

Thesis Title	Advisory Recommendation System for Dental Students with A Decision Tree Model
Author	Katayut Thakaeng
Degree	Master of Science (Information Technology)
Advisor	Asst. Prof. Santichai Wicha, Ph. D.

ABSTRACT

Two main aspects are involved in becoming a dentist. The first is the academic dimension, which focuses on the acquisition of knowledge and the understanding of treatment methods for patients. The second is the practical aspect, which involves challenges related to direct interactions with patients. Subpar performance in this area can be caused by inadequate guidance from supervising professors, who may not be well-suited to students' needs.

The objective of this research is to develop a model that can assist in the identification of suitable advisors for dental students using Data Mining Classification Techniques. Questionnaires were utilized to examine the relationship between students' expectations of advisor behavior and assessments of advisor behavior based on three factors: the roles assumed by advisors, essential qualities for success, and other valuable behaviors and resources. Decision trees, neural networks, and k-nearest neighbors were applied to categorize the data, facilitating the efficient matching of dental students with advisors. This, in turn, improves decision-making and contributes to the educational success of dental students.

This study evaluates the predictive accuracy of different machine learning models in classifying advisor characteristics, advisor expectation attributes, and student

satisfaction with educational outcomes from both expert and student perspectives. Using data from a survey of 105 dental students, three models Decision Tree, Neural Networks, and k-nearest neighbors (k-NN) were analyzed. Results indicate that from the expert's perspective, the Neural Networks model demonstrates the highest accuracy at 88.73% but exhibits lower precision. The Decision Tree model provides balanced performance with an accuracy of 86.00%, making it the most reliable. From the dental students' perspective, the Neural Networks model also shows strong performance with an accuracy of 79.36% and high precision and recall. These findings suggest that machine learning models can effectively predict advisor attributes, with Neural Networks and Decision Tree models offering the best performance in different contexts.

Keywords: Advisor Behavior, Data Mining, Machine Learning, Classification, Decision Trees, DISC Personality, Graph Search

