



Constructing an Interpretive Structural Model to Unravel the Interconnected Drivers of Teaching Quality in Higher Education


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ABSTRACT

Identifying the primary factors of teaching quality remains a pivotal agenda for informed decision making, strategic planning, and resource allocation. This study builds upon ten key factors derived from previous research and recognizes the inherent complexity within their relationships. Emphasizing the necessity for a structured model, this work employs an interpretive structural modelling (ISM) approach and Matrice d'impacts croisés multiplication appliquée à un classment (MICMAC) analysis for constructing a hierarchical model that delineates the interrelationships among the factors influencing teaching quality. The findings indicate the substantial impact of intrinsic factors, particularly teachers' individual and psychological characteristics, on other factors. Additionally, our analysis highlights the critical role of student composition in enhancing overall teaching quality. These insights significantly contribute to the literature by offering valuable guidance to decision makers for maintaining teaching quality within higher education institutions.

KEYWORDS

Driving Factors, Higher Education Institutions, Interpretive Structural Modeling, MICMAC Analysis, Teaching Quality

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INTRODUCTION

As higher education institutions (HEIs) strive to provide a comprehensive learning environment, teaching effectiveness becomes critical in ensuring positive educational outcomes (Fauth et al., 2019). High-quality teaching in universities extends beyond the mere transmission of knowledge (Sun et al., 2017); it encompasses a range of pedagogical practices, instructional strategies, and support mechanisms that facilitate student engagement and thinking (Madani, 2019). By examining various dimensions of teaching quality, from teacher-centered factors to institutional support (Lim & Ho, 2022), researchers gain insights into the vital role universities play in nurturing the intellectual growth of students (Paul & Nayagam, 2018); these insights become critical in the design of effective measures for upholding teaching quality. Thus, HEIs need to push for an environment that promotes a learning mode that ensures lifelong education, guaranteeing their stability and relevance (Abbas, 2020).

Over the years, researchers and practitioners have long been challenged to list the most impactful driving factors behind high-quality instruction (Praetorius et al., 2018). With the same objective, several studies (e.g., Cho & Baek, 2019; Nalipay et al., 2023; Fan & Shum, 2023; Phung et al., 2024) have identified factors that significantly impact the teaching quality in HEIs. These factors include individual characteristics of the teachers (Cho & Baek, 2019), psychological characteristics (Nalipay et al., 2023), self-efficacy (Daumiller et al., 2021), teaching motivation (Sjostrom et al., 2023), teaching experience (Podolsky et al., 2019; Graham et al., 2020), professional development (Vermunt et al., 2019; Darling-Hammond et al., 2017), student composition (Dietrich & Cohen, 2021), students' feedback (Lazarides & Buchholz, 2019), institutional culture (Lebelo, 2021), and institutional resources (Shattuck, 2014).

Although teaching quality is a popular domain in the literature, an in-depth holistic assessment of the factors that influence it remains a gap. Several teaching-quality frameworks proposed by various studies (e.g., Mamites et al., 2022; Cappella et al., 2016) differ in focus, level of abstraction, and subject-relatedness. Recently, Mamites et al. (2022) analyzed the causal relationship between the factors influencing teaching quality in public HEIs in the Philippines and identified the crucial factors between them. Using the neutrosophic decision-making trial and evaluation laboratory (DEMATEL), the study revealed that individual characteristics, psychological characteristics, and institutional culture are key factors in teaching quality, while institutional resources and student composition are minor factors. While DEMATEL models the causal relationships among these factors and eventually identifies the critical factors, a structured model representing a hierarchy that aids in better decision-making is a relevant gap in the domain literature.

To address the gap, this work utilizes a list of factors that significantly impact teaching quality identified through a literature survey. Due to the subjectivity of the identified driving factors and the notion that the evaluation of their relationships reflects an expert judgment, an interpretive structural modeling (ISM) approach and the matrice d'impacts croisés multiplication appliquée à un classement (MICMAC) analysis were adopted in this study (Warfield, 1974a). ISM works such that the complex relationships of the factors are characterized by an interaction map that presents a clearer understanding of the system's structure. With this, a useful guideline is provided for creating a graphical representation of the structure. In this study's context, the ISM application gives structural clarity to the set of factors affecting teaching quality. Consequently, it establishes a hierarchical order for characterization and prioritization, which could become inputs to planning, decision-making, and policymaking. The method is effective in existing or nonexistent connections between each pair of factors where the user or the decision-maker elicits his knowledge of the factors under consideration (Quiñones et al., 2020). Considering the factors and subjective characteristics, ISM-MICMAC examines the effect of these factors, including their transitive relations, and categorizes them based on their driving and dependence powers.

The use of the ISM has been demonstrated in various areas of applications such as big-data analytics (Gupta & Goyal, 2021), online shopping (Basar et al., 2021; Guerrero et al., 2023), social

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