Chapter 5
Empowering Industry 5.0:
Nurturing STEM Tertiary Education and Careers Through Additional Mathematics

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ABSTRACT

The rise of Industry 5.0 underscores the need to foster STEM professionals for economic progress. However, the drop in urban Pahang's upper-secondary students enrolled in Additional Mathematics poses challenges evident in STEM labor force data. Addressing this, a qualitative study, following the CRISP-DM framework, explores exogenous variables influencing Additional Mathematics enrollment. The proposed modified stacked AI predictive algorithm shows superior accuracy to benchmark algorithms. A bootstrapped paired t-test assesses underfitting and overfitting, highlighting teacher and peer influence, mathematics self-efficacy, ethnicity, and educational disciplines as significant exogenous variables. This research amplifies the importance of robust STEM initiatives, aligning with Malaysia's 60:40 STEM to non-STEM goal, contributing to technological advancement and high-income aspirations.

BACKGROUND

Industry 5.0, building upon the advancements of Industry 4.0, aligns with Society 5.0's vision by emphasizing the industry's pivotal role in societal advancement. Highlighted by the European Commission (EC), its core values revolve around sustainability, societal well-being, and resilience (Saniuk et al., 2022). This evolution transcends a mere focus on job creation, aiming to foster resilience and prosperity

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