USING FUZZY COGNITIVE MAPS AND CHATBOTS TO EVALUATE STUDENT SATISFACTION IN A UNIVERSITY: A COMPARISON BETWEEN STRONG ARTIFICIAL INTELLIGENCE AND WEAK ARTIFICIAL INTELLIGENCE

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INTRODUCTION

- Overview: This study evaluates student satisfaction using Fuzzy Cognitive Maps (FCM) and AI like ChatGPT.

- Research Problem: Traditional evaluation methods are insufficient for continuous improvement.

- Objectives: Develop an FCM-based tool and compare results with chatbot systems.

RESUME PRESENTATION

- Motivation and inspiration;

- Objectives;

- Examples;

- Conclusions;

- Future works.

MOTIVATION AND INSPIRATION

- The need for robust analytical tools motivates this study, addressing the gap left by traditional methods that fail to capture the complex interplay of factors affecting student satisfaction.

- This research is inspired by comparing Fuzzy Cognitive Maps (FCMs) and other artificial Intelligence (AI), specifically chatbots, to offer a more sophisticated analysis than standard surveys..

- The combination of FCMs and AI enables a deeper understanding of the relationships between various factors that influence student satisfaction, providing insights beyond traditional methods.

IMPLICATIONS FOR UNIVERSITY IMPROVEMENT

- Actionable Insights:

  - Focus on improving facilities and internships.

- Continuous Evaluation: Use FCM and chatbots regularly to track changes in satisfaction.

RESULTS AND DISCUSSION - FCM

- Key Findings:

  - Positive Factors: High professor quality, well-equipped labs.

  - Negative Factors: Lack of entertainment, internship issues.

- Final Satisfaction Score: 7.5/10.

CHATBOT RESULTS

- ChatGPT 4.0 Results: Satisfaction score of 7.4/10.

- Validation: Chatbot results aligned with FCM outcomes, reinforcing AI's potential for qualitative evaluation.

CONCLUSIONS

The Fuzzy Cognitive Map (FCM) method identified and quantified key factors of student satisfaction at UTFPR-CP, such as teacher performance and infrastructure quality. The FCM provided a deeper understanding of the causal relationships between these factors, surpassing the AI chatbot, which was faster but less in-depth. The combination of FCMs and AI improves the ability of institutions to make data-driven decisions and understand the interrelationships between satisfaction factors.

FUTURE WORKS

- Expand the study to include a larger, more diverse sample and incorporate additional variables such as social, economic, and psychological factors.

- Conduct longitudinal studies to evaluate the long-term impact of improvements.

- Refine the FCM models by integrating more complex causal relationships and expert knowledge and test adaptability across different student demographics and educational contexts.

- Integrate advanced AI techniques, such as deep learning and natural language processing, to enhance FCM analysis and automate real-time data collection and evaluation.

- Develop improved tools for visualization and interpretation of FCM results.

- Implement a decision-support system to improve institutional strategies.

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