

A Multi-Criteria Decision Method for the Recruitment of Academic Personnel Based on the Analytical Hierarchy Process and the Delphi Method in a Neutrosophic Environment

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Abstract : For a university to maintain its international competitiveness in education, it is essential to recruit qualitative academic staff as it constitutes its most valuable asset. This selection demonstrates a significant role in achieving strategic objectives, particularly by emphasizing a firm commitment to the exceptional student experience and innovative teaching and learning practices of high quality. In this vein, the appropriate selection of academic staff establishes a very important factor of competitiveness, efficiency and reputation of an academic institute. Within this framework, our work demonstrates a comprehensive methodological concept that emphasizes the multi-criteria nature of the problem and how decision-makers could utilize our approach in order to proceed to the appropriate judgment. The conceptual framework introduced in this paper is built upon a hybrid neutrosophic method based on the Neutrosophic Analytical Hierarchy Process (N-AHP), which uses the theory of neutrosophy sets and is considered suitable in terms of a significant degree of ambiguity and indeterminacy observed in the decision-making process. To this end, our framework extends the N-AHP by incorporating the Neutrosophic Delphi Method (N-DM). By applying the N-DM, we can take into consideration the importance of each decision-maker and their preferences per evaluation criterion. To the best of our knowledge, the proposed model is the first which applies the Neutrosophic Delphi Method in the selection of academic staff. As a case study, it was decided to use our method for a real problem of academic personnel selection, having as the main goal to enhance the algorithm proposed in previous scholars' work, and thus taking care of the inherent ineffectiveness which becomes apparent in traditional multi-criteria decision-making methods when dealing with situations alike. As a further result, we prove that our method demonstrates greater applicability and reliability when compared to other decision models.

Keywords : multi-criteria decision making methods, analytical hierarchy process, delphi method, personnel recruitment, neutrosophic set theory

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