



Exploring the Enhancement of Creativity in Engineering Students: The Role of Paradoxical Tensions, Thinking, and Team Psychological Capital

Zhen Zhou¹, Huifen Guo^{2*}, Chen Yang³

¹ School of Mechanical and Electrical Engineering, Guangzhou University, Guangzhou, Guangdong, China

² School of Education, Guangzhou University, Guangzhou, Guangdong, China

³ School of Electronics and Communication Engineering, Guangzhou University, Guangzhou, Guangdong, China

Abstract

Background The multifaceted challenges encountered by engineering university students generate paradoxical tensions, which serve as catalysts for fostering creativity. Engaging in paradoxical thinking during academic pursuits enhances the ability of students to solve complex engineering problems. Despite this, the intricate interconnections among paradoxical tensions, paradoxical thinking, and the creativity of engineering university students remain ambiguous.

Methods This study sought to address this gap by surveying 1410 engineering university students in China, delving into how paradoxical thinking mediates the link between paradoxical tensions and creativity. Additionally, it investigated the moderating impact of team psychological capital on the associations between paradoxical tensions and both paradoxical thinking and creativity. SPSS 24.0 was initially used to convert the cleaned data into a “.csv” format, and Smart PLS (v.4.0.9.5) was then employed to assess the model.

Results The findings of the study reveal a positive influence of paradoxical tensions on both creativity and paradoxical thinking. Notably, paradoxical thinking emerges as a significant contributor to enhancing the creativity of engineering university students. Furthermore, the findings show that paradoxical tensions enhance creativity by influencing paradoxical thinking. While team psychological capital emerged as a significant factor in moderating the link between paradoxical tension and creativity, its role in moderating the association between



2nd International Conference on Innovation in Teaching and Education

July 19 - 21, 2024

London, United Kingdom

paradoxical tension and paradoxical thinking was not statistically significant.

Conclusions This study revealed how paradoxical tensions among engineering university students influence creativity through paradoxical thinking, moderated by team psychological capital. The findings not only provide new insights for researchers to better understand paradoxical tensions, paradoxical thinking, team psychological capital and the underlying psychological mechanism for engineering university students' creativity, but also have practical implications for education administrators.

Keywords: Paradoxical tensions; Paradoxical thinking; Creativity; Team psychological capital