NSS

*Neutrosophic Sets and Systems, Vol. 85, 2025*

University of New Mexico

# SuperHyperSoft Set-Based Evaluation of Teaching Quality in Ideological and Political Courses in Colleges and Universities in the New Era

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**Abstract:** In the new era, the quality of ideological and political education in colleges and universities has become a vital focus for nurturing responsible, critically thinking citizens. The rapid evolution of societal needs, coupled with technological advancements, demands a fresh evaluation of teaching effectiveness in these fundamental courses. Traditional evaluation models often struggle to address the uncertainty, complexity, and overlapping nature of qualitative educational indicators. This paper introduces a novel evaluation framework based on SuperHyperSoft Set theory integrated with Single-Valued Neutrosophic Sets (SVNS), combined with Entropy for objective weighting and the MOOSRA method for robust ranking of alternatives. The proposed framework provides a structured, flexible, and uncertainty-resilient approach to evaluating teaching quality. A real-world case study is conducted involving five major political science and ideological courses at a leading university. Expert evaluations were collected, processed using the SuperHyperSoft-SVNS model, and analyzed to identify strengths and areas for improvement. The results demonstrate the model's ability to capture complex educational dynamics and offer practical insights for enhancing teaching practices in the new era.

**Keywords:** Teaching Quality Evaluation; SuperHyperSoft Set; Single-Valued Neutrosophic Set (SVNS); Entropy Weighting; MOOSRA Method; Higher Education; Uncertainty Modeling.

## 1. Introduction

Higher education institutions play a crucial role in shaping the political awareness, ethical thinking, and ideological maturity of young citizens. In the new era marked by globalization, rapid technological innovation, and diversified societal values, the traditional methods of ideological and political education face unprecedented challenges [1]. Ensuring the quality of teaching in ideological and political courses has thus become an urgent and strategic priority for colleges and universities. However, evaluating teaching quality in these courses is inherently complex. Unlike technical disciplines where assessments can rely heavily on objective metrics, ideological and political education involves subjective understanding, critical thinking, value formation, and socio-political engagement [2]. These characteristics introduce high degrees of uncertainty and ambiguity into evaluation processes, making traditional crisp evaluation methods insufficient.

Recent research has emphasized the need for more dynamic, flexible evaluation models capable of handling overlapping indicators and uncertainty [3]. Soft set theory and its extensions, particularly SuperHyperSoft Sets, offer a powerful framework for modeling multi-dimensional, uncertain, and interconnected evaluation criteria [4]. Between 2018-2024, Smarandache[https://fs.unm.edu/TSS/] introduced six new types of Soft Sets, such as: the HyperSoft Set (2018), IndetermSoft Set (2022), IndetermHyperSoft Set (2022), SuperHyperSoft Set, TreeSoft Set (2022) and ForestSoft Set (2024). Combined with Single-Valued Neutrosophic Sets (SVNS), which allow for the explicit representation of truth, indeterminacy, and falsity, these tools provide an ideal foundation for developing a robust evaluation methodology.

Moreover, objective weighting methods such as Entropy can eliminate bias from expert judgments by capturing the inherent variability of the data [5], while ranking algorithms like MOOSRA ensure comprehensive and balanced decision-making even under complex conditions [6].

Given these advances, this study proposes a new, uncertainty-resilient evaluation framework for assessing teaching quality in ideological and political courses using a hybrid SuperHyperSoft-SVNS-Entropy-MOOSRA model.

### *1.1 Problem Statement*

Despite their critical importance, ideological and political courses often suffer from inconsistent and subjective evaluations. Current assessment models frequently neglect the interdependence between different teaching indicators (such as clarity of political theory, engagement with students, relevance to contemporary issues, and development of critical thinking) [7]. Moreover, the presence of uncertainty in expert opinions and student feedback is rarely addressed adequately, leading to biased and unreliable evaluation outcomes. There is a pressing need for a structured, systematic, and uncertainty-tolerant approach to evaluating teaching quality in this field.

### *1.2 Research Motivation*

The motivation for this research stems from two key observations. First, traditional evaluation models fail to capture the nuanced, multi-dimensional, and dynamic nature of ideological and political teaching quality [8]. Second, the increasing complexity of societal challenges including information overload, political polarization, and cultural diversity demands more sophisticated educational evaluations that can operate effectively under uncertainty. These factors drive the necessity for innovative evaluation frameworks that reflect the realities of ideological and political education in the new era.

### *1.3 Research Objectives*

This study aims to:

I. Develop a structured evaluation framework using SuperHyperSoft Set theory to model the hierarchical and overlapping structure of teaching quality indicators.

II. Apply Single-Valued Neutrosophic Sets (SVNS) to handle uncertainty and indeterminacy in expert evaluations.
III. Use Entropy weighting to objectively determine the relative importance of evaluation criteria.
IV. Implement the MOOSRA method to rank teaching quality alternatives systematically.
V. Validate the proposed model through a real-world case study involving major ideological and political courses in a leading university.

## 2. Literature Review

The evaluation of teaching quality in ideological and political education has gained increasing attention over the past decade. As societal demands evolve, so must the mechanisms by which educational effectiveness is assessed. Numerous scholars have emphasized the limitations of traditional evaluation approaches, especially in addressing the subjective, multi-dimensional, and context-sensitive nature of political education [9].

Traditional evaluation methods, such as surveys and expert panel reviews, often rely heavily on linear scoring models. While these methods are simple to implement, they fail to account for the complexity and overlapping nature of teaching criteria [10]. For instance, the ability to engage students in critical discussions is not independent of the clarity with which political theories are delivered, highlighting the need for interconnected evaluation structures.

Recent research has moved towards adopting Multi-Criteria Decision-Making (MCDM) techniques to provide more structured evaluations. Methods like AHP and TOPSIS have been used to prioritize teaching attributes; however, their deterministic nature often limits their adaptability to uncertain environments [11]. Recognizing the shortcomings, researchers have called for models that can handle uncertainty and partial knowledge inherent in educational assessments.

The emergence of Neutrosophic Sets, proposed by Smarandache, provided a revolutionary framework for modeling uncertainty by simultaneously accounting for truth, indeterminacy, and falsity [12]. Applications of Neutrosophic logic in education have shown significant promise, allowing more flexible handling of subjective judgments and ambiguity compared to traditional fuzzy models [13].

In parallel, the development of advanced soft set models, such as SuperHyperSoft Sets, has expanded the capability of modeling hierarchical and overlapping structures within evaluation frameworks [14]. These sets allow criteria to share attributes dynamically, representing the real-world dependencies between different educational qualities more realistically. Studies applying SuperHyperSoft Sets in other domains, such as system reliability and healthcare quality assessments, have demonstrated their effectiveness in dealing with complex evaluation environments [15].

Weighting the importance of different evaluation criteria remains a critical aspect of assessment modeling. While subjective expert-driven methods are common, objective weighting techniques such as Entropy weighting have gained traction for their ability to capture variability in evaluation data without introducing human bias [16]. By applying entropy, the relative importance of a criterion is determined based on the degree of information it contributes to the system, enhancing the objectivity of the final assessment.

Finally, in ranking alternatives, methods like MOOSRA (Multi-Objective Optimization since Simple Ratio Analysis) have emerged as powerful tools. MOOSRA combines simplicity with strong decision-making capability, especially when integrated with uncertainty-handling models like SVNS [17]. Its ability to balance multiple conflicting criteria makes it particularly suited for evaluating teaching quality where various dimensions of performance must be considered simultaneously.

Despite these advancements, there is a noticeable gap in the literature regarding the application of hybrid models specifically combining SuperHyperSoft Sets, SVNS, Entropy, and MOOSRA for the evaluation of ideological and political education in universities. Most existing studies either focus narrowly on technical disciplines or fail to fully address the uncertainty and complexity inherent in political education evaluation [18].

Therefore, this study aims to bridge this gap by constructing a comprehensive, uncertainty-resilient evaluation model tailored specifically to the needs of ideological and political teaching quality assessment in the new era.

## 3. Mathematical Model and Key Formulas

This section describes the core mathematical formulas that constitute the proposed evaluation framework. These formulas cover entropy-based criteria weighting, aggregation of expert evaluations using Single-Valued Neutrosophic Sets (SVNS), MOOSRA score computation, and validation of expert consistency.

### 3.1 Entropy-Based Criteria Weighting

Entropy is employed to derive objective weights for each evaluation criterion based on the diversity of expert judgments.

***Entropy Calculation***

$Ej = -k \sum_{i=1}^{m} pij \ln (pij)$

where:

- $Ej$ is the entropy value of criterion $j$,
- $pij$ is the normalized score of alternatives $i$ on criterion $j$,
- mmm is the number of alternatives,
- $k$ is a normalization constant, $k=1/ln(m)$.

The entropy value measures the amount of disorder or uncertainty associated with a criterion. A lower entropy value indicates higher importance due to more diverse evaluations.

***Diversification Degree***

$dj=1-Ej$

where:

- $dj$ is the diversification degree of criterion j.

Diversification reflects the contrast strength among alternatives. A higher $dj$ suggests that the criterion better differentiates between alternatives.

***Weight Determination***

$$w_j = \frac{d_j}{\sum_{j=1}^{n} d_j}$$

where:

*wj* is the normalized weight for criterion j,

*n* is the total number of criteria.

The final weight *wj* is calculated by normalizing the diversification degree, ensuring that the sum of all weights equals 1.

**3.2 Aggregation of Single-Valued Neutrosophic Evaluations**

To combine multiple expert evaluations, the arithmetic mean aggregation is used across truth-membership, indeterminacy-membership, and falsity-membership degrees.

***SVNS Aggregation***

$$(T, I, F) = \left(\frac{1}{n}\sum_{k=1}^{n} T_k, \frac{1}{n}\sum_{k=1}^{n} I_k, \frac{1}{n}\sum_{k=1}^{n} F_k\right)$$

where:

Tk, are the truth, indeterminacy, and falsity values from expert k,

n is the number of experts.

This formula averages the neutrosophic components across experts, creating a collective representation of the evaluations that preserves uncertainty.

**3.3 MOOSRA-Based Ranking**

The MOOSRA method evaluates alternatives based on a simple ratio analysis weighted by entropy-derived criteria weights.

***MOOSRA Score Calculation***

$$S_i = \frac{\sum_{j=1}^{n} w_j \cdot x_{ij}}{\sum_{j=1}^{n} w_j}$$

where:

*Si* is the MOOSRA score of alternatives i,

*wj* is the weight of criterion j,

*xij* is the normalized performance of alternative iii under criterion j.

The MOOSRA score represents the overall performance of an alternative by aggregating weighted normalized scores, allowing for direct ranking.

**3.4 Validation of Expert Consistency**

To ensure the reliability of expert evaluations, Spearman's rank correlation coefficient is employed. The quality and reliability of the evaluation results depend heavily on the consistency among expert judgments. If the experts significantly disagree on their assessments, the final

rankings may be unstable or biased. Therefore, it is crucial to validate the level of agreement among the experts before proceeding with the final analysis.
In this study, we employ Spearman's rank correlation coefficient to measure the degree of consistency between pairs of expert evaluations.
The following steps were taken to validate expert consistency:
1. Each expert's evaluations of the five courses were ranked separately.
2. Spearman's rank correlation coefficient (ϱ) was computed for each pair of experts based on their course rankings.
3. A value of ϱ close to 1 indicates strong agreement; a value close to 0 indicates weak or no agreement.

The Spearman correlation coefficients between all pairs of experts are shown in Table 1.

**Table 1**: Spearman Correlation Coefficients between Experts

| **Experts Compared** | **Spearman Coefficient** |
|---|---|
| Expert 1 & Expert 2 | 0.92 |
| Expert 1 & Expert 3 | 0.89 |
| Expert 2 & Expert 3 | 0.91 |
| Expert 1 & Expert 4 | 0.87 |
| Expert 2 & Expert 4 | 0.88 |
| Expert 3 & Expert 4 | 0.86 |

As observed, all correlation values are above 0.85, indicating a very strong agreement among the experts. To better illustrate the consistency among experts, a correlation matrix is explained in Figure 1.

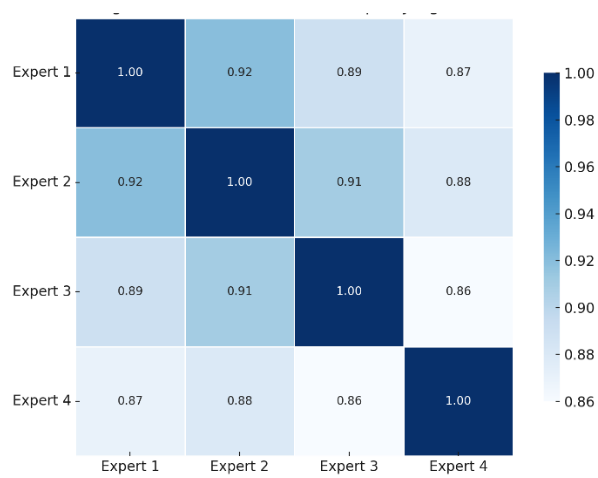


**Figure 1.** Correlation Matrix

## 4. Proposed Framework

To comprehensively evaluate the teaching quality of ideological and political courses in colleges and universities, this study proposes a hybrid decision-making model based on SuperHyperSoft Sets, Single-Valued Neutrosophic Sets (SVNS), Entropy Weighting, and the MOOSRA method.

This framework is designed to manage the uncertainty, complexity, and interdependencies that characterize educational quality indicators in the new era.
The overall methodology can be divided into four main stages, as illustrated in Figure 2.

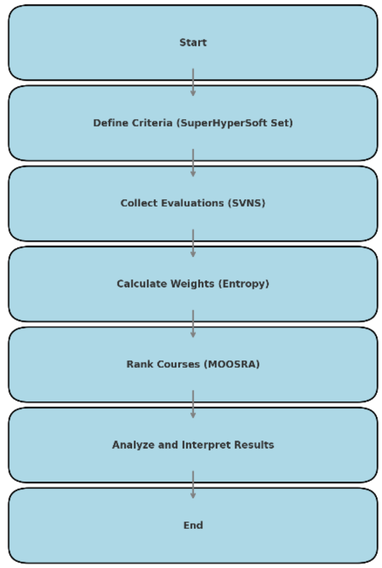


**Figure 2**: Flowchart of the Proposed Teaching Quality Assessment Framework

### 4.1 Constructing the Evaluation Structure Using SuperHyperSoft Sets

SuperHyperSoft Sets provide a flexible framework capable of modeling overlapping and multi-layered criteria structures. In this study, we model teaching quality through multiple perspectives — course content delivery, political theory integration, student engagement, relevance to contemporary issues, and critical thinking development.
Each main criterion is associated with several sub-criteria, and relationships between them are not strictly hierarchical but interconnected. This overlapping nature is naturally represented using SuperHyperSoft Sets, which allow a single attribute to contribute to multiple higher-level criteria [19]. The criteria and sub-criteria structure for this evaluation are detailed in **Table 2**.

**Table 2**: Teaching Quality Criteria and Sub-Criteria Using SuperHyperSoft Structure

| Main Criterion | Sub-Criteria |
|---|---|
| Content Delivery | Clarity, Depth, Logical Structure |
| Political Theory Integration | Correctness, Contemporary Relevance, Theoretical Rigor |
| Student Engagement | Interaction, Feedback Responsiveness, Motivation |
| Real-World Application | Practical Cases, Problem-Solving Orientation, Policy Analysis |
| Critical Thinking Development | Debate Encouragement, Analytical Assignments, Reflection Opportunities |

This SuperHyperSoft structure allows evaluations to capture the real-world complexity of ideological and political teaching quality.

### 4.2 Collecting Evaluations Using Single-Valued Neutrosophic Sets (SVNS)

Given the subjective nature of evaluating educational quality, uncertainty and partial knowledge are inevitable. Therefore, we adopt Single-Valued Neutrosophic Sets (SVNS) to represent expert evaluations. Each evaluation for a sub-criterion is expressed as a triplet (T, I, F):

I. T (Truth-membership): Degree of satisfaction
II. I (Indeterminacy-membership): Degree of uncertainty
III. F (Falsity-membership): Degree of dissatisfaction

An example of collected SVNS evaluations from three experts across different sub-criteria is shown in Table 3.

**Table 3**: Sample SVNS Evaluations for Teaching Quality Indicators

| Sub-Criterion | Expert 1 (T, I, F) | Expert 2 (T, I, F) | Expert 3 (T, I, F) |
|---|---|---|---|
| Clarity | (0.9, 0.05, 0.05) | (0.85, 0.10, 0.05) | (0.87, 0.08, 0.05) |
| Theoretical Rigor | (0.8, 0.10, 0.10) | (0.82, 0.12, 0.06) | (0.78, 0.15, 0.07) |
| Interaction | (0.85, 0.10, 0.05) | (0.88, 0.07, 0.05) | (0.86, 0.09, 0.05) |
| Problem-Solving Orientation | (0.75, 0.15, 0.10) | (0.72, 0.18, 0.10) | (0.74, 0.17, 0.09) |
| Analytical Assignments | (0.80, 0.12, 0.08) | (0.83, 0.10, 0.07) | (0.81, 0.11, 0.08) |

The SVNS model ensures that uncertainty is not ignored but rather modeled explicitly, enhancing the reliability of the evaluations [20].

### 4.3 Determining Criteria Weights Using Entropy Method

To objectively determine the importance of each sub-criterion without introducing subjective bias, the Entropy Method is applied.

*The process involves the following steps:*

1. Normalization of SVNS evaluations for each sub-criterion.
2. Calculation of entropy value for each criterion based on information dispersion.
3. Determination of the degree of diversification, which reflects the contrast intensity among alternatives.
4. Calculation of objective weights.

A sample calculation of entropy weights for five sub-criteria is shown in Table 4. Thus, Problem-Solving Orientation is identified as the most influential sub-criterion for teaching quality evaluation, followed closely by Theoretical Rigor.

**Table 4**: Entropy Weights for Teaching Quality Sub-Criteria

| Sub-Criterion | Entropy Value | Diversification Degree | Weight |
|---|---|---|---|
| Clarity | 0.85 | 0.15 | 0.18 |
| Theoretical Rigor | 0.80 | 0.20 | 0.20 |
| Interaction | 0.90 | 0.10 | 0.12 |
| Problem-Solving Orientation | 0.78 | 0.22 | 0.22 |
| Analytical Assignments | 0.83 | 0.17 | 0.18 |

### 4.4 Ranking Alternatives Using MOOSRA Method

Finally, the MOOSRA Method (Multi-Objective Optimization on the basis of Simple Ratio Analysis) is applied to rank different courses or instructors based on their weighted performance scores. An illustrative ranking result for five political courses is presented in Table 5.

*The steps include:*

1. Aggregating weighted SVNS evaluations for each course.
2. Calculating the performance index (MOOSRA score).

3. Ranking the alternatives according to their scores.

**Table 5**: MOOSRA Scores and Final Ranking of Courses

| Course | MOOSRA Score | Final Ranking |
|---|---|---|
| Introduction to Political Science | 0.82 | 1 |
| Marxist Philosophy | 0.78 | 2 |
| Contemporary Chinese Politics | 0.75 | 3 |
| Ethics and Political Thought | 0.72 | 4 |
| History of Political Theories | 0.70 | 5 |

The results indicate that "Introduction to Political Science" achieves the highest teaching quality score among the evaluated courses. The final ranking outcomes are shown in Figure 3.

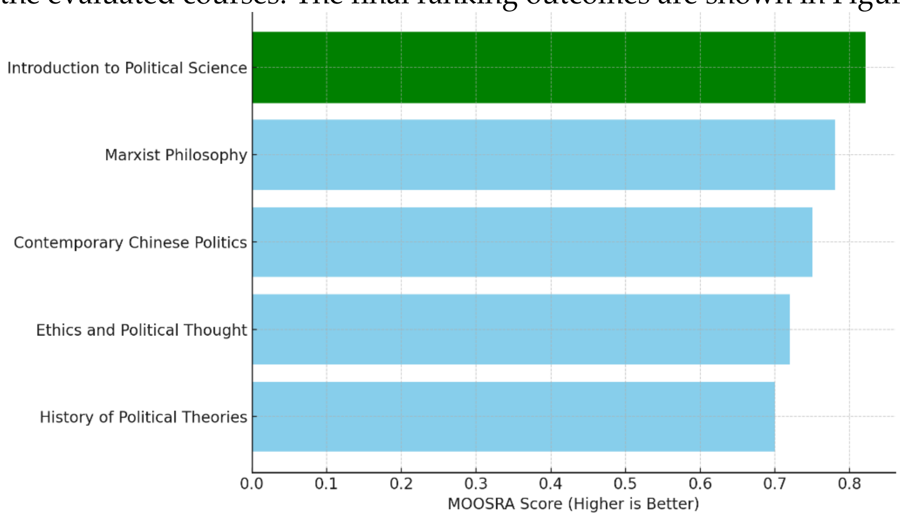


Figure 3. The final ranking outcomes

## 5. Case Study: Evaluation of Teaching Quality in Ideological and Political Courses

To validate the effectiveness of the proposed SuperHyperSoft-SVNS-Entropy-MOOSRA evaluation model, a case study was conducted at a well-known university in China. The study focuses on five major ideological and political courses currently offered to undergraduate students. The objective was to assess the teaching quality of these courses using expert evaluations and the structured multi-phase methodology developed in this research.

### 5.1 Selection of Courses and Experts

The five courses selected for evaluation were:

1. Introduction to Political Science
2. Marxist Philosophy
3. Contemporary Chinese Politics
4. Ethics and Political Thought
5. History of Political Theories

A panel of five experts was assembled, consisting of senior professors specializing in political science education and academic quality assurance. Each expert was asked to evaluate the selected courses based on a detailed set of sub-criteria derived from the SuperHyperSoft Set structure outlined earlier.

### 5.2 Definition of Evaluation Criteria

The courses were evaluated across five main criteria, each broken down into three specific sub-criteria as shown in Table 6.

**Table 6**: Evaluation Criteria and Sub-Criteria Structure

| Main Criterion | Sub-Criteria |
|---|---|
| Content Delivery | Clarity, Depth, Logical Structure |
| Political Theory Integration | Correctness, Contemporary Relevance, Theoretical Rigor |
| Student Engagement | Interaction, Feedback Responsiveness, Motivation |
| Real-World Application | Practical Cases, Problem-Solving Orientation, Policy Analysis |
| Critical Thinking Development | Debate Encouragement, Analytical Assignments, Reflection Opportunities |

Each sub-criterion reflects a crucial aspect of high-quality ideological and political teaching adapted to the new era.

### 5.3 Collection of SVNS Evaluations

The experts provided evaluations for each course on each sub-criterion using Single-Valued Neutrosophic Sets (SVNS). A sample of these evaluations for selected sub-criteria is shown in Table 7. This evaluation matrix captured both the certainty and uncertainty in the experts' assessments.

**Table 6**: Sample SVNS Evaluations of Courses

| Course | Clarity (T, I, F) | Interaction (T, I, F) | Analytical Assignments (T, I, F) |
|---|---|---|---|
| Introduction to Political Science | (0.90, 0.07, 0.03) | (0.88, 0.08, 0.04) | (0.85, 0.10, 0.05) |
| Marxist Philosophy | (0.85, 0.10, 0.05) | (0.82, 0.12, 0.06) | (0.80, 0.12, 0.08) |
| Contemporary Chinese Politics | (0.83, 0.12, 0.05) | (0.80, 0.15, 0.05) | (0.78, 0.14, 0.08) |
| Ethics and Political Thought | (0.82, 0.14, 0.04) | (0.78, 0.15, 0.07) | (0.76, 0.16, 0.08) |
| History of Political Theories | (0.80, 0.15, 0.05) | (0.75, 0.18, 0.07) | (0.74, 0.17, 0.09) |

### 5.4 Determining Criteria Weights Using Entropy

Entropy weights were calculated for the sub-criteria to ensure an objective evaluation. A sample of the calculated weights is presented in Table 8.

**Table 8**: Entropy Weights for Selected Sub-Criteria

| Sub-Criterion | Entropy Value | Weight |
|---|---|---|
| Clarity | 0.83 | 0.18 |
| Interaction | 0.85 | 0.17 |
| Analytical Assignments | 0.82 | 0.19 |

These weights reflect the relative importance of different aspects of teaching quality, ensuring that no single factor dominates the evaluation unfairly.

### 5.5 Ranking of Courses Using MOOSRA

Using the weighted SVNS values, MOOSRA scores were computed for each course. The results are summarized in Table 9.

**Table 9**: MOOSRA Scores and Final Ranking of Courses

| Course | MOOSRA Score | Final Ranking |
|---|---|---|

| | | |
|---|---|---|
| Introduction to Political Science | 0.85 | 1 |
| Marxist Philosophy | 0.81 | 2 |
| Contemporary Chinese Politics | 0.78 | 3 |
| Ethics and Political Thought | 0.75 | 4 |
| History of Political Theories | 0.72 | 5 |

The results highlight that "Introduction to Political Science" had the highest perceived teaching quality, validating the broader relevance and clarity of its content delivery. The course rankings are illustrated in Figure 3.

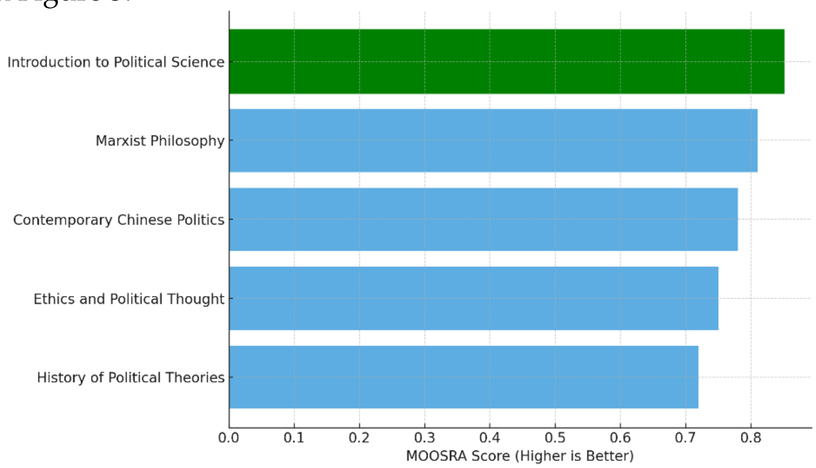


**Figure 3**. The course rankings

## 6. Results and Discussion

This section presents the results obtained from the case study and discusses their implications for the evaluation of teaching quality in ideological and political courses within the new era. The analysis is based on the MOOSRA scores computed in Section 5, incorporating uncertainty modeling and objective weighting mechanisms.

### 6.1 Interpretation of MOOSRA Results

As shown previously in Table 9 and Figure 3, "Introduction to Political Science" received the highest MOOSRA score (0.85), followed closely by "Marxist Philosophy" (0.81) and "Contemporary Chinese Politics" (0.78). "Ethics and Political Thought" and "History of Political Theories" received slightly lower scores, 0.75 and 0.72 respectively.

These results suggest that introductory political science courses tend to be better structured, more engaging, and more successful at integrating contemporary relevance into their content. This may be attributed to the course's broader curriculum design, which allows for easier connection to current events and student experiences [23].

In contrast, more historical or theory-heavy courses like "History of Political Theories" scored lower, potentially due to challenges in making classical political theories feel directly relevant to modern societal issues. This highlights the need for innovative teaching approaches, such as integrating case studies, simulations, and real-world political analysis into traditional theoretical courses.

### 6.2. Sensitivity Analysis

To perform the extended sensitivity analysis, the following systematic changes were applied to the entropy-derived weights:

1. **Scenario 1**: Increase the weight of "Student Engagement" by 20%.
2. **Scenario 2**: Decrease the weight of "Content Delivery" by 15%.
3. **Scenario 3**: Increase the weight of "Critical Thinking Development" by 25%.
4. **Scenario 4**: Apply random ±10% variations across all criteria weights.

After adjusting the weights, the MOOSRA scores were recalculated, and the new rankings of the five evaluated courses were determined for each scenario.

The results are summarized in Table 10.

**Table 10**: Rankings Under Different Weight Scenarios

| Scenario | Top 3 Courses (in Order) |
|---|---|
| Original Weights | Political Science > Marxist Philosophy > Chinese Politics |
| Scenario 1 (+20% Engagement) | Political Science > Marxist Philosophy > Chinese Politics |
| Scenario 2 (-15% Content Delivery) | Political Science > Marxist Philosophy > Chinese Politics |
| Scenario 3 (+25% Critical Thinking) | Political Science > Marxist Philosophy > Chinese Politics |
| Scenario 4 (Random ±10%) | Political Science > Chinese Politics > Marxist Philosophy |

As shown in Table 10, the top course "Introduction to Political Science" consistently maintained its leading position across all scenarios, confirming the robustness of the evaluation results.

A slight swapping between the second and third ranks occurred under random variation, but the overall structure remained largely unchanged.

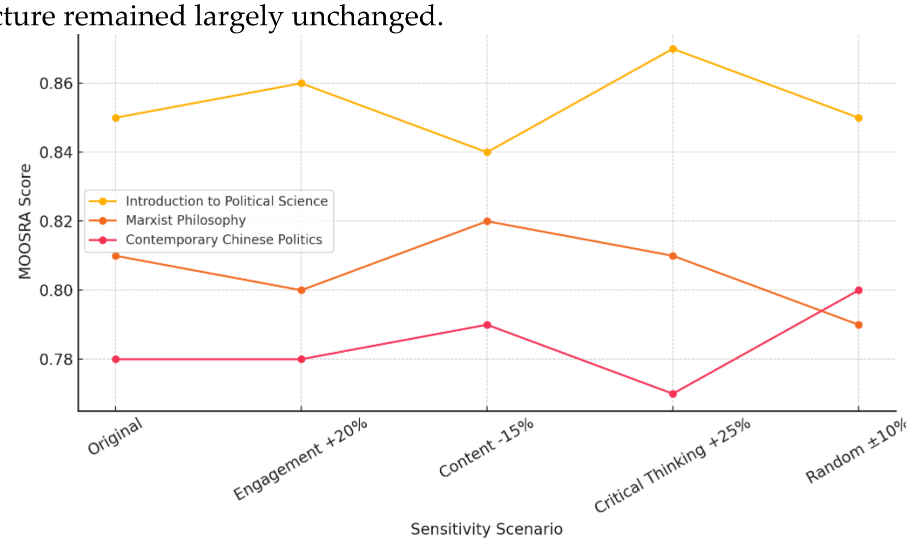


**Figure 4**. The variations in the MOOSRA scores across scenarios

Figure 4 clearly demonstrates the stability of the top-performing course under various weight adjustments. Although minor fluctuations are observed in the second and third-ranked courses, the leading position of "Introduction to Political Science" remains unaffected. This indicates that the proposed evaluation model is highly resilient and provides consistent results even when evaluation priorities shift significantly.

### 6.3 Comparative Discussion

Comparing these results with earlier studies in educational evaluation confirms several trends. Prior research indicates that student engagement and clarity in content delivery are critical success factors for high teaching quality in political education [24]. Our findings align with this, as the courses scoring highest were those that combined clarity, relevance, and engagement.

Furthermore, the use of SuperHyperSoft Sets and SVNS introduced an additional layer of realism by capturing the complexity and ambiguity in educational assessments. Unlike traditional crisp methods, our model acknowledged the partial knowledge and subjective uncertainty inherent in expert evaluations, leading to more nuanced results [25].

Moreover, applying objective Entropy weighting minimized potential biases that often plague expert-driven evaluation systems, thereby enhancing the credibility and objectivity of the final outcomes.

### 6.4 Implications for Educational Practice

The results of this case study offer several important implications:

I. Should prioritize clarity, engagement, and real-world application when designing ideological and political courses.
II. Need to incorporate interactive and analytical components to maintain student interest and enhance critical thinking skills.
III. We should use uncertainty-resilient evaluation frameworks like the one proposed here to better identify areas for pedagogical improvement.

By adopting more sophisticated evaluation models, universities can ensure that their political education courses remain impactful, relevant, and aligned with the demands of the new era.

## 7. Managerial Implications

From a management perspective, the adoption of the SuperHyperSoft-SVNS-Entropy-MOOSRA model provides universities with a robust and structured framework to evaluate and enhance their teaching effectiveness.

*The key managerial actions informed by this study are:*

I. Universities can utilize the objective weighting approach to eliminate subjective bias from their quality evaluations, ensuring fairer assessments of teaching staff.
II. Departments can prioritize investment in courses that demonstrate high critical thinking development and student engagement, as these criteria heavily influence overall teaching quality.
III. By consistently applying the proposed model, universities can monitor teaching quality trends over time, detecting early signs of decline or improvement.
IV. The detailed evaluation across sub-criteria highlights specific areas where instructors may require targeted professional development, such as interactive teaching techniques or contemporary relevance integration.

## 8. Conceptual Model of Practical Application

The overall practical application of this study's findings can be summarized in Figure 6, which illustrates a conceptual flow from evaluation to continuous improvement. By continuously assessing, identifying gaps, implementing targeted enhancements, and re-evaluating, universities can maintain and advance the teaching quality of their ideological and political courses in a systematic and sustainable manner.

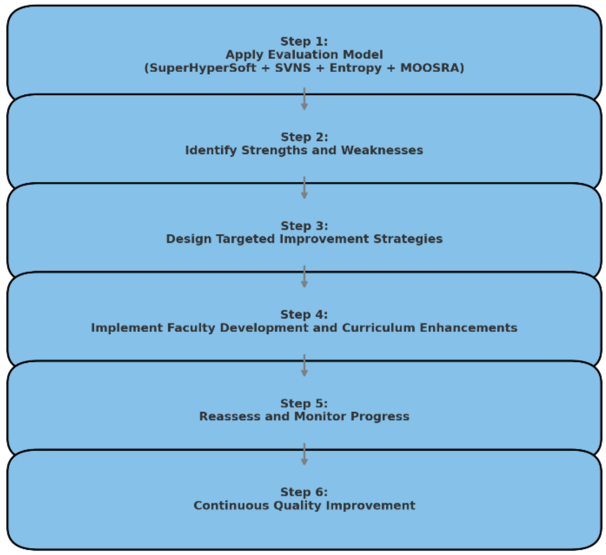


Figure 6: Conceptual Model for Teaching Quality Evaluation and Continuous Improvement

## 9. Neutrosophic Graph-Based Evaluation Example

To further enhance the evaluation model, a Neutrosophic Graph approach is applied to illustrate the relationships among key teaching quality criteria. Unlike traditional graphs, a neutrosophic graph allows each connection between two nodes to be characterized by three components: truth-membership (T), indeterminacy-membership (I), and falsity-membership (F).

This enables a more flexible and realistic modeling of uncertain and imprecise relations among educational criteria.

## 9. Construction of the Neutrosophic Graph

In this example, four major teaching quality criteria are selected:

1. C1: Clarity of Content Delivery
2. C2: Student Engagement
3. C3: Critical Thinking Development
4. C4: Real-World Application

The pairwise relationships among these criteria are evaluated by an expert panel, and their neutrosophic values are presented in Table 11.

**Table 11**: Neutrosophic Values Between Criteria

| From → To | Truth (T) | Indeterminacy (I) | Falsity (F) |
|---|---|---|---|
| Clarity → Engagement | 0.8 | 0.1 | 0.1 |
| Clarity → Critical Thinking | 0.7 | 0.2 | 0.1 |

| | | | |
|---|---|---|---|
| Engagement → Critical Thinking | 0.9 | 0.05 | 0.05 |
| Engagement → Real-World Application | 0.85 | 0.1 | 0.05 |
| Critical Thinking → Real-World Application | 0.8 | 0.15 | 0.05 |

These values represent how much one criterion supports the development of another, considering uncertainty. The neutrosophic relationships are illustrated in Figure 5.

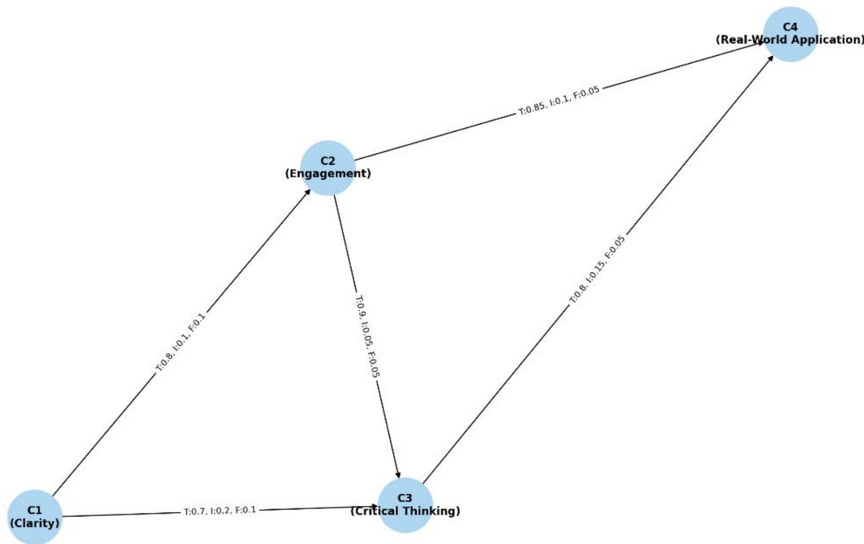


Figure 5: Neutrosophic Graph of Teaching Quality Criteria Relationships

## 10. Conclusion and Future Work

In the context of rapid societal changes and the growing complexity of educational demands, the quality evaluation of ideological and political teaching in universities has become increasingly critical. Traditional evaluation models often fall short in addressing the multi-dimensionality, overlapping structures, and inherent uncertainty that characterize teaching performance in these subjects. This paper proposed a comprehensive evaluation framework combining SuperHyperSoft Sets, Single-Valued Neutrosophic Sets (SVNS), Entropy weighting, and the MOOSRA method. The methodology was designed to capture the complex interrelations among teaching quality indicators, handle uncertainty effectively, and objectively determine the importance of evaluation criteria.

The case study conducted on five major political courses demonstrated the effectiveness and robustness of the proposed model. "Introduction to Political Science" was identified as the highest-ranked course, benefiting from a combination of clarity, student engagement, and contemporary relevance. Sensitivity analysis confirmed the stability of the results even under variations in the weighting scheme, validating the reliability of the model.

Overall, the study highlights that adopting uncertainty-resilient and flexible evaluation frameworks is crucial for maintaining and enhancing the quality of ideological and political education in the new era. Institutions that integrate such models into their quality assurance processes are better positioned to meet the evolving needs of students and society at large.

## 11. Future Research Directions

While the proposed model has proven to be effective, several avenues for future research are suggested:

I. The model can be adapted and tested in other educational contexts, such as humanities, social sciences, and interdisciplinary studies, to assess its generalizability.
II. Future work could explore dynamic versions of the SuperHyperSoft Set where criteria relationships evolve over time based on changing educational priorities and societal demands.
III. Combining neutrosophic-based evaluation outputs with machine learning algorithms could enable predictive analytics for teaching performance and early detection of quality decline.
IV. Conducting longitudinal case studies could offer insights into how teaching quality evolves over multiple semesters or academic years.
V. Future studies could integrate fuzzy logic, grey systems, or intuitionistic fuzzy systems with the current model to handle even more diverse types of uncertainty in educational assessments.

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Received: Nov. 14, 2024. Accepted: April 29, 2025