

Design And Empirical Study of a Teaching Model for Management Courses Based on STEM Education Concepts

Xiujuan Wang, Yuxi Zhou

Shadnong Agricultural University, China

Abstract

Against the backdrop of rapid global economic and social changes, university students' innovation capability has become a crucial metric for their future competitiveness. The STEM education concept, which integrates science, technology, engineering, and mathematics, offers a new pedagogical paradigm for higher education with its emphasis on interdisciplinary integration and practice-oriented approaches. However, in the humanities and social sciences, traditional teaching models overly focus on theoretical instruction while lacking practical and interdisciplinary integration, limiting students' ability to address complex real-world problems. This study focuses on management courses to explore the role of STEM education concepts in enhancing students' innovation capabilities. Through theoretical analysis and an empirical study based on three years of teaching data, the paper proposes a STEM-based teaching model for management courses and evaluates its effectiveness using a difference-in-differences approach. The results indicate that the introduction of STEM education significantly improves the course excellence rate (by 0.28 percentage points), with sophomores exhibiting particularly strong performance, while no significant gender differences are observed. Based on these findings, the paper advocates for the systematic application of STEM education in humanities and social sciences courses and emphasizes the need for increased resource investment and curriculum development to achieve substantial progress in cultivating innovative talents in higher education.

Keywords: STEM, Teaching model, Empirical study