# Artificial Intelligence Integration and Total Quality Management Practices as Predictors of Operational Excellence among Filipino Teachers in Thailand: Basis for an AI-Driven Operational Quality Excellence Framework

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## Abstract

The study examined the relationship and predictive contribution of Artificial Intelligence (AI) Integration and Total Quality Management (TQM) Practices to Operational Excellence among Filipino teachers in selected private basic educational institutions in Thailand. The study employed a quantitative descriptive-correlational and predictive research design. The respondents of the study were 305 Filipino teachers from selected private basic schools in the Central and Western regions of Thailand. The respondents reported high levels of AI Integration (M = 3.35, SD = .38), TQM Practices (M= 3.53, SD = .34) and Operational Excellence (M = 3.62, SD = .38). AI Integration was moderately positively associated with Operational Excellence ($r = .421$, $p<.001$), indicating that higher AI integration was related to higher Operational Excellence. TQM Practices had a strong positive relationship with Operational Excellence ($r = .689$, $p<.001$), indicating a stronger association than AI Integration. The model was statically significant ($R^2 = .478$, adjusted $R^2 = .474$), explaining 47.8% of the variance in Operational Excellence. In the combined regression model, TQM Practices was a significant positive predictor of Operational Excellence ($\beta = .653$, $p<.001$), while AI Integration was not a significant unique predictor when controlling for TQM Practices ($\beta = .066$, $p = .186$). At the dimension level, Continuous Improvement was the best predictor, followed by Data-Driven Decision-Making, AI Adoption and Stakeholder Focus. There was a negative unique association with AI Utilization. The results indicate that Operational Excellence is driven by effective Total Quality Management (TQM) Practices. Artificial Intelligence (AI) is an enabling capability that could strengthen TQM practices when integrated in teaching and administrative work. The proposed AI-Driven Operational Quality Excellence Framework converts these findings into strategic actions, using TQM as the foundation of quality management, AI as the enabling technology, improved teaching and administrative processes as immediate operational results, and Operational Excellence as the overall outcome.

*Keywords: Artificial Intelligence, Operational Excellence, Private Basic Educational Institution, Strategic Actions, Strategic Implementation Framework, Teaching and Administrative Processes, Total Quality Management Practices, Thailand*