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# Identifying Students' Learning Styles Using Interpretive Structural Modeling and MICMAC Analysis

Mohd Norulhisham bin Abd.Rashid<sup>1</sup>, Nurull Zuraida binti Shafie<sup>2</sup>

<sup>1</sup> Mechanical Engineering Department, Politeknik Muadzam Shah, Malaysia

E-mail: [hisham@pms.edu.my](mailto:hisham@pms.edu.my)

<sup>2</sup> Commerce Department, Politeknik Muadzam Shah, Malaysia

E-mail: [nurull@pms.edu.my](mailto:nurull@pms.edu.my)

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## **Abstract**

Understanding students' learning styles is crucial for designing personalized learning experiences that enhance educational outcomes. However, identifying and analyzing the complex relationships between factors that influence students' learning preferences remains a challenge. This study applies Interpretive Structural Modeling (ISM) and Cross-Impact Matrix Multiplication Applied to Classification (MICMAC) analysis to identify and evaluate the key factors that shape students' learning styles. There are five factors identified which are cognitive abilities, motivation, learning environments, teaching methods, and personal interests. Using ISM, a structural model is developed to represent the interrelationships between different factors, while MICMAC analysis categorizes these factors based on their driving and dependence power. The findings show the final model of learning styles obtained from the ISM process. As a result of the MICMAC analysis, the cognitive abilities factor is classified in the independence variable. Meanwhile, the teaching method factor is classified as a dependent variable. Next, the factors of motivation and learning environments are classified in the linkage variable. Finally, the personal interest factor is classified as an autonomous variable. In conclusion, the results provide a detailed framework for understanding the dynamics of students' learning styles and offer practical insights for educators to tailor their teaching strategies.

**Keywords :** *Learning Styles; Teaching Strategies; Interpretive Structural Modeling; Cross-Impact Matrix Multiplication Applied to Classification; Decision Making*

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