

**Analysis of AHP-KNN-based Evaluation System for Teachers' professional Titles
in Chinese Colleges and Universities and Development Prediction**

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abstract [U+FF1A] In the context of deepening the reform of “release management and service”, China’s higher education title appraisal system is facing structural contradictions, such as value orientation deviating from the essence of educating people, misplaced dimensions of evaluation indexes, and blurring of classification standards. Based on the theory of teachers’ professional development, this study constructs the Multimodal Comprehensive Evaluation Model (MCE Model), innovatively integrates five first-level indicators and 20 second-level indicators, including teaching scholarship, research innovation, social service, teacher ethics and career development, and determines the weights of the indicators by using the hierarchical analysis method (AHP) combined with the Delphi expert consultation. The results show that teaching academics, research innovation, teacher ethics, social service and career development are prioritized to highlight the core status of teaching. In order to further quantitatively analyze the evolution trend of the title system, this study collects the panel data of doctoral graduates from 31 provinces across China in 2024 and conducts spatial cluster analysis using the KNN algorithm. The results show that by 2025, the proportion of full senior titles in the eastern high education cluster (Beijing-Tianjin-Hebei, Yangtze River Delta, and Pearl River Delta) is expected to decline by 4.2%, whereas the emerging higher education clusters in the central and western parts of the country will grow by 3.8% percentage points. Combined with the AHP-KNN model prediction, it is found that the intensity of the implementation of the "promotion-or-leave" system is significantly positively correlated with the turnover rate of young teachers. The study provides a theoretical framework for cracking the "standardization trap" in the evaluation of university titles and provides data-driven decision support for the modernization of educational governance.

Illustrations

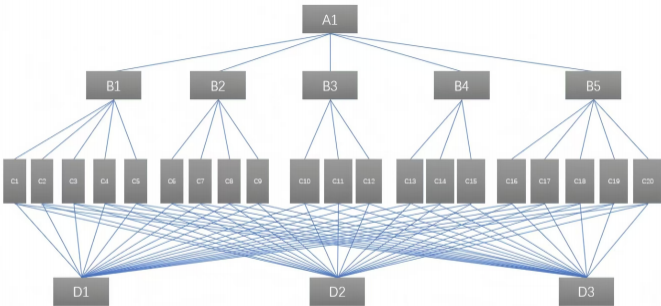


Fig. 4: The framework of the index system for the evaluation of college teachers' professional titles

Рис. : The framework of the index system for the evaluation of college teachers' professional titles.

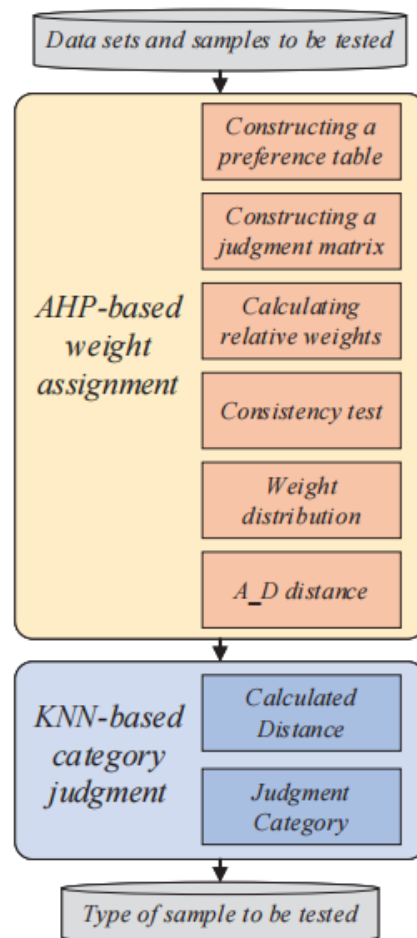


Fig. 3: Structure diagram of improved KNN algorithm based on AHP

Рис. : Structure diagram of improved KNN algorithm based on AHP

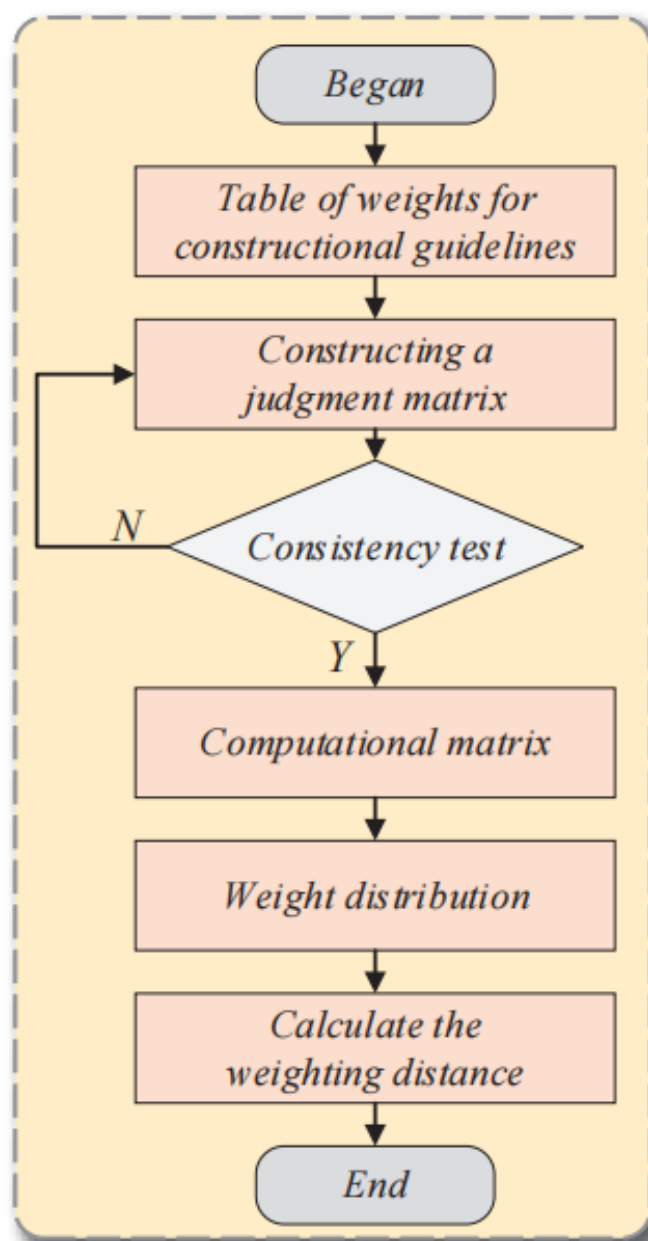


Fig. 2: AHP flow chart

Рис. : AHP flow chart.