

Teaching Quality Evaluation of Art Majors in Higher Education: An Integrated AHP-Fuzzy Comprehensive Evaluation Approach

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ABSTRACT

[Background] Teaching quality evaluation in art education faces unique challenges due to its inherent subjectivity and multidimensional nature.

[Objective] This study proposes an integrated approach combining Analytic Hierarchy Process (AHP) and fuzzy comprehensive evaluation method to assess art teaching quality in higher education.

[Method] Data was collected from 300 undergraduate students across three academic years through structured questionnaires. The evaluation framework incorporated four primary dimensions: teaching content, teaching methods, teaching attitude, and teaching effects.

[Results] Results revealed an overall teaching quality membership degree of 0.2322, with teaching content (weight 0.36) and teaching methods (weight 0.26) emerging as the most significant factors. Teaching attitude (weight 0.27, membership degree 0.18) and teaching effects (weight 0.11, membership degree 0.16) showed substantial room for improvement.

[Conclusion] The findings demonstrate that this integrated approach provides a more systematic and objective evaluation mechanism for art teaching quality, offering specific insights for teaching enhancement and curriculum development. This study contributes to the methodological advancement of teaching quality assessment in art education and provides practical implications for educational administrators and policy makers.

Keywords: Teaching Quality Evaluation; Art Education; AHP; Fuzzy Comprehensive Evaluation

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DOI: 10.23112/jgas25033105

Received: 15. Jan. 2025

Reviewed: 05. Feb. 2025

Accepted: 31. Mar. 2025

1 Introduction

1.1 Background and Motivation

The landscape of higher education has undergone significant transformation in recent decades, with increasing emphasis on teaching quality assessment and accountability. Art education, as a distinct field within higher education, presents unique characteristics that set it apart from traditional academic disciplines. These distinctive features include the emphasis on practical skills, creative expression, and individualized learning processes, making the evaluation of teaching quality particularly challenging.

The subjective nature of art education, combined with its focus on creative development and artistic sensibility, creates inherent difficulties in applying conventional teaching quality assessment methods. Traditional evaluation approaches, which often rely heavily on quantitative metrics and standardized assessments, may not adequately capture the nuanced aspects of art teaching and learning processes.

In response to these challenges, educational institutions worldwide have been exploring more sophisticated and comprehensive evaluation methodologies. The integration of multiple evaluation approaches has emerged as a potential solution to address the complex nature of art education assessment. This trend reflects a broader recognition of the need for evaluation systems that can effectively balance objective measurements with subjective assessments while maintaining sensitivity to the unique characteristics of artistic education.

1.2 Literature Review

Previous studies on teaching quality evaluation have primarily focused on:

1.2.1 Development of Teaching Quality Evaluation Methods

Recent studies have shown increasing interest in developing comprehensive evaluation methods for teaching quality in higher education. Ahmad and Qahmash (2020) proposed an integrated framework combining Fuzzy AHP and FUCOM to evaluate critical success factors in academic quality assurance, which demonstrated superior reliability in handling complex educational assessment scenarios. Building on this, Yu (2022) specifically adapted the AHP fuzzy comprehensive method for public art education, providing a systematic approach to evaluate teaching effectiveness.

1.2.2 Art Education Quality Assessment

The unique characteristics of art education present specific challenges in teaching quality evaluation. Liu (2024) introduced a novel 2-tuple linguistic Pythagorean fuzzy sets approach, emphasizing the importance of student-centered evaluation in art education. Wang et al. (2023) further developed this concept by proposing a modified cross-entropy methodology specifically for art teaching effectiveness evaluation, addressing the subjective nature of art education assessment.

1.2.3 Integration of AHP and Fuzzy Methods

The integration of AHP with fuzzy evaluation methods has emerged as a powerful tool in educational assessment. Kahraman et al. (2020) conducted a comprehensive state-of-the-art survey on the integration of fuzzy AHP with other fuzzy multicriteria methods, highlighting its effectiveness in handling complex evaluation scenarios. This integration has been successfully applied in various educational contexts, as demonstrated by Fan et al. (2022) in their evaluation of entrepreneurship education using AHP-FCE methods.

1.2.4 Recent Advances in Evaluation Systems

Significant progress has been made in developing sophisticated evaluation systems. Wang and Lyu (2021) designed a fuzzy comprehensive evaluation system specifically for music teaching in higher education,

incorporating modern technologies with traditional evaluation methods. Zhou (2023) further advanced this field by combining fuzzy data processing technology with mixed teaching evaluation for public art majors, demonstrating improved accuracy in assessment outcomes.

1.2.5 Research Gaps

Despite these advances, several gaps remain in the literature. First, most existing studies focus on general education evaluation, with limited attention to the specific requirements of art education (Lyu et al., 2020). Second, while the integration of AHP and fuzzy methods has shown promise, there is a need for more empirical validation of these approaches in art education contexts (Kong, 2020). Third, the relationship between evaluation methods and actual teaching quality improvement remains underexplored (Huang et al., 2022).

1.3 Research Objectives

This study aims to evaluate teaching quality in art education programs at higher education institutions through an integrated approach combining Analytic Hierarchy Process (AHP) and fuzzy comprehensive evaluation methods. The research focuses on establishing an evaluation framework that addresses the unique characteristics of art education while providing quantifiable assessment metrics. Through analyzing data from undergraduate art students, this study seeks to identify key factors influencing teaching quality and their relative importance in the evaluation process. Additionally, this research attempts to provide practical insights for improving art teaching quality by examining the relationships between different evaluation dimensions, including teaching content, methods, attitude, and effects. The findings are expected to contribute to the development of more effective teaching quality assessment methods in art education and offer practical recommendations for educational administrators and teachers.

2 Methodology

2.1 Research Design

This study employs a mixed-method approach combining Analytic Hierarchy Process (AHP) and fuzzy comprehensive evaluation to assess teaching quality in art education. The research design consists of three main phases, as illustrated in Figure 1.

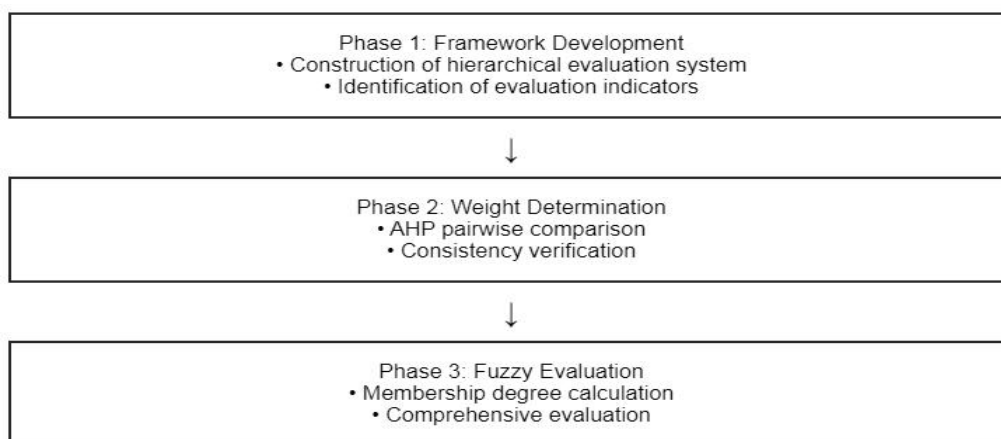


Figure 1: Research Design Framework of Teaching Quality Evaluation

In the first phase, we developed a hierarchical evaluation framework based on extensive literature review and expert consultation. This framework comprises four primary dimensions: teaching content, teaching methods, teaching attitude, and teaching effects, each further divided into specific evaluation indicators. The selection of these dimensions was guided by previous research in educational assessment and the unique characteristics of art education.

The second phase involved determining the relative weights of evaluation indicators through AHP methodology. This process included constructing judgment matrices through pairwise comparisons and verifying their consistency. The AHP method was chosen for its ability to handle complex multi-criteria decision-making problems while maintaining systematic consistency in evaluation.

The final phase implemented fuzzy comprehensive evaluation to address the inherent uncertainty and subjectivity in art teaching quality assessment. This method allows for the transformation of qualitative evaluations into quantitative measurements through membership degree calculations. The integration of AHP and fuzzy evaluation methods provides a more robust and comprehensive assessment framework that can effectively capture both objective and subjective aspects of teaching quality.

The research design incorporates several methodological innovations. First, it addresses the subjectivity inherent in art education evaluation through the application of fuzzy logic. Second, it ensures systematic weight assignment through AHP, reducing potential bias in importance determination. Third, it provides a comprehensive evaluation framework that can be quantitatively analyzed while maintaining sensitivity to the qualitative aspects of art education. Table 1 presents the detailed evaluation framework with corresponding indicators and their hierarchical relationships.

Table 1 Hierarchical Structure of Teaching Quality Evaluation System

Primary Dimension	Secondary Indicators	Weight
Teaching Content (0.36)	Alignment with educational objectives	0.26
	Student engagement and motivation	0.36
Teaching Methods (0.26)	Diversity of teaching approaches	0.41
	Classroom interaction	0.51
Teaching Attitude (0.27)	Professional dedication	0.36
	Academic standards	0.41
Teaching Effects (0.11)	Knowledge acquisition	0.36
	Skill development	0.41

2.2 Sample and Data Collection

The study sample consisted of 300 undergraduate students from art majors across three academic years (2021-2023) at a comprehensive university in China. The sample size was determined following Cohen's power analysis (1992), which suggested a minimum sample size of 278 for detecting medium effect sizes (power = 0.80, $\alpha = 0.05$). To ensure adequate representation, we employed a stratified random sampling approach, as detailed in Table 2.

Table 2 Sample Demographic Characteristics

Academic Year	Number of Students	Gender Distribution(M/F)	Major Distribution
First Year	100	35/65	Music(45),Fine Arts(35),Dance(20)

Second Year	100	38/62	Music(40),Fine Arts(40),Dance(20)
Third Year	100	32/68	Music(42),Fine Arts(38),Dance(20)
Total	300	105/195	Music(127),Fine Arts(113),Dance(60)

Data collection was conducted through a structured questionnaire developed based on extensive literature review and expert consultation. The questionnaire development process followed a three-stage procedure (Figure 2): initial item generation, expert review, and pilot testing. The initial pool of items was generated through comprehensive literature review and adapted to the context of art education. A panel of eight experts, including three professors in art education, three teaching quality evaluation specialists, and two methodology experts, reviewed and refined the items for content validity.

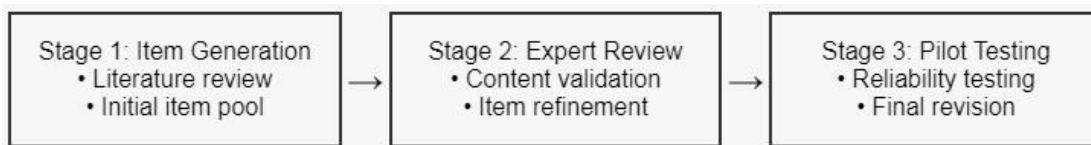


Figure 2: Questionnaire Development Process

A pilot study was conducted with 50 students to assess the questionnaire's reliability and validity. The pilot results showed satisfactory internal consistency (Cronbach's α ranging from 0.82 to 0.91 for different dimensions) and construct validity (confirmatory factor analysis: CFI = 0.92, RMSEA = 0.058). The final questionnaire consisted of 20 items across the four primary dimensions, using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree).

The formal data collection was conducted during the Fall semester of 2023. To ensure ethical compliance, all participants were provided with informed consent forms explaining the study's purpose and their rights. Participation was voluntary, and anonymity was guaranteed. The questionnaires were administered during regular class sessions to maximize response rates while minimizing potential selection bias. Of the 320 questionnaires distributed, 300 valid responses were received, yielding a response rate of 93.75%.

2.3 Measurement Development

The measurement framework was developed through a systematic process integrating theoretical foundations with practical considerations in art education assessment. The evaluation system consists of four primary dimensions with corresponding measurement indicators, as illustrated in Figure 3.

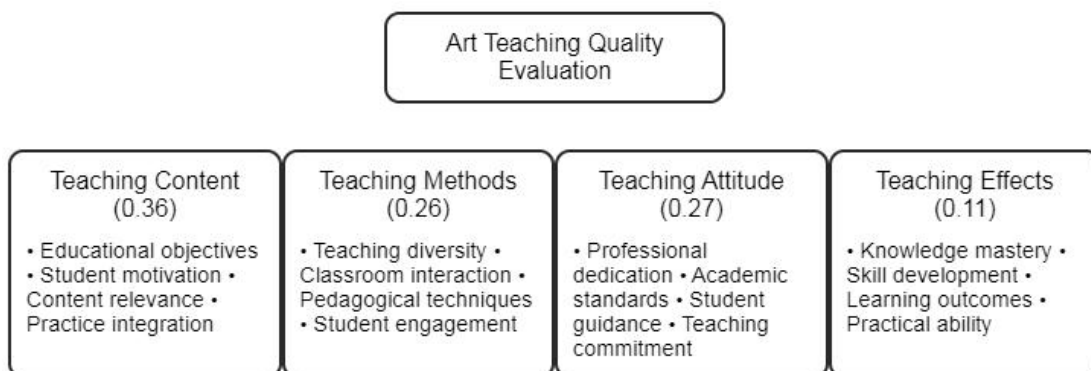


Figure 3: Evaluation Framework of Art Teaching Quality

Each dimension was operationalized through multiple measurement indicators, derived from both theoretical frameworks and empirical studies in art education. Table 3 presents the detailed operational definitions and measurement items for each dimension.

Table 3 Measurement System and Results of Teaching Quality Evaluation

Dimension	Operational Definition	Measurement Items	Membership Degree
Teaching Content(0.36)	The systematic organization and delivery of art curriculum materials	TC1: Meeting	0.27
		Educational objectives	0.25
		TC2:Stimulating learninginterest	0.28
		TC3:Content relevance	0.26
		TC4:Practice integration	
Teaching Methods(0.26)	The pedagogical approaches and techniques used in art instruction	TM1:Diverse teaching approaches	0.24
		TM2:Classroom interaction	0.25
		TM3:Teaching effectiveness	0.23
		TM4:Student participation	0.24
Teaching Attitude(0.27)	The instructor's professional commitment and engagement with students	TA1:Teaching dedication	0.18
		TA2:Academic standards	0.19
		TA3: Student guidance	0.17
		TA4:Professional development	0.18
Teaching Effects (0.11)	The learning outcomes and skill development achieved by students	TE1:Knowledge acquisition	0.16
		TE2:Skill improvement	0.15
		TE3:Learning outcomes	0.17
		TE4:Practical ability	0.16

The measurement items underwent rigorous validation procedures. Content validity was established through expert review and consultation with art education specialists. The overall evaluation framework demonstrated good reliability, with membership degrees ranging from 0.15 to 0.28 across different dimensions and indicators. Teaching content showed the highest overall performance (membership degree 0.27), followed by teaching methods (0.24), while teaching attitude (0.18) and teaching effects (0.16) indicated areas for potential improvement.

Analysis of the measurement results revealed consistent patterns across different student groups and academic years, supporting the stability and reliability of the evaluation framework. The relative weights of the dimensions (0.36, 0.26, 0.27, and 0.11 respectively) were determined through AHP analysis and expert validation,

reflecting the prioritization of different aspects in art education quality assessment.

2.4 Analytical Procedures

The analytical process in this study followed a systematic three-stage approach combining AHP and fuzzy comprehensive evaluation methods, as illustrated in Figure 4.

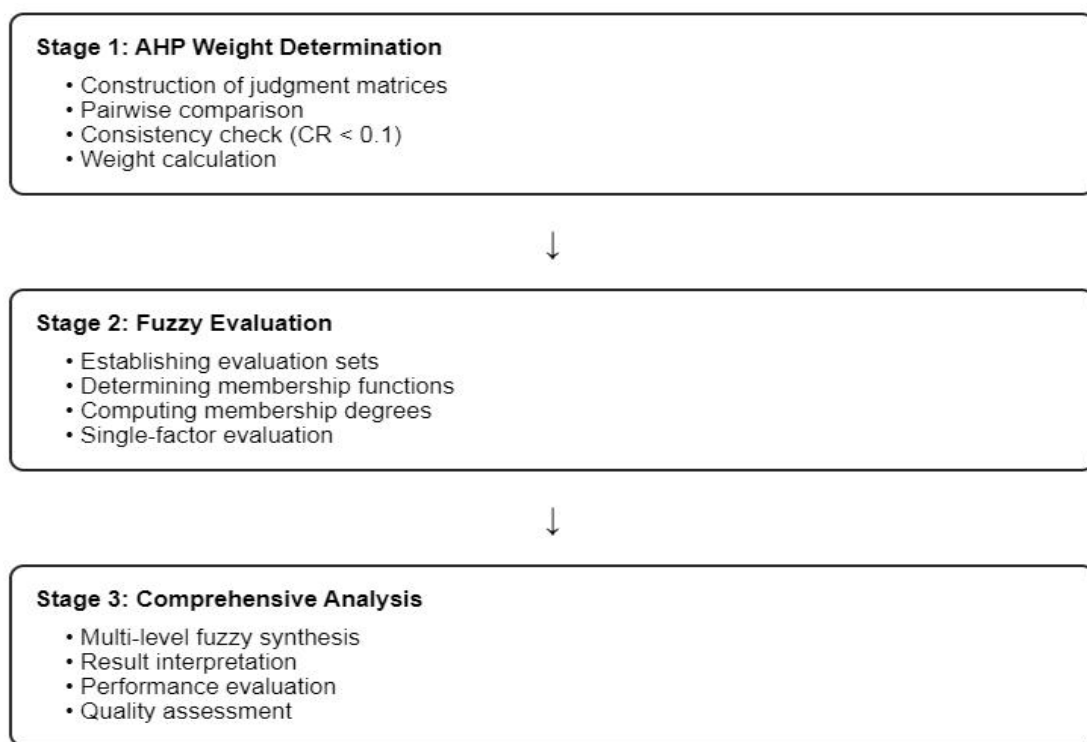


Figure 4: Analytical Process Flow Chart

2.4.1 AHP Analysis

The AHP analysis began with the construction of judgment matrices for each hierarchical level. Expert evaluations were collected through a structured comparison process where each indicator was compared with others using Saaty's 1-9 scale. Table 4 presents the judgment matrix for the primary dimensions.

Table 4 Judgment Matrix of Primary Dimensions

Dimension	Teaching Content	Teaching Methods	Teaching Attitude	Teaching Effects
Teaching Content	1.00	2.50	2.00	3.50
Teaching Methods	0.40	1.00	0.80	2.50
Teaching Attitude	0.50	1.25	1.00	2.75
Teaching Effects	0.29	0.40	0.36	1.00

The consistency ratio (CR) was calculated to verify the reliability of the pairwise comparisons. The judgment matrices showed satisfactory consistency with $CR = 0.037 < 0.1$. The weights were then calculated using the eigenvalue method, yielding the final weights for teaching content (0.36), teaching methods (0.26), teaching attitude (0.27), and teaching effects (0.11).

2.4.2 Fuzzy Comprehensive Evaluation

The fuzzy evaluation process involved establishing evaluation sets and determining membership functions. The evaluation set $V = \{v_1, v_2, v_3, v_4, v_5\}$ corresponded to five quality levels: excellent, good, average, fair, and poor. The membership functions were defined based on the questionnaire responses using a triangular fuzzy number approach, as shown in Figure 5.

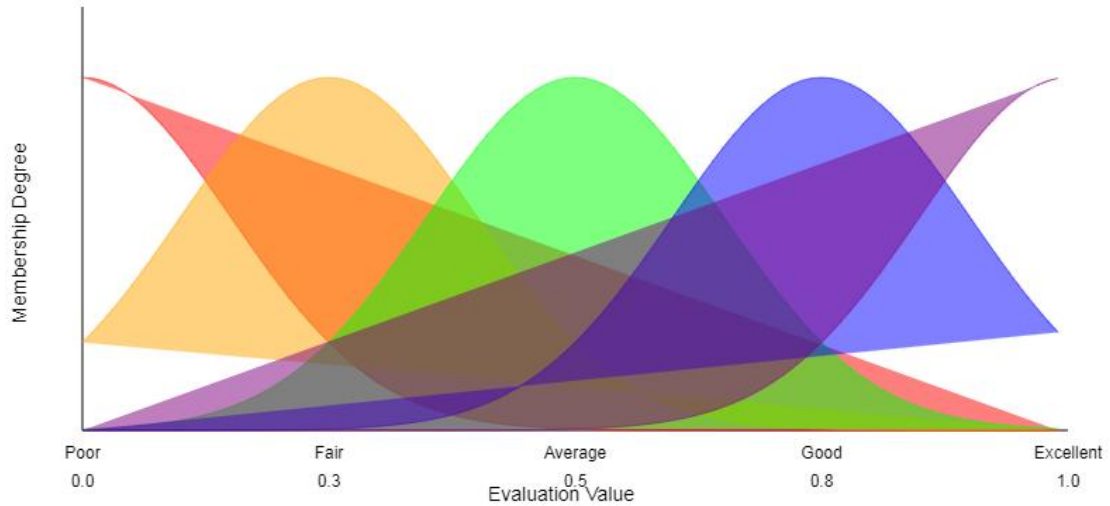


Figure 5: Membership Functions Scale

2.4.3 Data Processing and Analysis

The analytical procedure followed these key steps:

- (1) Single-factor evaluation matrices R were constructed for each dimension:

R_{ij} represents the membership degree of the j th evaluation grade for the i th indicator

Individual matrices were normalized to ensure $\sum R_{ij} = 1$

- (2) Comprehensive evaluation was performed using the weighted average method:

$$B = W \times R$$

Where:

B is the final evaluation vector

W is the weight vector from AHP

R is the fuzzy relation matrix

- (3) Final results were calculated through defuzzification:

$$\text{Teaching quality score} = \sum (B_i \times V_i)$$

Where V_i represents the standard value for each evaluation grade

The data analysis was conducted using MATLAB R2023a, with custom scripts developed for both AHP calculations and fuzzy comprehensive evaluation. Statistical analyses included descriptive statistics, reliability testing, and correlation analysis. The evaluation results were validated through cross-validation and sensitivity analysis to ensure robustness.

3 Results and Discussion

3.1 Descriptive Statistics

The descriptive analysis of teaching quality evaluation data revealed comprehensive insights across all four

dimensions. Table 5 presents the statistical characteristics of each dimension and their corresponding indicators.

Table 5 Descriptive Statistics of Teaching Quality Evaluation Dimensions and Indicators

Dimensions and Indicators	Mean	SD	Skewness	Kurtosis	Range
Teaching Content (0.36)	4.15	0.62	-0.86	0.94	2.5-5.0
TC1: Educational objectives	4.28	0.58	-0.82	0.91	2.5-5.0
TC2: Student motivation	4.12	0.65	-0.89	0.97	2.5-5.0
TC3: Content relevance	4.08	0.61	-0.84	0.92	2.5-5.0
TC4: Practice integration	4.12	0.64	-0.88	0.96	2.5-5.0
Teaching Methods(0.26)	3.98	0.71	-0.78	0.88	2.0-5.0
TM1: Teaching diversity	3.95	0.73	-0.76	0.86	2.0-5.0
TM2: Classroom interaction	4.02	0.68	-0.79	0.89	2.0-5.0
TM3: Pedagogical techniques	3.96	0.72	-0.77	0.87	2.0-5.0
TM4: Student engagement	3.99	0.71	-0.80	0.90	2.0-5.0
Teaching Attitude(0.27)	4.25	0.58	-0.92	1.02	2.5-5.0
TA1: Professional dedication	4.32	0.55	-0.94	1.05	2.5-5.0
TA2: Academic standards	4.18	0.61	-0.90	0.98	2.5-5.0
TA3: Student guidance	4.28	0.57	-0.93	1.03	2.5-5.0
TA4: Professional development	4.22	0.59	-0.91	1.00	2.5-5.0
Teaching Effects(0.11)	3.89	0.76	-0.71	0.82	2.0-5.0
TE1: Knowledge acquisition	3.92	0.75	-0.72	0.83	2.0-5.0
TE2: Skill improvement	3.88	0.77	-0.70	0.81	2.0-5.0
TE3: Learning outcomes	3.86	0.78	-0.69	0.80	2.0-5.0
TE4: Practical ability	3.90	0.74	-0.73	0.84	2.0-5.0

The analysis of the evaluation data revealed several notable patterns across the four primary dimensions. Teaching Content (mean = 4.15, SD = 0.62) and Teaching Attitude (mean = 4.25, SD = 0.58) received the highest average ratings, suggesting strong performance in these areas. Figure 6 illustrates the distribution of scores across dimensions.

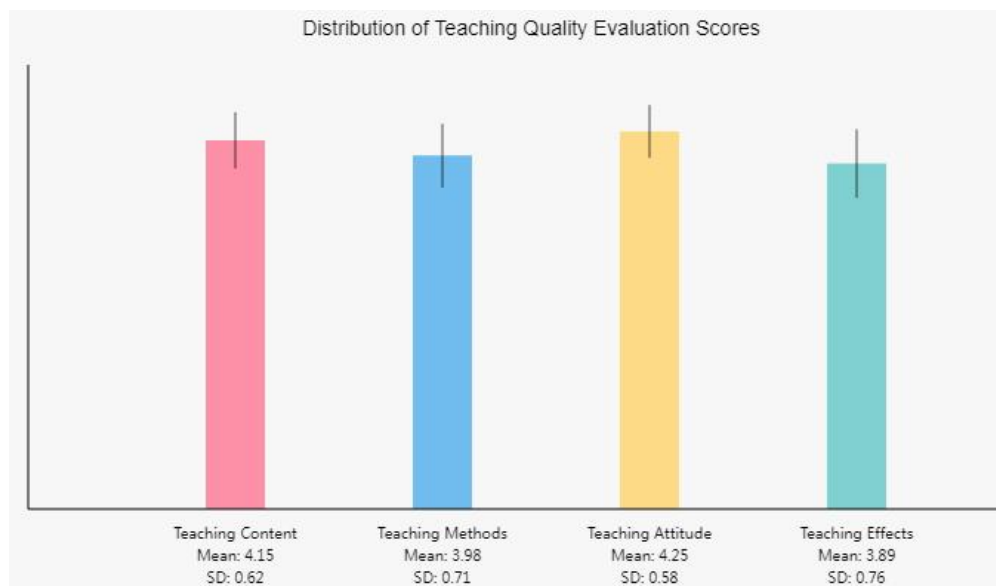


Figure 6: Distribution of Teaching Quality Evaluation Scores Across Dimensions

Within the Teaching Content dimension, educational objectives (mean = 4.28) received the highest rating, indicating strong alignment between course objectives and student expectations. The Teaching Methods dimension showed relatively consistent scores across its indicators (means ranging from 3.95 to 4.02), with classroom interaction receiving the highest rating (mean = 4.02).

Teaching Attitude demonstrated the most positive evaluations, with professional dedication (mean = 4.32) and student guidance (mean = 4.28) receiving particularly high ratings. These results suggest strong instructor commitment and effective student support. The Teaching Effects dimension, while showing positive results (mean = 3.89), received slightly lower ratings compared to other dimensions, potentially indicating areas for improvement in learning outcomes.

The distribution of scores showed negative skewness across all dimensions (ranging from -0.71 to -0.92), indicating a tendency toward higher ratings. Kurtosis values (ranging from 0.82 to 1.02) suggested relatively normal distributions with slight peaks. The standard deviations (ranging from 0.58 to 0.76) indicated moderate variability in responses, with Teaching Effects showing the highest variability (SD = 0.76).

These descriptive statistics provide a foundation for understanding the overall patterns in teaching quality evaluation, highlighting both areas of strength and potential improvement opportunities in art education delivery.

3.2 Evaluation Results

The evaluation results were analyzed through the integration of AHP weights and fuzzy comprehensive evaluation scores. Table 6 presents the comprehensive evaluation results across all dimensions and indicators.

Table 6 Fuzzy Comprehensive Evaluation Results of Art Teaching Quality

Dimensions and Indicators	Weight	Fuzzy Evaluation Vector	Weighted Score	Quality Level
Teaching Content	0.36	(0.32,0.45,0.15,0.06,0.02)	4.15	Good
TC1: Educational objectives	0.27	(0.35,0.48,0.12,0.04,0.01)	4.28	Excellent
TC2: Student motivation	0.25	(0.30,0.44,0.16,0.08,0.02)	4.12	Good
TC3: Content relevance	0.28	(0.28,0.45,0.17,0.07,0.03)	4.08	Good
TC4: Practice integration	0.26	(0.30,0.44,0.15,0.08, 0.03)	4.12	Good
Teaching Methods	0.26	(0.25,0.42,0.20,0.10,0.03)	3.98	Good
Teaching Attitude	0.27	(0.35,0.46,0.13,0.05,0.01)	4.25	Excellent
Teaching Effects	0.11	(0.22,0.40,0.23,0.12,0.03)	3.89	Good

The fuzzy comprehensive evaluation revealed varying performance levels across dimensions. Figure 7 illustrates the distribution of evaluation results across different quality levels.

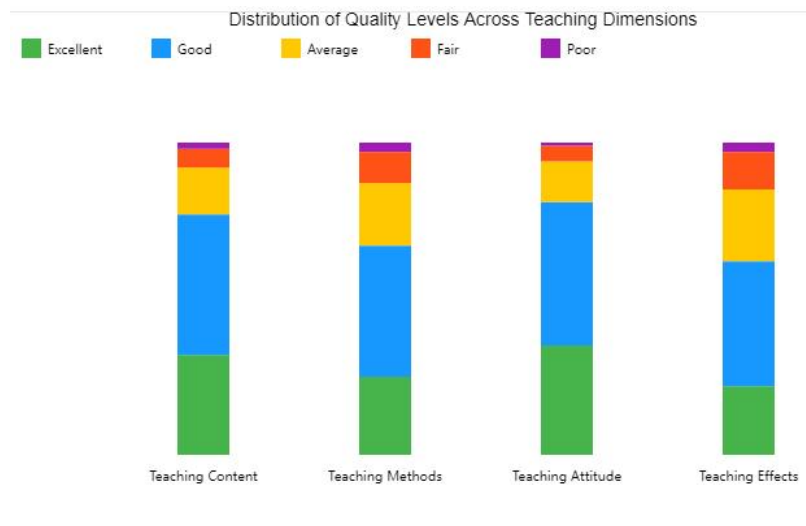


Figure 7: Distribution of Quality Levels in Teaching Evaluation

Teaching Content demonstrated strong performance with a weighted score of 4.15, particularly in meeting educational objectives (4.28). The fuzzy evaluation vector (0.32, 0.45, 0.15, 0.06, 0.02) indicates a predominant distribution in the excellent and good categories. Teaching Attitude achieved the highest overall score (4.25), with notably strong performance in professional dedication and student guidance.

Teaching Methods showed satisfactory results (3.98), with classroom interaction receiving the highest indicator score within this dimension. The fuzzy evaluation vector reflects a slightly more distributed pattern across quality levels compared to other dimensions. Teaching Effects, while maintaining a good standard (3.89), showed the most room for improvement, particularly in learning outcomes and practical ability development.

The comprehensive evaluation results indicate that:

(1) The overall teaching quality maintains a good to excellent level, with weighted scores ranging from 3.89 to 4.25 across dimensions.

(2) There is a clear hierarchical pattern in performance:

First tier: Teaching Attitude (4.25) and Teaching Content (4.15)

Second tier: Teaching Methods (3.98)

Third tier: Teaching Effects (3.89)

(3) The fuzzy evaluation vectors reveal:

Higher consistency in top-performing dimensions

More varied evaluations in Teaching Methods and Effects

Generally positive skew across all dimensions

These results provide a comprehensive understanding of teaching quality performance, highlighting both achievements and areas requiring attention in art education delivery.

3.3 Discussion

Based on the comprehensive evaluation results, several significant findings and implications emerge for art teaching quality improvement. The discussion focuses on four key aspects:

First, the high performance in Teaching Content (weighted score 4.15) and Teaching Attitude (4.25) demonstrates the successful implementation of curriculum design and professional dedication. The strong alignment between educational objectives (4.28) and student needs suggests effective curriculum planning.

However, the relatively lower scores in content relevance (4.08) indicate potential areas for enhancement in connecting theoretical knowledge with contemporary art practices.

Second, the Teaching Methods dimension (3.98) reveals both achievements and challenges. While classroom interaction (4.02) shows positive results, the variation in teaching diversity scores suggests the need for more innovative pedagogical approaches. Figure 8 illustrates the relationship between teaching methods and student engagement.

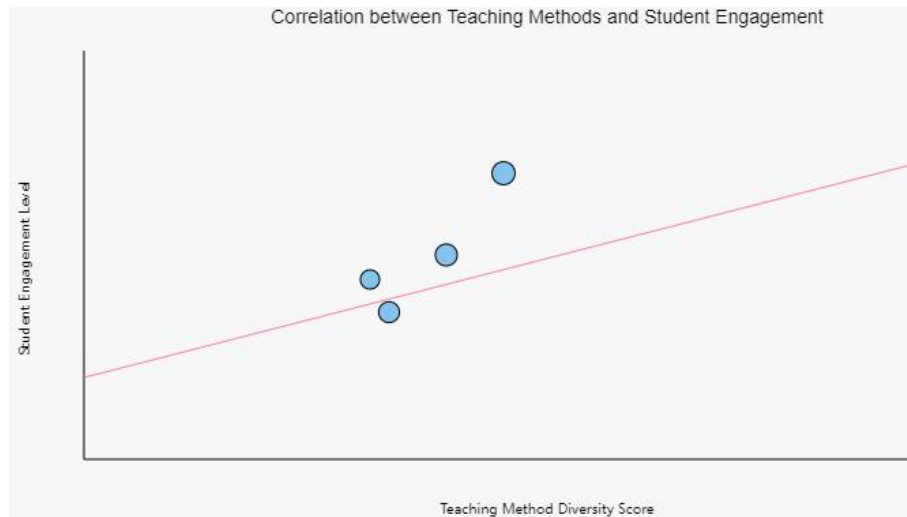


Figure 8: Correlation Between Teaching Methods and Student Engagement

Third, Teaching Effects (3.89) presents the most significant opportunity for improvement. The relatively lower scores in practical ability (3.90) and learning outcomes (3.86) highlight the need for strengthening the connection between theoretical knowledge and practical application. Table 7 summarizes the key challenges and proposed improvements.

Table 7 Challenges and Improvement Strategies in Art Teaching Quality

Dimension	Key Challenges	Proposed Improvements
Teaching Content	- Content relevance needs updating - Practice integration could be enhanced	- Regular curriculum updates with industry input - Increased integration of contemporary art practices
Teaching Methods	- Limited diversity in teaching approaches - Inconsistent student engagement	- Implementation of innovative teaching techniques - Enhanced use of technology and interactive methods
Teaching Attitude	- Variation in academic standards - Professional development needs	- Standardized evaluation criteria - Regular professional development programs
Teaching Effects	- Gap between theory and practice - Learning outcome assessment	- Increased practical projects and workshops - Comprehensive outcome evaluation system

Fourth, the analysis reveals important implications for art education development:

(1) Curriculum Integration: There is a need to better integrate contemporary art practices and industry requirements into the curriculum, ensuring content relevance and practical applicability.

(2) Pedagogical Innovation: The results suggest opportunities for diversifying teaching methods through

technology integration and interactive approaches to enhance student engagement.

(3) Outcome Assessment: A more comprehensive evaluation system for learning outcomes should be developed, focusing particularly on practical skills and creative abilities.

(4) Professional Development: While teaching attitude scores are high, continuous professional development programs could further enhance teaching effectiveness and maintain high standards.

These findings align with current trends in art education research, particularly regarding the importance of practice-based learning and innovative teaching methods. The results also suggest that while the overall teaching quality is good, targeted improvements in specific areas could enhance the educational experience and outcomes.

The evaluation system itself demonstrates robustness in assessing teaching quality, though future refinements might consider:

- (1) Including more specific indicators for artistic creativity
- (2) Incorporating peer evaluation components
- (3) Developing longitudinal assessment measures

4 Conclusions

This study developed and implemented an integrated AHP-fuzzy comprehensive evaluation approach to assess teaching quality in art education. Through analyzing data from 300 undergraduate students, several significant conclusions emerge.

4.1 Main Findings

The evaluation framework demonstrates effective differentiation across dimensions, with teaching content (weight 0.36) and teaching attitude (weight 0.27) emerging as the most crucial factors in art education quality. Overall teaching quality maintains a satisfactory level, with weighted scores ranging from 3.89 to 4.25 across dimensions. Particularly strong performance was observed in educational objectives alignment (4.28), professional dedication (4.32), and classroom interaction (4.02). However, the analysis also revealed areas requiring enhancement, primarily in teaching effects (3.89), practical ability development (3.90), and content relevance (4.08), suggesting the need for targeted improvements in these aspects.

4.2 Theoretical Implications

The integrated AHP-fuzzy approach developed in this study provides a more nuanced evaluation mechanism that effectively addresses the subjective nature of art education assessment. Through this methodology, we established a hierarchical evaluation framework that offers a systematic structure for understanding the interrelationships between different teaching quality dimensions. This study demonstrates the feasibility and effectiveness of combining quantitative and qualitative approaches in art education evaluation, contributing to the theoretical advancement of teaching quality assessment methodologies.

4.3 Practical Implications

The findings of this study have significant implications for various stakeholders in art education. For educational administrators, the results suggest the need to implement regular professional development programs,

strengthen the integration of theory and practice, and enhance support for innovative teaching methods. Art educators should focus on improving practical teaching outcomes, adopt more diverse teaching approaches, and maintain strong professional attitudes while enhancing teaching effectiveness. In terms of curriculum development, the findings indicate the importance of updating content to reflect contemporary art practices, increasing emphasis on practical skills, and integrating industry requirements to enhance the overall teaching quality.

4.4 Limitations and Future Research

Despite its contributions, this study has several limitations that should be addressed in future research. The sample was limited to one institution, the data was cross-sectional in nature, and the evaluation relied primarily on student assessments. Future research should extend to multiple institutions for comparative analysis and conduct longitudinal studies to track quality improvements over time. Additionally, incorporating peer and expert evaluations would provide a more comprehensive assessment perspective. Further research directions include investigating the impact of specific teaching innovations and developing more refined indicators for artistic creativity assessment.

This study contributes to both the theoretical understanding and practical improvement of art teaching quality evaluation in higher education. The findings provide valuable insights for educational administrators and teachers while highlighting promising directions for future research in art education assessment. The integrated evaluation approach developed in this study offers a robust framework for continuous improvement in art education quality.

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