

World Conference on Research in Teaching and Education

12 - 14 June 2026

Tokyo , Japan

Predicting Academic Self-Efficacy through Supervisory Leadership Styles: Evidence from Female STEM Graduate Students in China

Ke Zhu , Shuning Huang

Wenzhou

kean University, China

Abstract

Supervisory leadership plays a key role in influencing graduate students' academic development, particularly for women in STEM fields who face demanding research expectations, limited representation, and gendered challenges to confidence and persistence. Guided by Social Cognitive Theory, this study examines how authoritarian, democratic, and laissez-faire supervisory leadership styles relate to academic self-efficacy among female STEM graduate students in China. Academic self-efficacy refers to students' belief in their ability to manage academic tasks, meet research expectations, overcome difficulties, and maintain confidence in their scholarly development. Using a quantitative survey design, the study collected data on supervisory leadership and academic self-efficacy, with reliability and normality checks conducted prior to analysis. Correlation and multiple regression analyses were used to examine relationships among variables and the predictive effects of each leadership style. Results indicate significant relationships between supervisory leadership and academic self-efficacy, with democratic supervision emerging as the strongest predictor. Supervisors who encourage participation, provide guidance, respect student voice, and build supportive research relationships enhance students' academic confidence. In contrast, authoritarian and laissez-faire leadership show no significant independent predictive effect when considered alongside democratic leadership. The study highlights supervisory relationships as a key source of academic self-efficacy in STEM education. It extends Social Cognitive Theory by demonstrating the role of supervisory environments in shaping self-efficacy through social learning processes. Practically, it suggests that universities should strengthen supervisor training and promote supportive, participatory supervisory practices to enhance women's persistence and confidence in STEM higher education.

World Conference on Research in Teaching and Education

Keywords: Gender disparity in STEM; Authoritarian leadership; Democratic leadership; Laissez-faire leadership; Social cognitive theory