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Evaluation of Talent Training Goals Achievement Based on the Analysis of Curriculum Examination Points Distribution

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Abstract: This study explores a new approach for evaluating teaching quality in higher education based on the analysis of examination point distribution in courses. The aim is to assess the alignment between course teaching objectives and talent cultivation goals through quantitative indicators. Using 122 professional courses from a university in southwest China as the subject, the study introduces indicators such as course teaching objective examination point coverage, question bank examination point coverage, and examination paper examination point coverage to analyze the achievement of knowledge, ability, and quality three-dimensional goals. The results show that the coverage of knowledge goals is relatively high, while the coverage of ability and quality goals is low, reflecting deficiencies in course design regarding ability training and quality education. Additionally, there are significant differences in the conversion between examination papers and question banks, and the coverage of assessment points is uneven in some courses. Based on the research findings, this paper proposes suggestions for optimizing course design, improving question bank construction, and building an academic monitoring system, providing theoretical and practical references for improving teaching quality in higher education.

Keywords: Course examination point distribution; Teaching goal achievement; Examination point coverage; Teaching quality evaluation; Talent cultivation goals

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1. Introduction

In recent years, with the rapid development of higher education, teaching quality evaluation has become a crucial guarantee for universities to achieve their talent cultivation goals. Domestic scholars have conducted extensive research on the achievement of course objectives and teaching quality evaluation. Li Zhiyi proposed how to determine training objectives and graduation requirements, identify key indicators, construct a curriculum system, and develop a teaching syllabus from the perspective of Outcomes-Based Education (OBE)

[1]. Jiang Dawei and Liu Limin explored the concept based on OBE, emphasizing that student quality is the core measure of educational outcomes. They optimized the teaching outline by clarifying course objectives and decomposing evaluation indicators to improve teaching quality [2]. Jin Lina and Hu Wenjin constructed a data-driven teaching quality evaluation system in their study titled "Research on the Construction of a Teaching Quality Evaluation System for Universities Based on Big Data Technology." They highlighted the importance of data support in evaluation, providing a practical reference for analyzing the distribution of examination points [3]. Hu Xingzhi and Liu Weijia explored new methods of teaching quality evaluation based on big data in their study "Exploration of Higher Education Quality Evaluation Based on Big Data" [4].

Current research primarily focuses on outcomes-based course teaching evaluation, emphasizing course objectives, weight distribution, and the construction of evaluation systems. However, these studies have paid less attention to the direct impact of examination point distribution on the achievement of teaching objectives, especially the correlation between examination point coverage and the three-dimensional goals of knowledge, ability, and quality. This paper explores an evaluation method based on the analysis of course examination point distribution to assess the achievement of talent cultivation goals. By introducing indicators such as examination point coverage, it evaluates the achievement of course teaching objectives from multiple dimensions. Furthermore, it analyzes the relationship between the distribution of examination points and the overall teaching effectiveness, proposing targeted improvement suggestions to provide theoretical and practical references for universities to enhance teaching quality.

2. Research objects, indicators, and methods

2.1. Research objects

This study analyzes the teaching archives and assessment data of 122 professional courses from a university in southwest China, covering various course types such as medicine, social science, and rehabilitation, including both compulsory and elective courses, which provide good representation. The research focuses on aspects such as the coverage rate of course teaching objectives' examination points, the coverage rate of examination paper's examination points, and student performance.

2.2. Research indicators

Course objectives refer to the specific goals that a course aims to achieve. They serve as an essential basis for designing course content, implementing teaching processes, and evaluating courses [5]. As the core guiding element of teaching activities, course teaching objectives represent the learning outcomes that teachers expect students to achieve during the teaching process. They not only mark the starting point of instructional design but also constitute a crucial foundation for assessing teaching effectiveness. Teaching objectives are typically divided into three dimensions: knowledge objectives, ability objectives, and quality objectives. These correspond to students' mastery of knowledge, enhancement of abilities, and cultivation of comprehensive qualities, respectively [6]. Courses form an integral part of professional talent cultivation, and their teaching objectives directly support the overall talent cultivation goals [7]. Specifically, course teaching objectives are the concretization of talent cultivation goals, while chapter teaching objectives further elaborate and support the course objectives. Chapter teaching objectives can be linked to examination points, which are then shaped into assessment content through the construction of a question bank. Finally, student scores are generated through

the assembly of examination papers and the conduct of examinations (**Figure 1**).

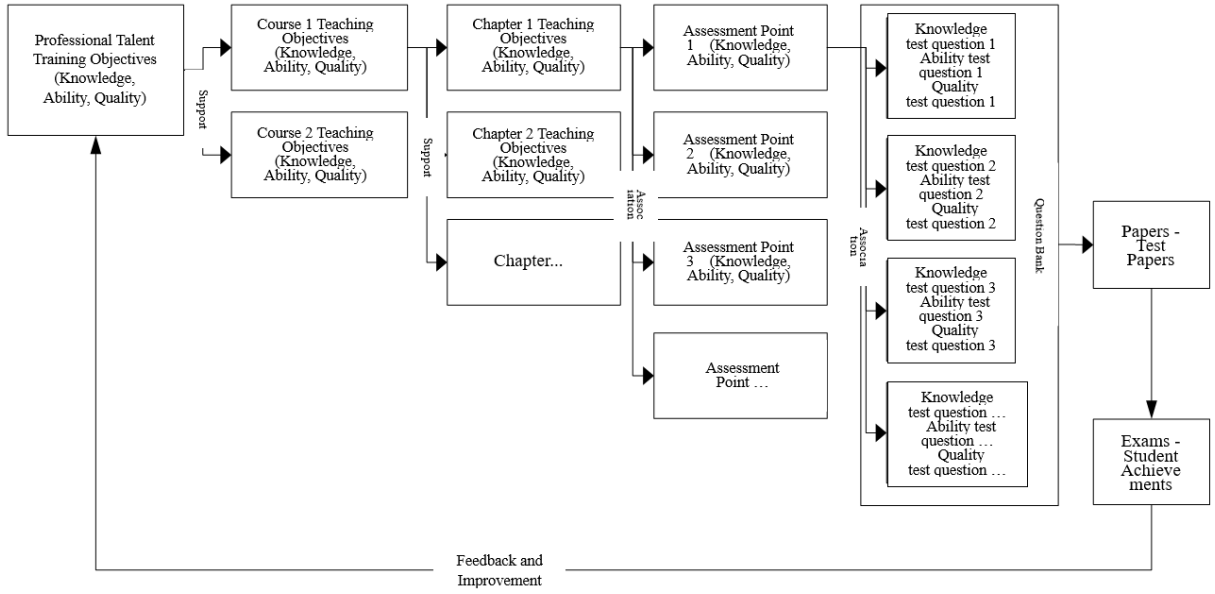

Figure 1. Complete closed-loop flowchart from talent cultivation goals to student performance feedback

Based on the requirements of the talent cultivation program and the characteristics of course teaching design, this study selects the following key indicators.

Course teaching objective examination point coverage rate: Measures the degree of alignment between course objectives (knowledge, ability, quality) and specific examination points, assessing the achievement of teaching goals.

Question bank examination point coverage rate: Analyzes the coverage of key examination points in the course by the questions in the question bank, reflecting the comprehensiveness and pertinence of the question bank.

Examination paper examination point coverage rate: Evaluates the coverage of key examination points in the course by the final examination paper, examining the rationality of the examination paper design.

Student performance statistics: Includes average score, highest score, lowest score, and score variance, comprehensively reflecting teaching effectiveness and student learning outcomes.

The calculation formulas for the above indicators are as follows:

Course teaching objective examination point coverage rate (knowledge) = Number of course teaching objectives associated with examination points (knowledge) / Total number of course objectives (knowledge)

Course teaching objective examination point coverage rate (quality) = Number of course teaching objectives associated with examination points (quality) / Total number of course objectives (quality)

Course teaching objective examination point coverage rate (ability) = Number of course teaching objectives associated with examination points (ability) / Total number of course objectives (ability)

Question bank examination point coverage rate = Number of examination points associated with all questions in the question bank / Total number of examination points in the course

Examination paper examination point coverage rate = Number of examination points covered by all questions in the examination paper / Total number of examination points in the course

2.3. Research methods

This study employs statistical analysis and data mining methods, following the steps below.

Examination point correlation analysis: Quantitative analysis is used to calculate the examination point coverage rate for each teaching objective, evaluating the scientific nature of course design.

Horizontal comparison: Compares the coverage situation across different courses, revealing data distribution characteristics.

Factor correlation: Explores the correlation between examination point coverage rate and student performance, analyzing the actual effectiveness of teaching objective achievement.

3. Results and discussion

3.1. Analysis of examination point coverage rate for course teaching objectives

3.1.1. Overall coverage rate analysis

Based on the statistical results in **Table 1**, the examination point coverage rate for course teaching objectives exhibits the following characteristics.

The average coverage rate for knowledge objectives is 91.47%, with 90.16% of courses having a coverage rate above 75%. This indicates that the course design is relatively comprehensive in terms of knowledge imparting, and core knowledge points are well covered.

The average coverage rate for ability objectives is 63.65%, with 18% of courses having a coverage rate below 50%. This suggests that the ability training objectives need to be further strengthened.

The average coverage rate for quality objectives is 55.91%, and 63.11% of courses have a coverage rate below 50%. This reflects the current insufficient emphasis on quality education in course design, and the assessment content for quality objectives is relatively weak.

3.1.2. Coverage rate analysis by course type

Based on the analysis of teaching objective coverage rates for different course types in **Table 2**, the following conclusions are drawn.

Medical courses have the most systematic and stable teaching objectives. The knowledge objective coverage rate ranges from 90%–100%, with a low coefficient of variation (0.12). The coverage rates for ability and quality objectives are relatively concentrated with small fluctuations, and the coefficients of variation are 0.25 and 0.4, respectively.

Social science courses show the greatest variability in teaching objectives. The knowledge objective fluctuates significantly (80%–100%), with a high coefficient of variation (0.75), indicating instability. There are notable differences in the coverage rates for ability and quality objectives, suggesting a lack of consistency and stability in course design.

Rehabilitation courses have a relatively balanced knowledge objective coverage rate (80%–100%). The ability objective shows moderate fluctuation (50%–100%) with a moderate coefficient of variation (0.60). The quality objective coverage rate varies considerably, indicating a need for further optimization in course design.

3.1.3. Discussion

The low coverage rate for quality objectives implies that the current course assessment methods are inadequate to fully reflect students' comprehensive ability development. It is recommended that course designers

incorporate more content related to quality education when setting teaching objectives and enhance its representation in assessments to improve the comprehensiveness and balance of the courses.

For courses with a low coverage rate for ability objectives, it is suggested to increase practical components and adopt diversified evaluation methods to enhance students' comprehensive ability development. Regarding the high variability in social science courses, it is recommended to unify the teaching objective setting standards to ensure consistency and stability in course design.

Table 1. Overall statistics of examination point coverage rate for course teaching objectives

Goal type	Average coverage rate	Maximum coverage rate	Minimum coverage rate	Coverage distribution
Knowledge goal	91.47%	100%	40%	90%–100%:85courses 75%–90%:25courses <75%:12courses
Ability goal	63.65%	100%	0%	90%–100%:35courses 50%–90%:65courses <50%:22courses
Quality goal	55.91%	100%	0%	90%–100%:courses 50%–90%:courses <50%:courses

Table 2. Comparative analysis of teaching objectives coverage and coefficient of variation for course types

Goal type	Knowledge goal	Ability goal	Quality goal	Coefficient of variation of knowledge objectives	Coefficient of variation of ability objectives	Coefficient of variation of quality objectives
Medical courses	Most stable (90%–100%)	Relatively concentrated (70%–100%)	Basically controllable (50%–100%)	0.12	0.25	0.4
Social science courses	More volatile (80%–100%)	Significantly variable (0%–100%)	Highly uncertain (0%–100%)	0.08	0.5	0.75
Rehabilitation courses	Relatively balanced (80%–100%)	Moderately volatile (50%–100%)	Large variance (0%–100%)	0.06	0.2	0.60

3.2. Correlation analysis between course assessment points and question bank, examination papers

3.2.1. The overall design quality of the question bank is high

The coverage rate of question bank assessment points refers to the analysis of the question bank's coverage of the main assessment points of the course, reflecting the comprehensiveness and pertinence of the question bank. According to **Table 3** and **Table 4**, the average coverage rate of question bank assessment points is 94.71%, with 91.80% of courses having a coverage rate above 85%, indicating that the question bank design for most courses is relatively complete and can cover the core knowledge points of the courses. Only one course (0.82%) has a coverage rate below 60%, which requires focused optimization to ensure that the question bank can fully cover the core knowledge points of the course.

Table 3. Data table of course assessment point coverage rate

Index	Question bank test center coverage rate	Volume A test center coverage rate	Volume B test center coverage rate
Average	94.71%	68.11%	69.39%
Maximum value	100%	96%	96%
Minimum value	50%	0%	0%

Table 4. Question bank test center coverage interval and proportion

Interval	Number of courses	Proportion
<60%	1	0.82%
60%–85%	9	7.38%
>85%	112	91.80%

3.2.2. The overall performance of the test paper assessment point coverage is acceptable

According to **Table 5**, the coverage rates of Test A and Test B are mainly concentrated between 60%–85% (59.84% for Test A and 61.48% for Test B), indicating an acceptable overall performance, but there is still room for optimization. Some courses have lower coverage rates, with 13.11% and 11.48% of courses having coverage rates below 35% in Test A and Test B, respectively. Four courses (3.28%) have no assessment point coverage, mainly adopting comprehensive assessment forms such as research reports and small papers, which are not directly related to assessment points.

Courses without assessment point coverage (such as New Ethics) mainly adopt non-traditional examination forms (such as research reports, small papers, etc.), resulting in the assessment point coverage rate not being directly reflected. This indicates that: (1) For courses with different examination methods, there are deficiencies in the design of propositions, and the assessment content and assessment points are not effectively combined. (2) It is necessary to explore new proposition strategies that combine comprehensive assessment forms with assessment point coverage to ensure that the assessment content fully covers the core knowledge points of the course.

Table 5. Average, range, and proportion of test paper assessment point coverage

Index	Volume A test center coverage rate	Volume B test center coverage rate
No assessment point coverage	3.28% (4 courses)	3.28% (4 courses)
35% or less	13.11% (16 courses)	11.48% (14 courses)
35%–60%	19.67% (24 courses)	20.49% (25 courses)
60%–85%	59.84% (73 courses)	61.48% (75 courses)
85% or more	4.10% (5 courses)	3.28% (4 courses)

3.2.3. Significant differences exist in the conversion between test papers and question banks

According to **Table 3**, the average assessment point coverage rates of the test papers (Test A and Test B) are 68.11% and 69.39%, respectively, which are significantly lower than the coverage rate of the question bank. This indicates that: The design of the test papers did not fully utilize the resources of the question bank, and

there may be issues such as uneven selection of assessment points or unreasonable proposition design. There are too many assessment points designed in the question bank construction, resulting in incomplete coverage by the test papers, and some assessment points are not reflected in the test papers.

3.2.4. Differences exist between course types

Medical courses have relatively high coverage rates for both the question bank and test papers, indicating that the teaching and evaluation systems for these courses are relatively mature.

The test paper coverage rate for rehabilitation courses fluctuates greatly, and some courses (such as Rehabilitation Psychology) have very low coverage rates, indicating that the evaluation system for these courses needs improvement (**Table 6**).

Social science courses have a high coverage rate for the question bank, but the test paper coverage rate varies greatly, indicating that the evaluation system for these courses needs further standardization.

Table 6. Course type coverage rate

Goal type	Question bank coverage range	Test paper coverage range
Medical courses	90%–100%	60%–90%
Social science courses	82%–100%	50%–80%
Rehabilitation courses	85%–100%	40%–90%

3.2.5. Discussion

Through the above analysis, it can be found that the overall performance of the test paper assessment point coverage is acceptable, but there are still issues such as uneven coverage, low coverage in some courses, and insufficient connection between the test paper and the question bank. The existence of these problems not only affects the comprehensive achievement of teaching goals but also exposes the deficiencies in the design and implementation of the evaluation system. By clarifying the improvement direction to enhance teaching quality, identifying the root causes of the problems, and proposing targeted optimization measures, the scientificity and rationality of test paper design can be effectively improved, further promoting the overall improvement of teaching quality [8].

3.3. Analysis of student performance and achievement of talent cultivation goals

The statistical indicators of student performance focus on average scores, highest scores, lowest scores, and score variance (**Table 7**). These indicators can comprehensively reflect the effectiveness of teaching implementation and students' learning status. Through statistical analysis of the scores of 203 classes and 80 courses across 3 majors and 3 grades in the school, the following conclusions are drawn.

The overall performance of the social work major is good, with average scores ranging from 79.68 to 92.58, the highest score being 99, and the lowest score being 50. Some courses (such as "Planning and Organization of Activities for the Elderly") show significant differences in scores, requiring attention to the distribution of student scores. For courses with low average scores and high variance (such as "Introduction to Management"), teaching support and assessment design can be strengthened.

The overall performance of the health service and management major is relatively stable, with average

scores concentrated between 81.03 and 93.88, the lowest score being 57, and the highest score being 97. Individual courses (such as "Introduction to Traditional Chinese Medicine") have a large variance, reflecting significant differences in student scores. For courses with large variances (such as "Introduction to Traditional Chinese Medicine"), it is necessary to optimize teaching content and assessment methods to narrow the gap in student scores.

The nursing major has the largest number of courses, with average scores fluctuating significantly (76.04 to 95.86), the highest score being 100, and the lowest score being 0. Some courses (such as "Critical Care Nursing") have extremely high variances, requiring special attention. For courses with extremely high variances (such as "Critical Care Nursing"), it is necessary to analyze the problems in teaching and assessment to ensure a reasonable score distribution.

Table 7. Statistical analysis of scores for 80 courses

Professional	Grade	Number of courses	Average score range	Variance range	Highest score range	Lowest score range
Social work	Grade 1	7	79.68–92.58	10.93–34.74	89–99	66–83
	Grade 2	6	82.46–87.46	5.18–17.39	87–93	71–82
	Grade 3	8	79.86–91.09	16.06–78.88	89–97	50–74
Health services and management	Grade 1	4	81.03–91.42	33.33–47.40	90–97	61–75
	Grade 2	7	83.82–91.32	5.58–102.58	91–97	57–85
	Grade 3	8	81.64–93.88	3.31–30.55	90–97	67–91
Nursing	Grade 1	6	78.36–90.43	8.20–101.38	90–97	19–67
	Grade 2	14	75.93–92.91	9.06–123.52	95–99	28–68
	Grade 3	20	76.04–95.86	3.68–432.83	83–100	0–86

Overall, the distribution of student scores can reflect the achievement of teaching goals, but it also exposes the deficiencies in the teaching design and assessment methods of some courses. By optimizing teaching content, improving assessment methods, and strengthening teaching support in a targeted manner, educators can further enhance students' learning effects and promote the comprehensive realization of talent cultivation goals.

4. Suggestions for improving teaching quality

Based on the research results, the following measures and suggestions for other universities are proposed. Optimize course design and increase the proportion of quality education. Course objectives need to comprehensively cover the three dimensions of knowledge, ability, and quality, avoiding emphasis on a single dimension. Strengthen the cultivation of students' teamwork and innovative spirit from course design and goal setting [9]. Improve the construction of the question bank. Increase the matching degree between the quality of the questions in the question bank and the assessment points to ensure the practicality of the teaching goals. Build a monitoring and feedback system for academic conditions and improve the student support system. Through accurate score data analysis, identify teaching problems, and reduce the polarization of scores through tutoring courses and dynamic academic analysis. Strengthen the teaching quality monitoring system. Use data analysis methods to comprehensively monitor the achievement of teaching goals and resource investment.

5. Research significance and prospects

Based on the analysis of course assessment point distribution, this study proposes a new path to measure the achievement of teaching goals, providing innovative references for teaching quality evaluation in universities. By constructing a coverage evaluation system, key issues in course design and implementation can be more clearly diagnosed, such as low coverage of quality objectives, imbalanced distribution of assessment points, and insufficient connection between test papers and question banks. This method has high universality and is suitable for the course quality evaluation system of other universities, promoting cross-campus scientific research and teaching data sharing. At the practical level, this analytical approach not only helps schools clarify the direction of teaching quality improvement but also promotes the deep integration of teaching goals and actual talent cultivation needs. In addition, constructing a systematic data collection and analysis framework provides experience for the construction of intelligent and data-driven teaching quality platforms in universities, thus better serving the growth of schools and students in the future. In the future, research should combine qualitative analysis to extend the situation of teachers' teaching behavior and students' learning experience, and expand the sample scope to cover more schools and undergraduate majors, providing more comprehensive academic support for improving the teaching quality of the entire higher education system.

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References

[1] Li ZY, 2015, Outcome-Based Teaching Design. China University Teaching, 2015(3): 32–39.

[2] Jiang DW, Liu LM, Sun CY, 2018, Evaluation Method of Achieving Course Objectives Based on OBE Concept. Heilongjiang Education (Higher Education Research and Evaluation), 2018(10): 61–63.

[3] Jin LN, Hu WJ, 2024, Research on the Construction of University Teaching Quality Evaluation System Based on Big Data Technology. University Education, 2024(9): 19–22.

[4] Hu XZ, Liu WJ, 2022, Exploration of Higher Education Quality Evaluation Based on Big Data. Journal of Higher Education, 2022(2): 17–20.

[5] Yang ZY, 2014, Psychology of Ideological and Political Education. China Renmin University Press, Beijing, 238.

[6] Qi KP, Hu JS, Qiu N, et al., 2023, Research on the Stratification of Teaching Objectives and Reform of Student Personalized Training in Control Engineering Fundamentals and Applications Courses. Innovation and Entrepreneurship Theory and Practice, 6(13): 114–116.

[7] Liu H, Fu HL, 2019, Evaluation of Graduation Requirement Indicator Achievement Based on Course Objective Evaluation. Education Teaching Forum, 2019(50): 59–60.

[8] Duan DX, Fan HK, Yang Y, et al., 2025, Improving Teaching Quality Based on the Analysis of Medical

Physiology Examination Papers. Journal of Higher Education, 2025(6): 92–95.

[9] Ge HD, Xu ZL, Shen ZZ, 2022, Reflections on the Teaching Quality of Clinical Rational Drug Use Based on the Analysis of Examination Papers. Modern Distance Education of Chinese Medicine, 20(9): 36–38.