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Dynamics of Task Load and Job Satisfaction Levels Among Engineering Faculty in Selected Engineering Schools: A Fuzzy Cognitive Mapping Approach

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Abstract

This study investigates the relationship between task load and job satisfaction among engineering faculty members in Cebu City. Utilizing surveys, interviews, and fuzzy cognitive mapping, the research quantifies task load components—mental and physical demands, temporal pressures, and frustration levels—and their impact on job satisfaction, covering factors such as supervisor, colleague, work environment, job nature, compensation, benefits, and work-life balance satisfaction. Key findings include significant variations in task load and job satisfaction across different universities and demographic groups. Younger faculty members report higher mental (M=4.3) and temporal demands (M=4.1), whereas more experienced faculty face greater performance (M=4.5) and effort demands (M=4.2). Larger class sizes correlate with increased mental demand (r=0.62) and frustration (r=0.57). A significant correlation exists between student number and temporal demand (r=0.68), as well as faculty load and immediate head satisfaction (r=0.65). Fuzzy cognitive mapping (FCM) reveals bidirectional causal effects, indicating that faculty load and immediate head satisfaction significantly influence job satisfaction and physical stress. These insights call for tailored interventions to manage task loads and enhance job satisfaction, improving overall faculty well-being and performance.

Keywords
Fuzzy Cognitive Map, Job Satisfaction, System Dynamics, Task Load, SDG4

Biographies

Chum Keji A. Ocan is a Master of Engineering major in Industrial Engineering degree holder. He received his degree in Bachelor of Science in Industrial Engineering in 2019 and his major fields are based on Industrial Engineering, Operations Management, Lean Six Sigma, and Cognitive Ergonomics. Currently, he works as a full-time faculty member and project management officer of Cebu Institute of Technology – University in the Industrial Engineering Department and in the Quality Assurance Office for Administration.

Evangeline C. Evangelista is a distinguished academic leader and a Professional Industrial Engineer (PIE) with extensive expertise in management and human resource development. She earned her Doctor in Management major in Human Resource Management in October 1994 and her Master in Management for Executives & Managers in November 1984 from the University of San Jose-Recoletos. Since 2008, she has been serving as the Dean of the College of Engineering and Architecture, demonstrating her commitment to academic excellence and leadership in engineering education.

Bernadette Joy R. Bendijo is a Bachelor of Science in Industrial Engineering graduate, earning her degree with Cum Laude honors in 2022. Her expertise includes Industrial Engineering, Project Management, and Marketing. She served as a Project Management Assistant at Cebu Institute of Technology – University and currently also holds the role of Marketing Officer.