities has become a problem worthy of in-depth discussion.

Teaching effectiveness is a kind of common activity with teaching as the main body and students' learning as the purpose. It is the role of teachers in teaching activities to complete the teaching plan and achieve the teaching objectives through scientific, reasonable and effective teaching skills and methods to promote the all-round development of students. In a narrow sense, teaching effectiveness closely revolves around key words classroom teaching which limits the operation field of teaching effectiveness in the process of classroom teaching and believes that teacher teaching effectiveness is the ability of teachers to organize and implement a series of teaching activities and complete specific teaching tasks in college classroom teaching. In a broad sense, the teaching effectiveness of college teachers is teaching the correct learning in which the learning refers to knowledge-based knowledge, ability knowledge, skills and other personality cultivation knowledge including the accumulation and cultivation of outlook on life, ethics and values. It is manifested as the efficiency and effect of college teachers in achieving the set teaching goals in the purposeful and organized university teaching environment and practical activities, as well as the comprehensive performance of teachers' subjective ability. It reflects the correctness of the selection of teaching practice goals and the degree of realization (Liu & Wang, 2024).

In addition, Wang (2024) discussed that teachers' teaching enthusiasm, teaching level and teaching behavior are closely related to classroom teaching effectiveness. The choice of teachers' teaching behavior is not predetermined and quantitative. Teachers' behavior will be restricted by the system and will show different states under different teaching management. Influenced by "path dependence", the totalitarian system production mode often makes universities ignore the particularity of education and teaching itself and the particularity of teachers' body and mind, and it is difficult to effectively train teachers' good teaching behavior. Teaching management not only clarifies the responsibility of teachers in the teaching process, but also provides the right protection for teachers to meet the needs of teacher development.

According to Zhang (2023), only a scientific and reasonable system of rights and responsibilities, remuneration and personal development can improve teacher effectiveness. The continuous improvement strategy of teaching management can promote teachers' good teaching behavior. The goal of researchers is to find the rules that can best trigger and promote student learning and teacher knowledge transfer, or to explore the variables and correlations that affect the process or outcome of teacher teaching behavior. Its purpose is to improve and enhance the teaching effect of teachers. With the influence of science and technology, market environment, student growth law, teacher development and other factors, teaching effectiveness is facing various fierce challenges. Re-understanding and improving teaching effect is the goal of university teaching management.

In addition, 83% of experts predict that education will become more personalized and the role of the teacher will be replaced by a "learning facilitator." The university of the future will be "a learning environment with social interaction", which will undoubtedly put forward higher standards and requirements for teachers' teaching effectiveness. To be a high-quality university, it is necessary to constantly accept new ideas and new knowledge, and to establish a "symbiotic, equal partnership". It needs to put forward effective strategies, empower teachers to teach, create a good teaching environment, form a good teaching system, and introduce a good teaching management system, so as to better realize the development of teachers and the growth of students, and realize the organic combination of teachers' efficient teaching and students' efficient learning (Guo, 2023). Service quality, teaching management, efficiency, and efficiency are all currently being researched, however the study on service quality, teaching management, and efficiency is currently lacking.

Objectives of the Study - The overall goal of this study is to understand the service quality, teaching management, and effectiveness of Chinese universities in order to propose a continuous improvement plan. Specifically, it described the profile of the teacher-respondents in terms of sex, age, highest educational

attainment, years of service, and disciplines; assessed the service quality in terms of responsiveness, reliability, empathy, tangibles, and assurance; identified the teaching management in terms of teaching routine management, curriculum management, classroom management, teaching and research management, and teaching evaluation management; determined the teaching effectiveness in terms of teaching ability, teaching content, organization, strategy method, learning effect, and personal evaluation; tested the significant differences of the responses when grouped according to profile; tested the significant relationships among the three main variables; and proposed a continuous improvement plan based on the findings.

2. Methods

Research Design - The descriptive research method was adopted in this study. Descriptive studies are defined as those that are based on a single sample and do not include a comparison group. Their main purpose is to describe the characteristics of the sample that are related to the existing mass and are therefore valuable when building hypotheses. Since there was a specific group of participants and no comparison was made with another group of participants, a descriptive study design was appropriate for the study. This information is collected through standardized questionnaires that match the given questions.

Participants of the Study - In this study, an electronic questionnaire was distributed through the Internet "Questionnaire Star". The subjects of this questionnaire are teachers from some universities in China including Anhui, Sichuan, Shanghai, Zhejiang, Jiangsu and other five provinces. In this study, the participating teachers are from five universities in China. They have certain advantages in hardware facilities, teachers, education system and so on, have their own school-running characteristics and social status. The teachers of these universities are widely representative as the survey objects. To identify the respondents from the five universities, the researcher sent a request letter to the institution asking about the total number of faculty members. The number of teachers in these five universities varies from 100 to 200. The age group is divided into 20-25, 26-30, 31-35, 36-40, 41-45,46 and above. Degree ranges from bachelor, masters, to doctoral. Subjects were divided into Liberal Arts, Science, Engineering, and Medicine. The sample size of teachers was 762.

Data Gathering Instrument - On the basis of relevant theories and literature research, this study identified three research variables, namely, service quality, teaching management and effectiveness of Chinese universities. A 5-point Likert scale was used to conduct a questionnaire survey. Parasuraman, Zeithamal, SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality by Burry (1988) was adopted. The questionnaire consists of 5 subscales with a total of 25 questions. This paper also adopted Chen Ling Yun (2022) 's Research on Problems and Countermeasures in the Teaching Management of Private Middle Schools in the New Era-A case study of S School in Guang Yuan City, Sichuan Province. The questionnaire consists of 5 subscales with a total of 25 questions. Lastly, "Research on the Teaching Effectiveness of Middle School Physical Education Teachers in Harbin City" by Wan Kun Hao (2019) was also used. The questionnaire consists of 6 subscales with a total of 30 questions.

Reliability Test Result

Indicators	Cronbach's Alpha	Remarks
Tangibles	0.878	Good
Assurance	0.844	Good
Responsiveness	0.870	Good
Reliability	0.893	Good
Empathy	0.892	Good
Teaching routine management	0.911	Excellent
curriculum management	0.888	Good
classroom management	0.882	Good
teaching and research management	0.907	Excellent
Teaching evaluation management	0.890	Good
Teaching ability	0.926	Excellent
Teaching content	0.911	Excellent

Organization	0.844	Good
Strategy method	0.925	Excellent
Learning effect	0.832	Good
Personal evaluation	0.896	Good

George and Mallery (2003) provide the following rules of thumb: "_>.9 = Excellent, _>.8 = Good, _>.7 = Acceptable, _>.6 = Questionable, _>.5 = Poor, and _<.5 = Unacceptable

Data Gathering Procedure - The first step before proceeding with actual testing was to seek approval and a letter of consent to conduct research. After obtaining approval, the researcher retrieved the request letter and communicated with the administrators of the different schools. He also shared the link of the Google form to be answered by the students. The administration and retrieval were online using Google forms. The questionnaires were distributed to 762 respondents. The teacher-respondents were given enough time to answer the questions. After gathering the data, the researcher collected the responses for tallying and applying of statistical treatment to be used in the study. The data gathering procedure in this study involved the collection of data from the respondents using a validated survey questionnaire with rating scales.

Ethical Considerations - Considering the principle of confidentiality, the researcher gave the respondents a commitment to keep their personal information confidential, promising that the questionnaire they filled out would only be used to support academic research. Secondly, the investigation process was carried out under the supervision and support of the teaching administration department of the surveyed university. In addition, the proposal was reviewed and approved by the Lyceum of the Philippines University Ethics Committee.

Data Analysis - After retrieving the questionnaire, the responses were encoded in Excel format and then sent to the research center for decoding by the statistician using SPSS 23. After data collection, frequency distribution, percentage distribution, weighted mean, multiple regression, and covariance are used to interpret and examine the properties of each variable and the association between the three variables. The weighted average method and ranking method were used to determine the values of the three variables. The relationship among university service quality, teaching management and effectiveness is examined by using variance analysis. Regression analysis was also used for statistical processing. The focus of the analysis was to determine the participants' disagreement or degree of agreement with the university service quality, teaching management and effectiveness from the questionnaire data, and to analyze the correlation between the demographic data such as gender, age, educational attainment and discipline and each dimension of the three variables.

3. Results and discussion

Table 1

Service Quality

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Tangibles	2.69	Agree	1
2. Assurance	2.64	Agree	2.5
3. Responsiveness	2.56	Agree	5
4. Reliability	2.64	Agree	3.5
5. Empathy	2.66	Agree	2
Composite Mean	2.64	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree

Table 1 provides the respondents' assessments of service quality. A composite average of 2.64 suggests that they are broadly in agreement. This shows that Chinese teachers believe that the service quality of universities is related to tangibility (2.69), assurance (2.64), responsiveness (2.56), reliability (2.64) and empathy (2.66). Respondents believe that college tangibility and empathy play a significant role in improving self-efficacy.

In the study of Xu et al., (2020), service quality affects customer satisfaction, and satisfaction will affect customers' future behavior choices. The choice of teachers to participate in teaching activities is mainly based on

their own development and whether the educational facilities meet the needs of teaching. According to Zhai (2020), self-efficacy is the ability to react in a specific situation, which is related to the personal and social factors that affect behavior, as well as the environment of school and job satisfaction. Therefore, tangibility and empathy have a significant impact on service quality.

Given this Choi and Kim (2021) mentioned that teachers' self-efficacy has a significant moderating effect on assurance, reliability and responsiveness. According to Shen (2020), the assurance and reliability of university service quality have a significant impact on teachers' career decision-making and professional attitude, and they have a strong mediating effect on the improvement of university service quality. According to He (2020), assurance and responsiveness of university service quality can improve teachers' satisfaction, thereby increasing teachers' career happiness and enhancing teachers' perception and satisfaction of university service quality.

Table 2

Teaching Management

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Teaching Routine Management	2.62	Agree	4
2. Curriculum Management	2.66	Agree	1
3. Classroom Management	2.63	Agree	3
4. Teaching and Research Management	2.59	Agree	5
5. Teaching Evaluation Management	2.65	Agree	2
Composite Mean	2.63	Agree	

Legend: 3.50-4.00=Strongly Agree;2.50-3.49=Agree;1.50-2.49=Disagree;1.00-1.49=Strongly Disagree

Table 2 provides the respondents' assessment of instructional management. The composite average is 2.63, indicating that they largely agree on all the indicators. This means that respondents believe that teaching management in universities is related to teaching routine management (2.62), curriculum management (2.66), classroom management (2.63), teaching and research management (2.59), and teaching evaluation management (2.65).

Curriculum management is the core component of teaching management, which ensures that the curriculum content is consistent with the direction of teaching objectives, helps teachers effectively plan teaching activities, and ensures that students can achieve the expected learning outcomes. Through effective course management, universities can rationally allocate teaching resources, such as teaching materials, technical equipment and teaching space, to improve teaching efficiency and quality. Curriculum management also includes the monitoring and evaluation of the teaching process, which helps to find the problems in teaching in time, take timely measures to remedy them, and continuously improve the quality of teaching. Curriculum management also involves the professional development of teachers by providing vocational training and professional resources to help teachers update teaching methods, expand professional knowledge and improve teaching ability. Good course management is able to adapt course content and teaching methods according to student needs and feedback, thus providing a more personalized learning experience. Curriculum management makes teaching management more systematic and standardized and helps universities establish and maintain an efficient and orderly teaching environment (Xu, 2023).

Teaching and research management not only improves the professional and scientific teaching of teachers but also promotes the modernization and refinement of teaching management. According to the study of Pan (2023), teaching and research management supports teachers to innovate teaching methods, innovate teaching strategies and tools through practice, constantly optimize the teaching process and improve the teaching effect. Teaching and research activities promote the sharing of teaching resources, teachers can learn from each other excellent teaching cases and resources and realize the effective integration and utilization of teaching resources. Through regular teaching and research activities, teachers share teaching experiences, discuss teaching problems, and jointly explore solutions to achieve common integration and improve teaching quality. Teaching and research management provides a platform for teachers' professional development. By carrying out scientific

research projects and teaching seminars, teachers' career development and teaching skills can be improved. By collecting and analyzing teaching data, teaching research management provides empirical and data-driven teaching management, making teaching management scientific. Teaching and research management is conducive to fostering a teaching culture of inquiry and innovation, encouraging teachers to actively participate in the teaching process, and forming a good teaching atmosphere. Teaching and research activities promote the diversified development of teaching evaluation methods, paying attention not only to students' academic performance but also to the evaluation of student's learning process and the development of comprehensive quality.

Table 3

Teaching Effectiveness

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Teaching Ability	2.59	Agree	5
2. Teaching Content	2.62	Agree	3
3. Organization	2.63	Agree	1
4. Strategy Method	2.62	Agree	3
5. Learning Effect	2.58	Agree	6
6. Personal Evaluation	2.62	Agree	3
Composite Mean	2.61	Agree	

Legend: 3.50-4.00=Strongly Agree;2.50-3.49=Agree;1.50-2.49=Disagree;1.00-1.49=Strongly Disagree

Table 3 provides the respondents' assessment of teaching effectiveness. The composite average is 2.61, indicating that they largely agree. This means that the respondents believe that the teacher's teaching effectiveness is related to teaching ability, teaching content, organization and management, strategy and method, school effect and personal evaluation. In addition to the learning effect and teaching ability, the average score of teachers' teaching effectiveness in the four dimensions of teaching content, organization and management, strategy and method and teaching evaluation is above 2.62. Among them, the dimension of organizational management scored the highest at 2.63, while the learning effect score was the lowest at 2.58.

According to Yu and Zhang (2020), allocation of teaching resources, teaching organizations can improve teachers' teaching efficiency through reasonable allocation of teaching resources, and the adequacy of resources directly affects the teaching efficiency. Teaching organizations can significantly improve teaching effectiveness through support and optimization. The formulation of teaching plan: The teaching organization helps teachers to formulate scientific and reasonable teaching plans, clarify teaching objectives and teaching links, and improve the pertinence and effectiveness of teaching. Teaching method guidance: By providing training and guidance on teaching methods, teaching organizations can help teachers master diversified teaching skills, diversified teaching strategies, and professional knowledge and skills, which can significantly improve teaching effectiveness. Feedback of teaching evaluation: The teaching organization can give timely feedback the teaching effect and complete the rectification by establishing an effective teaching evaluation system. Support for teacher professional development: Teaching organizations can provide professional development opportunities such as seminars and refresher courses to promote teacher professional development and enhance teaching ability. The construction of teaching environment: the teaching organization creates a positive teaching atmosphere, supports innovation and encourages cooperation, which can stimulate teachers' teaching enthusiasm and improve teaching efficiency. Optimization of teaching management: By optimizing the teaching management process, teaching organizations can reduce the consumption of teachers' non-teaching and research time, make teachers more focused on teaching itself, and improve teaching effectiveness.

According to the study of Liu and Wang (2024), learning effect is an important feedback mechanism for teachers' teaching effectiveness. Through continuous observation and evaluation of students' learning outcomes, teachers can adjust and optimize teaching strategies and improve teaching effectiveness. This positive cycle is conducive to improving the quality of education. Feedback loop: Teachers observe that students learn well, which enhances their sense of teaching effectiveness. Successful teaching experience can enhance teachers'

confidence in teaching and trigger teachers to adopt effective teaching strategies. Motivation and commitment: The improvement of learning effect can motivate teachers to devote more to teaching. Learning progress will promote teachers to feel satisfied and a sense of achievement and promote the exploration of ways to improve teaching effectiveness. Strategy adjustment: Poor learning results will encourage teachers to reflect on and adjust teaching strategies, help teachers innovate teaching methods, and improve teaching effectiveness. Continuous professional development: Feedback on learning results can encourage teachers to engage in high-level professional development activities to enhance their teaching skills and expertise. Student engagement: Good learning outcomes are usually associated with active student engagement. By observing student engagement and interactive feedback, teachers can distinguish the effectiveness of teaching methods. Assessment and reflection: Teachers can carry out self-reflection through regular assessment of students' learning effects. Identifying problems and breakthroughs in teaching is also the key to improving teaching effectiveness.

Table 4

Relationship Between Service Quality and Teaching Management

Tangible	r-value	p-value	Interpretation
Teaching Routine Management	.454**	0.000	Highly Significant
Curriculum Management	.494**	0.000	Highly Significant
Classroom Management	.467**	0.000	Highly Significant
Teaching and Research Management	.454**	0.000	Highly Significant
Teaching Evaluation Management	.416**	0.000	Highly Significant
Assurance			
Teaching Routine Management	.482**	0.000	Highly Significant
Curriculum Management	.499**	0.000	Highly Significant
Classroom Management	.494**	0.000	Highly Significant
Teaching and Research Management	.477**	0.000	Highly Significant
Teaching Evaluation Management	.469**	0.000	Highly Significant
Responsiveness			
Teaching Routine Management	.458**	0.000	Highly Significant
Curriculum Management	.468**	0.000	Highly Significant
Classroom Management	.434**	0.000	Highly Significant
Teaching and Research Management	.469**	0.000	Highly Significant
Teaching Evaluation Management	.455**	0.000	Highly Significant
Reliability			
Teaching Routine Management	.450**	0.000	Highly Significant
Curriculum Management	.484**	0.000	Highly Significant
Classroom Management	.475**	0.000	Highly Significant
Teaching and Research Management	.427**	0.000	Highly Significant
Teaching Evaluation Management	.464**	0.000	Highly Significant
Empathy			
Teaching Routine Management	.485**	0.000	Highly Significant
Curriculum Management	.503**	0.000	Highly Significant
Classroom Management	.473**	0.000	Highly Significant
Teaching and Research Management	.456**	0.000	Highly Significant
Teaching Evaluation Management	.473**	0.000	Highly Significant

Legend: Significant at p-value < 0.01

Table 4 illustrates the association between Service Quality and Teaching Management. The computed r-value indicates a moderate direct correlation and the resulted p-values were less than the alpha level. It indicates that there was significant relationship exists and implies that the better is the service quality, the better is the teaching management.

In accordance with the data, tangibility, guarantee, responsiveness, reliability and empathy of service quality are significantly related to teaching routine management, curriculum management, classroom management, teaching research management and teaching evaluation management. The tangibility of the university (modern teaching facilities, mature teacher development system, beautiful and harmonious campus environment), assurance (perfect administrative system, stable campus security, mature education and teaching system), responsiveness (campus emergency response, smooth channels of opinion, sincere consulting services), reliability (scientific and reliable administration, fair and scientific rules and regulations degree), empathy

(forward-looking sense of service, personalized consulting services, fair and just treatment of everyone) and other aspects can indeed affect teaching management, is a positive impact.

According to the study of Ou and Shen (2019), the implementation process of educational services should be in accordance with rules and regulations, procedures and methods, management measures, etc. To ensure the smooth progress of teaching management can ensure the effectiveness of university service quality. Educational services include educational facilities, equipment and physical space, which are the material environment for teachers and students to study and live, and help to improve the efficiency of teaching management.

According to the study of Niu (2023), the improvement of service quality is conducive to the optimization of teaching management, and effective teaching management can also guarantee and promote the continuous improvement of service quality, which jointly promote the improvement of education quality and achieve education goals. In the modern educational concept, teaching management is increasingly service-oriented - to meet the needs of students and teachers. The high standard of service quality means that the teaching management pays more attention to the user experience, and improves the teaching effect by providing personalized learning support and high-quality teaching resources. Service quality is an important part of teaching management, including the maintenance of teaching facilities, the provision of learning resources, the handling of student affairs, etc., which directly affects the efficiency and effect of teaching management. The improvement of service quality can promote the improvement and perfection of teaching management, and effective teaching management can also ensure the reasonable allocation and efficient use of service resources, and further improve the quality of service. The high standard of service quality often requires the innovation of teaching management to adapt to the development of educational technology, the improvement of teachers' professional ability and the change of students' needs. This innovation may be reflected in the updating of teaching methods, the adjustment of course content, the improvement of teaching evaluation system, etc., and promote the continuous updating of teaching management.

Table 5 shows the association between Service Quality and Teaching Effectiveness. The computed r-values indicates a moderate direct correlation and the resulted p-values were less than the alpha level. This means that there was significant relationship exists and implies that the better is the service quality, the more effective is the teaching.

According to the data, tangibility, guarantee, responsiveness, reliability and empathy of service quality are significantly related to teaching ability, teaching content, teaching organization, strategies and methods, learning effect and personal evaluation of teaching effectiveness. The tangibility of the university (modern teaching facilities, mature teacher development system, beautiful and harmonious campus environment), assurance (perfect administrative system, stable campus security, mature education and teaching system), responsiveness (campus emergency response, smooth channels of opinion, sincere consulting services), reliability (scientific and reliable administration, fair and scientific rules and regulations) Degree), empathy (forward-looking sense of service, personalized counseling services, fair and just treatment of everyone) and other aspects can indeed affect the teaching effectiveness, is a positive impact.

Table 5

Relationship Between Service Quality and Teaching Effectiveness

Tangible	r-value	p-value	Interpretation
Teaching Ability	.439**	0.000	Highly Significant
Teaching Content	.442**	0.000	Highly Significant
Organization	.453**	0.000	Highly Significant
Strategy Method	.455**	0.000	Highly Significant
Learning Effect	.420**	0.000	Highly Significant
Personal Evaluation			

Assurance			
Teaching Ability	.482**	0.000	Highly Significant
Teaching Content	.468**	0.000	Highly Significant
Organization	.518**	0.000	Highly Significant
Strategy Method	.496**	0.000	Highly Significant
Learning Effect	.480**	0.000	Highly Significant
Personal Evaluation	.462**	0.000	Highly Significant
Responsiveness			
Teaching Ability	.423**	0.000	Highly Significant
Teaching Content	.478**	0.000	Highly Significant
Organization	.512**	0.000	Highly Significant
Strategy Method	.464**	0.000	Highly Significant
Learning Effect	.482**	0.000	Highly Significant
Personal Evaluation	.424**	0.000	Highly Significant
Reliability			
Teaching Ability	.481**	0.000	Highly Significant
Teaching Content	.495**	0.000	Highly Significant
Organization	.496**	0.000	Highly Significant
Strategy Method	.451**	0.000	Highly Significant
Learning Effect	.417**	0.000	Highly Significant
Personal Evaluation	.465**	0.000	Highly Significant
Empathy			
Teaching Ability	.444**	0.000	Highly Significant
Teaching Content	.454**	0.000	Highly Significant
Organization	.489**	0.000	Highly Significant
Strategy Method	.425**	0.000	Highly Significant
Learning Effect	.430**	0.000	Highly Significant
Personal Evaluation	.479**	0.000	Highly Significant

Legend: Significant at p-value < 0.01

This is further supported by Yan (2022) who states that the high level of service quality provides teachers with a better working environment and resource support. The standardization and flexibility of administrative management determine the reasonable allocation and utilization of resources in the teaching process, and can provide better support in teaching equipment, teaching materials and teacher training, so as to provide a good guarantee for teachers' teaching and improve their teaching effectiveness.

Table 6 displays the association between teaching management and teaching effectiveness. The computed r-values indicates a moderate direct correlation and the resulted p-values were less than the alpha level. This means that there was significant relationship exists and implies that the better is the teaching management, the more effective is the teaching.

According to the data, teaching routine management, curriculum management, classroom management, teaching research management, teaching evaluation management and other aspects of teaching management are significantly related to teaching ability, teaching content, teaching organization, strategies and methods, learning effect and personal evaluation of teaching effectiveness. They can indeed affect teaching effectiveness and have a positive impact.

Table 6

Relationship Between Teaching Management and Teaching Effectiveness

Teaching Routine Management	r-value	p-value	Interpretation
Teaching Ability	.450**	0.000	Highly Significant
Teaching Content	.445**	0.000	Highly Significant
Organization	.497**	0.000	Highly Significant
Strategy Method	.477**	0.000	Highly Significant
Learning Effect	.439**	0.000	Highly Significant
Personal Evaluation	.442**	0.000	Highly Significant

Curriculum Management			
Teaching Ability	.442**	0.000	Highly Significant
Teaching Content	.478**	0.000	Highly Significant
Organization	.500**	0.000	Highly Significant
Strategy Method	.485**	0.000	Highly Significant
Learning Effect	.464**	0.000	Highly Significant
Personal Evaluation	.444**	0.000	Highly Significant
Classroom Management			
Teaching Ability	.466**	0.000	Highly Significant
Teaching Content	.426**	0.000	Highly Significant
Organization	.454**	0.000	Highly Significant
Strategy Method	.483**	0.000	Highly Significant
Learning Effect	.456**	0.000	Highly Significant
Personal Evaluation	.418**	0.000	Highly Significant
Teaching and Research Management			
Teaching Ability	.455**	0.000	Highly Significant
Teaching Content	.423**	0.000	Highly Significant
Organization	.469**	0.000	Highly Significant
Strategy Method	.439**	0.000	Highly Significant
Learning Effect	.432**	0.000	Highly Significant
Personal Evaluation	.419**	0.000	Highly Significant
Teaching Evaluation Management			
Teaching Ability	.433**	0.000	Highly Significant
Teaching Content	.450**	0.000	Highly Significant
Organization	.475**	0.000	Highly Significant
Strategy Method	.419**	0.000	Highly Significant
Learning Effect	.451**	0.000	Highly Significant
Personal Evaluation	.434**	0.000	Highly Significant

Legend: Significant at p-value < 0.01

Ye and Cai (2022) stated that high-quality teaching management can provide a good learning environment, promote the best use of teaching resources, build a harmonious learning space, teachers' professional quality and ability can be developed, teaching problems can be feedback and improvement, so as to enhance the effectiveness of education.

Educational management should establish clear goals, formulate scientific strategies and management systems, establish effective communication mechanisms, pay attention to teacher training and professional development, establish evaluation, feedback mechanisms (Lin, 2022). Only scientific, effective and humanistic teaching management can improve teaching efficiency.

This is further supported by Jin and Luo (2019) who states that good teaching management can provide teachers with an orderly and efficient teaching environment. For example, reasonable curriculum arrangement, scientific teaching evaluation system and effective allocation of teaching resources can help teachers better carry out teaching activities and improve teaching efficiency. Secondly, teaching management also includes the professional development of teachers and the improvement of teaching skills. Through regular teacher training, teaching discussion, teaching observation and other activities, teachers' teaching ability and innovation consciousness can be continuously improved, and teaching efficiency can be improved. In addition, teaching management also involves the guidance and management of students' learning behavior. Through establishing reasonable incentive mechanism, providing personalized study guidance, implementing effective classroom management and other measures, students' learning interest can be stimulated, learning efficiency can be improved, and teaching efficiency can be enhanced.

4. Conclusions and recommendations

The majority of the teacher-respondents are 31-35 years old with Master's degrees, have been teaching for 6-10 years in the Liberal Arts. Respondents believe that tangibility, security, responsiveness, reliability, empathy and other aspects can affect the quality of service of the university, however, tangibility and empathy are the

most important. Respondents believe that daily teaching management, curriculum management, classroom management, teaching and research management, and teaching evaluation management are very important to improve the teaching management of universities. Respondents believe that teaching ability, teaching content, teaching organization, strategies and methods, learning effectiveness, and personal evaluation are of great significance to improving teaching effectiveness. There were statistically significant differences in the quality of university services, teaching management and teaching effectiveness in terms of age, education and teaching experience. There is a significant positive correlation between university service quality, teaching management and teaching effectiveness, thus, the higher the quality of university services, the better teaching management and the stronger the teaching effectiveness. The better the teaching management, the stronger the teaching effectiveness. A development plan was proposed based on the findings.

University leaders may continuously improve physical facilities to meet teachers' needs, build a high-quality teaching environment, and give more attention to teaching functions. University administrators may establish clear communication channels, provide training and development opportunities for managers, guarantee technical and human resources, design incentive mechanisms, and establish a good team atmosphere. The educational administration department may establish an effective organizational structure of teaching management, optimize the teaching and research process, strengthen the deep integration of information technology and teaching, encourage interdisciplinary exchanges and cooperation, and introduce incentive mechanisms, evaluation and supervision. University human resources department may provide appropriate research training and further study opportunities for teachers, introduce peer coaching for new teachers, encourage teachers to try new teaching methods and tools, and set up a teaching reward system. In order to understand the overall picture of Chinese universities, future researchers may need to select different dimensions and types of university teachers as research samples.

5. References

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