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RESEARCH ON THE EVALUATION INDICATOR SYSTEM OF TEACHING QUALITY FOR GRADUATE STUDENTS IN HEALTH MANAGEMENT

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Abstract: This study aimed to develop a comprehensive evaluation indicator system for assessing the teaching quality (TQ) of graduate students majoring in Health Management. The evaluation indicator system was built using the Delphi Method with 20 senior experts who have extensive experience in health management education and research. The final evaluation system was applied in a case study at Guangxi Medical University. The weight of Teaching Staff (0.381) and Teaching Target (0.381) is higher than that of the Teaching Process (0.237). In the Teaching Staff dimension, experts emphasize that Professional Qualities (0.057) play a key role in TQ, especially Teaching Reflection (0.255) and Political Literacy (0.255). In the Teaching Target dimension, Student Research Output (0.072) and Assessment Criteria (0.065) are the core factors. In the Teaching Process dimension, the weight of Teaching Methods (0.565) is higher than that of Teaching Content (0.435). For the Teaching Staff, experts and students agree that the weight of Professional Expertise is the lowest. In summary, the Professional Qualities in Teaching Staff dimension, especially Teaching Reflection and Political Literacy, are the key factors affecting TQ. Student Research Output and Assessment Criteria are the core factors in the evaluation of Teaching Target.
Keywords: evaluation indicator system, teaching quality, graduate students, health management, delphi

Investigación sobre el sistema de indicadores de evaluación de la calidad de la enseñanza para estudiantes de posgrado en gestión de la salud

Resumen: El objetivo de este estudio fue desarrollar un sistema integral de indicadores de evaluación para medir la calidad de la enseñanza (CE) de los estudiantes de posgrado en el área de Gestión de la Salud. El sistema de indicadores de evaluación se construyó utilizando el Método Delphi con la participación de 20 expertos senior con amplia experiencia en la educación e investigación en gestión de la salud. El sistema de evaluación final se aplicó en un estudio de caso en la Universidad Médica de Guangxi. El peso del Personal Docente (0,381) y del Objetivo de Enseñanza (0,381) fue mayor que el del Proceso de Enseñanza (0,237). En la dimensión del Personal Docente, los expertos destacaron que las Cualidades Profesionales (0,057) desempeñan un papel clave en la CE, especialmente la Reflexión sobre la Enseñanza (0,255) y la Alfabetización Política (0,255). En la dimensión del Objetivo de Enseñanza, la Producción Académica de los Estudiantes (0,072) y los Criterios de Evaluación (0,065) se consideran los factores clave. En la dimensión del Proceso de Enseñanza, el peso de los Métodos de Enseñanza (0,565) es mayor que el del Contenido de Enseñanza (0,435). Para el Personal Docente, tanto los expertos como los estudiantes están de acuerdo en que el peso de la Pericia Profesional es el más bajo. En resumen, las Cualidades Profesionales en la dimensión del Personal Docente, especialmente la Reflexión sobre la Enseñanza y la Alfabetización Política, son los factores clave que afectan la CE. La Producción Académica de los Estudiantes y los Criterios de Evaluación son los factores centrales en la evaluación del Objetivo de Enseñanza.
Palabras clave: sistema de indicadores de evaluación, calidad de la enseñanza, estudiantes de posgrado, gestión de la salud, delphi

Pesquisa sobre o sistema de indicadores de avaliação da qualidade do ensino para estudantes de pós-graduação em gestão da saúde

Resumo: O objetivo deste estudo foi desenvolver um sistema abrangente de indicadores de avaliação para medir a qualidade do ensino (QE) de estudantes de pós-graduação na área de Gestão em Saúde. O sistema de indicadores foi construído utilizando o Método Delphi, com a participação de 20 especialistas seniores com ampla experiência em educação e pesquisa em gestão em saúde. O sistema de avaliação final foi aplicado em um estudo de caso na Universidade Médica de Guangxi. O peso do Corpo Docente (0,381) e do Objetivo de Ensino (0,381) foi maior do que o do Processo de Ensino (0,237). Na dimensão do Corpo Docente, os especialistas destacaram que as Qualidades Profissionais (0,057) desempenham um papel fundamental na QE, especialmente a Reflexão sobre o Ensino (0,255) e a Alfabetização Política (0,255). Na dimensão do Objetivo de Ensino, a Produção Acadêmica dos Estudantes (0,072) e os Critérios de Avaliação (0,065) foram considerados os fatores centrais. Na

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dimensão do Processo de Ensino, o peso dos Métodos de Ensino (0,565) foi maior do que o do Conteúdo de Ensino (0,435). No Corpo Docente, tanto especialistas quanto estudantes concordaram que o peso da Expertise Profissional é o menor. Em resumo, as Qualidades Profissionais na dimensão do Corpo Docente, especialmente a Reflexão sobre o Ensino e a Alfabetização Política, são os principais fatores que afetam a QE. A Produção Acadêmica dos Estudantes e os Critérios de Avaliação são os fatores centrais na avaliação do Objetivo de Ensino.

Palavras-chave: sistema de indicadores de avaliação, qualidade do ensino, estudantes de pós-graduação, gestão em saúde, delphi

Introduction

The improvement of graduate teaching quality involves various aspects, including coursework, advisor guidance, thesis quality monitoring, and practical training. Among these, coursework is an essential feature of China's degree and graduate education system, serving as a fundamental component to ensure the quality of graduate training. Emphasizing coursework, strengthening curriculum construction, and improving course quality are currently important and urgent tasks in the ongoing reform of graduate education. With the acceleration of higher education expansion and the deepening reform and adjustment of graduate education, the structure and outlook of graduate education in China have undergone profound changes. In January 2015, the Ministry of Education issued the *Opinions on Improving and Strengthening Graduate Curriculum Construction*, stating that training institutions should scientifically recognize the vital role and function of coursework in graduate education, emphasize curriculum construction, fully assume responsibility for curriculum development, and strengthen long-term and systematic planning for curriculum construction. In line with the requirements of the *Opinions*, it is imperative to develop an effective evaluation system for graduate teaching quality.

Social Medicine and Health Service Management is an interdisciplinary field that bridges medicine, social sciences, and management sciences. It encompasses major disciplines and sub-disciplines, including Social Medicine, Health Service Management, Health Economics, Medical Insurance, Public Health Policy, Health Law, Hospital Management, and Medical Ethics. Based on the biopsychosocial medical model, it focuses on social, community, and healthcare institutions and personnel as its primary research objects. This field applies the theories and methods of social sciences and management sciences to clinical medicine, preventive medicine, and health service management. It aims to uncover the impacts of social, cultural, and economic factors on population health, adopt social measures to prevent and control diseases, promote the development and reform of the healthcare sector, and enhance the efficiency and effectiveness of health services. The ultimate goal is to improve public health and quality of life while promoting social and economic development. Against the backdrop of China's strong advocacy for the "Healthy China" initiative, ensuring the quality of talent in health service management is of great significance. Medical universities bear the important responsibility of cultivating talent in Social Medicine and Health Service Management. As an integral part of higher education, graduate education serves as a key platform for cultivating high-level innovative talent. Therefore, ensuring the teaching quality of graduate programs in this field is critical to talent development. The graduate teaching quality evaluation system is an important part of the graduate training framework. It plays a key role in cultivating innovative talent and serves as an essential tool for ensuring and improving the quality of talent training.

Numerous studies have focused on the evaluation indicators of teaching quality. For instance, some studies emphasize outcome-based teaching evaluation, which highlights teaching effectiveness and learning outcomes, with particular attention to how the teaching process enhances students' learning results. For example, Dong et al. (2022) proposed that classroom teaching represents the most essential component of undergraduate education, with its quality directly influencing the effectiveness of talent development*(1)*. Wei Dongting et al. (2020), based on the OBE (Outcome-Based Education) concept and guided by learning outcomes, constructed an evaluation system comprising four dimensions: teaching attitude, teaching content, teaching methods, and teaching effectiveness. Ultimately, 12 key evaluation indicators were identified*(2)*. Tang Jishen and Mo Yi (2020) proposed a cyclical system for evaluation feedback to enhance the effectiveness of online teaching through continuous improvement. Their approach emphasizes the combination of outcome orientation and feedback-driven improvement*(3)*. There is also student-centered teaching evaluation, which focuses on students' feedback as the core. This type of research emphasizes assessing teaching quality from the students' perspective. By understanding students' experiences and needs, it aims to construct a teaching evaluation system that better suits students. For example, Li Zhengang et al. developed a "student-centered" evaluation system based on students' perceptions of a "good teacher"

and a "good classroom," covering dimensions such as teaching attitude, teaching content, and teaching ability*(4)*. Zuo Rongxin and Chen Zhaowen (2023) used decision trees and association rules to build a teaching evaluation framework for colleges, studying the relationships between educational factors, educational chain factors, and teaching effects, providing a decision-making framework for teaching quality evaluation and conducting a comprehensive analysis of related factors*(5)*. There is also theory-practice integrated teaching evaluation, which emphasizes the combination of theoretical concepts with the actual teaching process. By integrating diverse data sources and field research, this type of study aims to develop a scientific and effective evaluation system. For example, Shi Xuan et al. (2018) adopted stratified sampling and interview methods to combine evaluation indicators from different institutions. They proposed a multidimensional evaluation system covering teaching design, teaching methods, teaching content, and teaching effectiveness, with a strong emphasis on the integration of theory and practice*(6)*. Wang Liang and Ge Chenran (2021) integrated expert opinions with basic requirements for online teaching, employing the Analytic Hierarchy Process to design a teaching quality evaluation index system. This system comprehensively covers standards including teaching faculty, educational philosophy, teaching methods, instructional objectives, teaching process, educational resources, teaching activities, as well as teaching evaluation and feedback*(7)*. Xue Ning and Yang Xiaodong (2020) developed an online teaching evaluation system that includes pre-class preparation, in-class implementation, and post-class outcomes. By flexibly adjusting the indicators at different teaching stages, the system ensures the integration of theory and practice*(8)*. Additionally, there are teaching evaluations that emphasize multidimensionality and multi-stakeholder participation. These studies integrate multiple evaluation dimensions and the opinions of various stakeholders to construct a comprehensive evaluation system, ensuring the multidimensionality and inclusiveness of teaching evaluations. Qian Dandan et al. (2021) established a "five-in-one" quality evaluation system model encompassing five dimensions: teacher self-evaluation, student evaluation, departmental self-inspection, peer evaluation, and supervisory evaluation. This model provides theoretical support for the paradigm reform and sustainable development of higher education*(9)*.

However, existing studies also have certain limitations. For instance, many evaluations use a "one-form, multi-assessment" system that lacks specificity, failing to distinguish between different disciplines and course types, especially ignoring the differences between theoretical courses and practical courses. This approach makes it difficult to meet the modern educational needs for cultivating diverse and specialized talent*(10)*. In addition, many schools apply unified evaluation indicators across all courses and disciplines, resulting in a lack of specificity. Furthermore, the evaluation of practical teaching is often focused on the final thesis or report, with a significant absence of process-based evaluation and assessments of students' practical abilities. Notably, higher education institutions have paid little attention to the quality assessment of the practical teaching process*(11)*. Teaching evaluation indicators are overly focused on teachers' teaching performance while neglecting students' learning experience. Some evaluation content is too broad, exceeding the scope of what students can accurately evaluate*(12)*. In recent years, with online teaching evolving from a supplementary approach to a routine teaching method, many universities have continued to use evaluation standards originally designed for offline courses to assess online courses. This approach is also inappropriate*(13)*.

Therefore, this study incorporates certain optimizations during its design and implementation. The teaching quality evaluation is specifically targeted at the Social Medicine and Health Service Management discipline, focusing on the evaluation of **o**ffline theoretical courses. The evaluation indicator design is based on three dimensions: Teaching Staff, Teaching Process, and Learning Outcomes. It comprehensively considers all aspects of the teaching process. To establish the evaluation system, the study engaged senior expert teachers in this field using the Delphi method, forming a multi-level teaching evaluation indicator system with three levels of indicators. On this basis, student attitudes were solicited, and the commonalities and differences in indicator weights between the two groups (teachers and students) were ana-

lyzed to explore students' recognition of the indicator system.

Methods

Literature Research Method

This study uses keywords such as Social Medicine and Health Service Management, graduate students, teaching quality, and indicator system construction to search relevant online databases, including CNKI (China National Knowledge Infrastructure), VIP Database, Wanfang Data, China Biomedical Literature Database (CBMdisc), PubMed, Web of Science, and Ovid. The collected literature is organized, reviewed, and analyzed, with relevant studies summarized according to publication year and type. The objectives of talent training in Social Medicine and Health Service Management, as well as the societal needs for such talents, are analyzed and summarized. From the perspectives of promoting the development and reform of the healthcare system, improving the efficiency and effectiveness of health services, and enhancing public health and quality of life, the key areas for graduate education in Social Medicine and Health Service Management are comprehensively explored.

Selection of Experts for Delphi Consultation Experts specializing in social medicine, health service management, or public administration education were selected from various universities with graduate programs in Health Management. These experts were required to have at least 10 years of relevant work experience in higher medical institutions or research institutions and to hold a position of associate professor or above. A total of 20 experts were selected as consultation participants.

Consultation Questionnaire and Data Processing The main content of the questionnaire includes basic information about experts, evaluation of the importance of indicators, familiarity with indicators, and the basis for judgment. The questionnaire design also incorporates modification, deletion, and addition of indicators at all levels, and requires experts to assess the importance of newly added indicators. Additionally, an "other comments" section is included to allow experts to provide suggestions and opinions. The importance of indicators is evaluated using a Likert 5-point scale(14), where "very important" = 5 points, "important" = 4 points, "moderately important" = 3 points, "slightly important" = 2 points, and "not important" = 1 point. The familiarity with indicators is also assessed using a 5-level scale(15): "very familiar" = 1.0, "relatively familiar" = 0.8, "familiar" = 0.6, "slightly familiar" = 0.4, and "unfamiliar" = 0.2. The basis for judgment is categorized into four types: practical experience, theoretical analysis, reference literature, and intuitive judgment. The influence of these four bases is rated as high, medium, or low, with different quantification values assigned to each level(16) (see Table 1).

Table 1. Assignment of Influence Levels for Experts' Basis of Judgment

Basis for Judgment	High	Medium	Low
Practical Experience	0.5	0.4	0.3
Theoretical Analysis	0.3	0.2	0.1
Reference Literature	0.1	0.1	0.1
Intuitive Judgment	0.1	0.1	0.1

Data Collection

The Delphi method typically requires at least 2 rounds of consultation, and this study plans to conduct 2 rounds of expert consultation. The research team will distribute the expert consultation questionnaire to the selected experts via email or postal mail, requesting the experts to return their responses within two weeks. If the questionnaires are sent by postal mail, an envelope with the researcher's mailing address and prepaid postage will be included to facilitate the return of the completed questionnaire. The research team will review all returned questionnaires. If any questionnaire does not meet the completion criteria, the research team will contact the experts for corrections. If corrections cannot be made, the questionnaire will be excluded from the study.

Survey of Student Opinions

Based on the final evaluation indicator system established by the experts, a student survey questionnaire was designed. In this process, students were treated as "experts" to obtain their feedback and

compare the differences in the focus of students and experts. A convenience sampling method was adopted, with graduate students from the Health Service Management program at Guangxi Medical University as the survey participants. A total of 47 questionnaires were distributed to first-year to third-year graduate students, and 42 valid questionnaires were collected, resulting in a response rate of 89.4%. The student questionnaire was created using the "Questionnaire Star" platform, allowing students to scan a QR code and complete the questionnaire online.

Ethical Considerations

All participants received detailed information about the study objectives, procedures, and their rights through an electronic document. They provided their consent by signing the electronic form or confirming agreement via a secure online platform. This process ensured that all participants were fully informed and voluntarily participated in the study. Confidentiality and anonymity of the experts' responses were strictly maintained, with no personal identifying information collected. All data were securely stored and used solely for research purposes. This study was approved by the Guangxi Medical University Ethics Committee (approval No.KY0310)

Analysis of Survey Data

The database is established using Epidata 3.0 software. Data from the returned questionnaires is entered twice by two independent researchers to ensure accuracy. Discrepancies between the two entries are checked against the original questionnaire and corrected accordingly. SPSS 19.0 software is used for statistical description and parameter estimation of the data.

Results

Preliminary Construction of the Teaching Quality Evaluation Indicator System

This study uses keywords such as Social Medicine and Health Service Management, graduate students, teaching quality, and indicator system construction to search relevant online databases, including CNKI (China National Knowledge Infrastructure), VIP Database, Wanfang Data, China Biomedical Literature Database (CBMdisc), PubMed, Web of Science, and Ovid. The collected literature is organized, reviewed, and analyzed, with relevant studies summarized according to publication year and type. The objectives of talent training in Social Medicine and Health Service Management, as well as the societal needs for such talents, are analyzed and summarized. From the perspectives of promoting the development and reform of the healthcare system, improving the efficiency and effectiveness of health services, and enhancing public health and quality of life, the key areas for graduate education in Social Medicine and Health Service Management are comprehensively explored. Based on these findings, a preliminary framework for the teaching quality evaluation indicator system for graduate students majoring in Health Service Management is developed. After consultation with senior professors in the field of graduate education, an initial version of the evaluation indicator system is proposed. The system includes three primary indicators, six secondary indicators, and 28 tertiary indicators, as shown in Figure 1.

Construction of the Indicator System Based on the Delphi Expert Consultation Method

(1) Selection of Delphi Experts

Experts were selected from medical universities in Guangxi (including Guangxi Medical University, Guangxi University of Chinese Medicine, and Guilin Medical University), universities outside the province that offer Health Service Management programs (such as Wuhan University and Sun Yat-sen University), as well as health administrative departments. A total of 20 experts were selected to participate in the Delphi expert consultation, which was conducted from December 2021 to April 2022. The experts' average age was (42 ± 8.34) years, with an average of (17.30 ± 10.17) years of work experience. The panel included 8 experts with senior professional titles, 6 with associate senior titles, and 6 with intermediate titles. In terms of educational background, 11 experts held doctoral degrees, and 9 held master's degrees. Further details are provided in Table 2.

Table 2. Expert Profile

Category	N	%
Age (years)		
≤35	5	25
35~	7	35
45~	5	25
≥55	3	15
Years of Service		
≤10	5	25
10~	7	35
20~	4	20
≥30	4	20
Education		
Doctorate	11	55
Master's Degree	9	45
Professional Title		
Senior	8	40
Associate Senior	6	30
Intermediate	6	30
Position		
Division Level	4	20
Section Level	4	20
Other	12	60
Work Field		
Medical Higher Education	13	65
Health Administration	4	20
Hospital Management	1	5
Other	2	10

(2) Indicator Screening and Revision

The initial indicator system framework is subjected to the first round of Delphi expert consultation, and indicators are screened based on specific criteria. Indicators are retained if the mean full-score rate of the indicator exceeds the threshold and if the coefficient of variation (CV) is below the corresponding threshold. Expert feedback is also considered, and indicator screening and revisions are conducted following group discussions. For primary indicators, the full-score rate must be greater than 0.73, and the coefficient of variation must be less than 0.133 to be recommended for retention. For secondary indicators, the full-score rate must be greater than 0.65, and the coefficient of variation must be less than 0.138. For tertiary indicators, the full-score rate must be greater than 0.55, and the coefficient of variation must be less than 0.161. The threshold values for each level of indicators are detailed in Table 3.

After the first round of Delphi expert consultation, adjustments were made to the indicators based on expert ratings and revision suggestions. This process resulted in a new teaching quality evaluation indicator system for graduate students majoring in Health Service Management, which was then used for the second round of Delphi expert consultation. The experts for the second round were the same as those in the first round. Through statistical analysis of the second-round expert consultation questionnaire, 6 indicators were deleted, including Teaching Progress, Teaching Discipline, Teacher's Appearance, Innovation in Teaching Approaches, Design of Assignments, and Exam Difficulty. Two indicators were modified, and 5 new indicators were added, resulting in an updated teaching quality evaluation indicator system for graduate students majoring in Health Service Management.

(3) Calculation of Weights for the Evaluation Indicator System

The coefficient of variation method is used in this study to calculate the weight of each indicator.

Table 3. Screening Thresholds for Indicators in the First Round of Expert Consultation

Indicator	Full Score Rate			Coefficient of Variation		
	Mean	SD	Threshold	Mean	SD	Threshold
Primary Indicator	0.78	0.06	0.73	0.106	0.027	0.133
Secondary Indicator	0.65	0.09	0.56	0.120	0.018	0.138
Tertiary Indicator	0.55	0.15	0.41	0.137	0.025	0.161

Table 4. Weights of the Teaching Quality Evaluation Indicator System for Graduate Students Majoring in Social Medicine and Health Service Management

Primary Indicator	Secondary Indicator	Tertiary Indicator	Weight Coefficient	Combined Weight
Teaching Staff	Professional Qualities	Professional Expertise	(0.125)	(0.028)
(0.381)	(0.587)	Academic Expertise	(0.174)	(0.039)
		Professional Ethics and Pedagogical Style	(0.191)	(0.043)
		Teaching Reflection	(0.255)	(0.057)
		Political Literacy	(0.255)	(0.057)
	Teaching Attitude	Language Proficiency	(0.367)	(0.058)
	(0.413)	Classroom Presence	(0.316)	(0.050)
		Instructional Planning	(0.316)	(0.050)
Teaching Process	Teaching Methods	Effectiveness of Teaching Methods	(0.258)	(0.035)
(0.237)	(0.565)	Teacher-Student Interaction	(0.227)	(0.030)
		Emphasis on Practical Application	(0.257)	(0.034)
		Integration of Ideological and Political Education	(0.257)	(0.034)
	Teaching Content	Logical Organization	(0.145)	(0.015)
	(0.435)	Emphasis on Key and Difficult Points	(0.099)	(0.010)
		Content Coherence	(0.122)	(0.013)
		Content Updates	(0.125)	(0.013)
		Integration of Case Studies	(0.122)	(0.013)
		Integration of Policies	(0.122)	(0.013)
		Highlighting Local Disciplinary Features	(0.121)	(0.012)
		Integration of Research	(0.145)	(0.015)
Teaching Target	Learning Outcomes	Capability Enhancement	(0.225)	(0.041)
(0.381)	(0.482)	Knowledge Application	(0.206)	(0.038)
		Learning Motivation	(0.250)	(0.046)
		Interest in Lectures	(0.319)	(0.059)
	Student Assessment	Student Evaluations	(0.308)	(0.061)
	(0.518)	Assessment Criteria	(0.328)	(0.065)
		Students' Research Output	(0.365)	(0.072)

The coefficient of variation method determines indicator weights based on the variability of indicator data, reflecting the objective information on the variation of indicator data. It is an objective method for determining weights. For the same evaluation indicator, the greater the difference in the attribute values of each scheme, the more important the indicator is in the comprehensive selection, and the more information it provides to decision-makers*(17)*. Therefore, the weight of

Table 5. Weights of the Teaching Quality Evaluation Indicator System for Graduate Students in Health Service Management (from Students' Perspective)

Primary Indicators	Secondary Indicators	Tertiary Indicators	Weight Coefficient	Combined Weight
Teaching Staff	Professional Qualities	Professional Expertise	(0.140)	(0.022)
(0.322)	(0.487)	Academic Expertise	(0.176)	(0.028)
		Professional Ethics and Pedagogical Style	(0.201)	(0.031)
		Teaching Reflection	(0.224)	(0.035)
		Political Literacy	(0.258)	(0.040)
	Teaching Attitude	Language Proficiency	(0.310)	(0.051)
	(0.513)	Classroom Presence	(0.307)	(0.051)
		Instructional Planning	(0.384)	(0.063)
Teaching Process	Teaching Methods	Effectiveness of Teaching Methods	(0.175)	(0.024)
(0.288)	(0.476)	Teacher-Student Interaction	(0.269)	(0.037)
		Emphasis on Practical Application	(0.257)	(0.035)
		Integration of Ideological and Political Education	(0.300)	(0.041)
	Teaching Content	Logical Organization	(0.130)	(0.020)
	(0.524)	Emphasis on Key and Difficult Points	(0.119)	(0.018)
		Content Coherence	(0.128)	(0.019)
		Content Updates	(0.129)	(0.019)
		Integration of Case Studies	(0.120)	(0.018)
		Integration of Policies	(0.122)	(0.018)
		Highlighting Local Disciplinary Features	(0.129)	(0.020)
		Integration of Research	(0.122)	(0.018)
Teaching Target	Learning Outcomes	Capability Enhancement	(0.214)	(0.032)
(0.390)	(0.386)	Knowledge Application	(0.201)	(0.030)
		Learning Motivation	(0.284)	(0.043)
		Interest in Lectures	(0.301)	(0.045)
	Student Assessment	Student Evaluations	(0.355)	(0.085)
	(0.614)	Assessment Criteria	(0.355)	(0.085)
		Students' Research Output	(0.289)	(0.069)

each indicator is determined by the amount of information it provides to decision-makers. The calculation formula is not elaborated here, and the summary of the indicator system and its corresponding weights is shown in Table 4.

Coefficient of Expert Authority

The level of expert enthusiasm is reflected by the questionnaire response rate. In this study, the response rate for both rounds of consultation was

100%, indicating a high level of expert interest and cooperation with the study, which enhances the credibility of the results. The level of expert authority is measured using the expert authority coefficient (Cr), which is calculated as the arithmetic mean of the Coefficient of Expert Judgment (Ca) and the Coefficient of Expert Familiarity (Cs). The authority coefficient ranges from 0 to 1, with higher values indicating greater expert authority. Generally, a Cr value greater than 0.7 is considered acceptable(18,19). In this study, the expert authority coefficient was 0.864 in the first round and 0.939 in the second round, indicating a high level of expert authority.

Preferences of Graduate Students in the Health Service Management Program

Based on the previously constructed teaching quality evaluation indicator system for the Health Service Management program, a questionnaire was developed for graduate students. The weights of each indicator were calculated using the coefficient of variation method, and the results are presented in Table 5. A comparison of the primary indicators reveals that both experts and students assigned the lowest weight to Teaching Process. However, students tended to regard Teaching Staff as the key focus of teaching quality evaluation, while experts considered both Teaching Staff and Teaching Target to be equally important for evaluation purposes.

Discussion

Research Output and Course Assessment Criteria are Key to the Evaluation of Teaching Target Compared with the Teaching Process, the dimensions of Teaching Staff and Teaching Target hold a higher weight in the teaching quality evaluation indicator system. Experts generally believe that teachers and students are the key determinants of teaching quality throughout the teaching process, while the process itself is perceived as relatively less "important." Notably, under the dimension of Teaching Target, the importance of Student Assessment has been unanimously recognized by experts. The focus of student assessment is primarily on students' research output, followed by the design of assessment criteria.

Participating in research activities allows graduate students to access cutting-edge knowledge and equipment, collaborate with professors, publish papers, attend conferences, build essential networks, and explore post-graduation career paths. These experiences are crucial for graduate students' academic and career development. Studies have shown that students who publish more papers, participate in more research projects, spend more time on study and research beyond classroom learning, and engage more frequently with supervisors tend to achieve greater success in their future careers*(20)*. Quality is the lifeline of graduate education and the fundamental guarantee for its sustainable development*(21)*. Research capability is the most direct manifestation of quality*(22)*. The 2020 National Graduate Education Conference explicitly stated that research should be regarded as a fundamental indicator for assessing the quality of graduate students. Faced with ongoing enrollment expansion and system reforms, graduate education is under unprecedented pressure. Placing a high priority on cultivating graduate students' research capabilities is undoubtedly of profound strategic significance.

Traditional assessment methods are primarily end-of-course summative exams. The majority of courses use final exam results as the primary measure of students' learning outcomes. Apart from experimental courses, most teaching processes lack formative assessment components. Therefore, in most cases, it is advisable to adopt a diversified assessment model that combines formative assessment with summative assessment*(23).* The *Opinions on Improving and Strengthening Graduate Curriculum Construction(24)* proposes that the design of assessment methods should be based on the characteristics of course content, teaching requirements, and instructional methods. It emphasizes the diversification, effectiveness, and feasibility of assessment formats. Research shows that after implementing a system of combining process-based and outcome-based assessments, students pay more attention to each stage of the course, fostering a self-directed learning culture. As a result, student performance improves significantly, the number of students failing courses is notably reduced, and professional competence and innovative abilities are significantly enhanced*(25)*.

Therefore, in assessing students, reasonable assessment content and score allocation are essential for comprehensively evaluating graduate students' learning outcomes.

Teacher Competence is a Key Factor in Improving Teaching Quality

Experts emphasize the role of the Teaching Staff dimension in improving teaching quality, with a particular focus on Professional Qualities, where Teaching Reflection and Political Literacy are considered the most critical components. Teaching reflection is a comprehensive and profound examination, contemplation, and improvement of the educational process, recognized as a practical and effective approach for teachers to pursue professional development*(26)*. Reflective teaching promotes the effectiveness of graduate course instruction and facilitates the professional growth of graduate instructors. By improving teaching quality, reflective teaching can attract high-quality students and enhance the academic reputation of the discipline*(27)*.

Teachers not only serve as knowledge transmitters but also undertake the responsibility of ideological and political education. Cases of inappropriate political conduct in the classroom are not uncommon. For example, on September 18, 2017, a mathematics teacher from the School of Science at a university in China was reported for making inappropriate comparisons between the Japanese and Chinese ethnic groups while teaching a **P**robability Theory course. The students in the class filed a complaint with the university president regarding the teacher's discriminatory remarks*(28)*. This highlights the importance of Political Literacy as an essential professional quality for teachers. It is also a core component of teachers' Professional Ethics, serving as a guiding principle for teachers' professional development and shaping their capacity to fulfill the educational mission*(29,30)*.

The Effective Use of Teaching Methods is More Important than Teaching Content in the Teaching Process

The Teaching Process dimension is the least weighted among the primary indicators. This dimension includes two secondary indicators: Teaching Methods and Teaching Content. Analysis of the weight values in the evaluation system shows that Teaching Methods (weight 0.565) are more important than Teaching Content (weight 0.435). Studies have shown that the use of diverse and targeted teaching methods can better meet students' individualized learning needs and effectively promote the transfer and application of knowledge inside and outside the classroom. For example, in problem-based learning environments, teaching methods are more effective than content alone in stimulating students' critical thinking and problem-solving skills*(31,32)*. Well-designed teaching methods can help students actively explore and internalize knowledge in complex situations, rather than merely memorizing or repeating it. Research shows that the implementation of innovative teaching methods not only engages students but also facilitates a deeper understanding of theoretical concepts, demonstrating that effective teaching strategies can enhance learning outcomes more than the content itself*(33)*.

However, students tend to place more emphasis on the value of Teaching Content (weight 0.524) than on Teaching Methods (weight 0.476). This may stem from their interest in the systematic and cutting-edge nature of the content, as they expect the knowledge they acquire to directly contribute to their research and career development. This difference in perspective reveals a key issue in educational practice: experts prioritize how to teach, while students focus on what is learned. The findings underscore the need to integrate teaching methods and content to achieve both student-centered learning and teaching goals.

The Professional Background of Teachers is Not Considered a Key Evaluation Factor
It is also worth noting that although Professional Qualities are a key consideration in the evaluation of Teaching Staff, the indicator of Professional Expertise has the lowest weight under this dimension. This is consistent with the views of both experts and students. This finding suggests that, within the field of Social Medicine and Health Service Management, a teacher's professional background is not regarded as "particularly important." This may be related to the interdisciplinary nature of Social Medicine and Health Service Management, which integrates perspectives from

healthcare, social sciences, and management. The field studies the relationships between medicine, society, communities, healthcare institutions, and health systems*(34)*. As a result, teachers from different academic backgrounds may have different interpretations of the discipline, providing students with diverse perspectives that can broaden their horizons and inspire greater interest in learning. This may explain why students are less concerned about the professional background of their instructors.

Advantages and Limitations

Overall, this study constructs a classroom teaching quality evaluation indicator system for graduate students majoring in Social Medicine and Health Service Management, providing a theoretical reference for evaluation research in this field. The differences in indicator weights between experts and students reveal that experts tend to construct evaluation indicators based on the professional characteristics and teaching practices of the discipline, while students' perspectives are more rooted in their personal learning experiences. Students also seek to reflect on their role in the teaching evaluation process.

However, this study has certain limitations. For instance, when assessing students' perceptions of the evaluation indicator system, only students from one medical university were surveyed, limiting the scope of validation. In future research, surveys will be extended to graduate students from other medical universities in Guangxi to gain a broader understanding of the acceptance and recognition of the indicator system.

Authors contributions

Hongda Gao and He Chen generated the initial idea and participated in the design of the work. Nan Jiang analyzed the data and participated in the design of the data. Hongda Gao, He Chen and Nan Jiang contributed equally. Tingting Xu participated in the conception and design of the work. All authors reviewed the manuscript.

Ethics approval and consent to participate

This study was approved by Guangxi Medical University Ethics Committee (approval No.KY0310). Informed consent was obtained from all participants.

Consent for publication

Not applicable.

Availability of data and materials

All data relevant to the study are included in the article.

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Competing interests

The authors declare that they have no competing interests.

References

1. Dong, J., Liu, Y., Li, Y., et al. Exploration of classroom teaching quality evaluation system in higher education with focus on instructional effectiveness. *China Electric Power Education* 2022; (12): 75-76. https://doi.org/10.19429/j.cnki.cn11-3776/g4.2022.12.011
2. Wei D. T., & Hu J. Construction of a student evaluation index system based on OBE concept. *Journal of Hubei Polytechnic Institute (Humanities and Social Sciences)* 2020; 37(05): 81-86. https://doi.org/10.3969/j.ISSN.2095-4662.2020.05.014
3. Tang, J. S., & Mo, Y. Analysis on the construction of a practical teaching quality evaluation index system for applied colleges. *Educational Modernization* 2020; 7(8): 16-18. https://doi.org/10.16541/j.cnki.2095-8420.2020.08.006
4. Li, Z. G., Chen, Q., & Sun, T. T. Reflections and practice on improving student evaluation of teaching based on "student-centered" principles. *Modern Education Management* 2019; (01): 62-66. https://doi.org/10.16697/j.cnki.xdjygl.2019.01.011
5. Zuo, R. X., & Chen, Z. W. Research on the evaluation of teaching quality in universities based on decision tree algorithm. Economic Analyst 2023; (02): 169-170. https://doi.org/10.3969/j.issn.1004-4914.2023.02.079
6. Shi, X., & Xiang, T. Design of classified evaluation indicators for classroom teaching quality of graduate students. *Science Consulting (Science & Management)* 2018; (09): 25-26. https://doi.org/10.3969/j.issn.1671-4822.2018.36.018
7. Wang, L., & Ge, C. R. Construction of online teaching quality evaluation system for marketing courses in application-oriented universities. Journal of Anhui University of Technology (Social Sciences) 2021; 38(1): 85-88. https://doi.org/10.3969/j.issn.1671-9247.2021.01.024
8. Xue N, & Yang X D. (2021). Construction and practice of an online teaching quality evaluation index system for higher vocational colleges. *Exploration of Higher Vocational Education*, 20(02), 75-80. https://doi.org/10.3969/j.issn.2095-364X.2021.02.014
9. Qian, D. D., Liu, L. H., Peng, J., et al. Construction of "five-in-one" online teaching quality evaluation system in colleges and universities. *China Adult Education* 2021; (12): 44-47. https://doi.org/10.3969/j.issn.1004-6577.2021.12.010
10. Shi, X., & Xiang, T. Design of classified evaluation indicators for classroom teaching quality of graduate students. *Science Consulting* 2018; (36): 25-26. https://doi.org/10.3969/j.issn.1671-4822.2018.36.018
11. Lin, P., & Tong, F. (2020). Research on the evaluation index system of practice teaching quality of sociology major from the perspective of big data. *Contemporary Education Practice and Teaching Research* 2020; (08): 19-20. https://doi.org/10.16534/j.cnki.cn13-9000/g.2020.0856
12. Zhang, S. L., & Lu, M. Q. Problems and improvements of student evaluation of teaching from the perspective of performance management. *Contemporary Education Theory and Practice* 2020; 12(02): 65-70. https://doi.org/10.13582/j.cnki.1674-5884.2020.02.011
13. Deng, W. Y. Online teaching quality evaluation system based on characteristics of the new era. *China Light Industry Education* 2024; 27(2):71-78. https://doi.org/10.3969/j.issn.1673-1352.2024.02.010
14. Wang, J. M., Guan, Y. C., & Song, L. L. Construction of a classroom teaching quality evaluation index system for Chinese medicine based on the Delphi method. *Shizhen National Medicine and Pharmacy* 2020; 31(02): 442-444. https://doi.org/10.3969/j.issn.1008-0805.2020.02.064
15. Zhang, J. J., Zhang, X. Y., & He, L. Evaluation of the quality evaluation index system for the training of clinical medicine postgraduate students under the background of medical-education cooperation. *Modern Preventive Medicine* 2020; 47(11): 2107-2112. https://doi.org/10.20043/j.cnki.mpm.2020.11.044
16. Chen, Y. Y., Ni, M., & Hu, X. Z. Screening of public welfare evaluation indicators for public medical institutions: Based on the Delphi expert consultation method. *China Health Policy Research* 2012; 05(1): 6-10. https://doi.org/10.3969/j.issn.1674-2982.2012.01.002
17. Ma, J. Q., He, S., Hao, X. P., & Rao, D. (2015). Calculation of soil moisture content based on the analytic hierarchy process and coefficient of variation method. *People's Yellow River* 2015; 37(09): 135-139. https://doi.org/10.3969/j.issn.1000-1379.2015.09.036
18. Yu, H. Y., Chen, W. D., & Song, Y. Construction of a clinical teaching quality evaluation index system for university-affiliated hospitals. *Journal of Qiqihar Medical College* 2020; 41(12): 1535-1537. https://doi.org/10.3969/j.issn.1002-1256.2020.12.032
19. Zhu, Y. (2016). Research on the evaluation index system of the quality of full-time professional degree postgraduate education in China (Master's thesis). *North China Electric Power University (Beijing)*. https://doi.org/10.7666/d.Y3113859
20. Feng B, Liu PS, Zhang YH. Analysis of the impact of graduate education on carer development: Taking C University as an example. *Graduate Education Research* 2013; (2): 61-67. https://doi.org/10.3969/j.issn.2095-1663.2013.02.013
21. Wang, H. Discussion on measures to improve the quality of master's degree education in China. *Journal of the Party School of the CPC Shanxi Provincial Committee* 2018; (05): 49-51. https://doi.org/10.3969/j.issn.1674-1676.2018.05.012

22. Li G, Zhang JX. A study on the comprehensive evaluation of the scientific research ability of graduate students in my country from the perspective of input-output. *Modern Education Science* 2021; (01): 115-122. https://doi.org/10.13980/j.cnki.xdjykx.2021.01.020
23. Xie, Y.Z. Construction and practice of clinical medicine practical teaching system under the background of medical-education collaboration. *Journal of Xiangyang Vocational and Technical College* 2025; 24(3), 55-59. https://doi.org/10.20219/j.cnki.2095-6584.2025.03.012
24. Ministry of Education of the People's Republic of China. [Internet] *Opinions on improving and strengthening graduate curriculum construction* 2014; (5): http://www.moe.gov.cn/
25. Changsha University of Science & Technology. (2023, August 12). Reform and innovation of educational evaluation model of academic assessment combining process and result-based assessment. Retrieved from https://www.csust.edu.cn/info/1495/19901.htm
26. Zhu, Y. Y. Research on teachers' teaching reflection supported by information technology. *Modern Business Trade Industry* 2024; 45(22):275-277. https://doi.org/10.19311/j.cnki.1672-3198.2024.22.095
27. Jin H. Graduate course teachers should cultivate "self-reflection awareness." *Degree and Postgraduate Education* 2009; (02): 65-68. https://doi.org/10.16750/j.adge.2009.02.018
28. Office of the Communist Youth League of Soochow University. [Internet] *Warning and education on typical cases of misconduct in university teachers' professional ethics* 2017: https://tec.suda.edu.cn/info/1482/9955.htm
29. Wang HX, Li M. The connotation, elements, and development path of core competencies of excellent teachers. *Educational Science* 2020; 36(06), 40-46. https://doi.org/10.3969/j.issn.1002-8064.2020.06.007
30. Xin, J. X., & Li, R. The composition and development path of teachers' core competencies from the perspective of the new curriculum. *Educational Science* 2023; 39(05): 51-58. https://doi.org/10.3969/j.issn.1002-8064.2023.05.008
31. Ordu, UB-A. The role of teaching and learning aids/methods in a changing world. In *Proceedings of the 19th Annual International Conference of the Bulgarian Comparative Education Society*. Bulgarian Comparative Education Society 2021; 213-215: https://files.eric.ed.gov/fulltext/ED613989.pdf
32. Paolini A. Enhancing Teaching Effectiveness and Student Learning Outcomes. *The Journal of Effective Teaching* 2015; 15(1): 20-33. https://files.eric.ed.gov/fulltext/EJ1060429.pdf
33. Septiani, R., & Baharuddin, D. Transforming public health education: Exploring the implementation and impact of innovative teaching methods. *Journal of Education and Health Promotion 2024; 13*(1): 358. https://doi.org/10.4103/jehp.jehp_1494_23
34. Zhang RH, Zong QJ, Yuan Q J (2013). Research hotspots and trends in social medicine and health service management. *China Health Service Management 2013;* 30(03): 208-210. https://doi.org/10.3969/j.issn.1004-4663.2013.03.017

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