# Chapter 13
# A Systematic Literature Review of Creative Metacognition (CMC) and Its Impact on Students' Creative Performance

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## ABSTRACT

*This systematic review analyzes research up to 2024 on the effects of creative metacognition on creative performance. Following PRISMA guidelines, the study screened and examined 30 high-quality journal articles, focusing on creative metacognition, divergent thinking, metacognitive monitoring skills, their application in educational settings, and the effectiveness of various assessment methods and tools. Key findings highlight a significant increase in research interest in creative metacognition, which positively affects creative performance. Most studies currently use subjective or indirect objective measurement methods. The crucial role of metacognitive monitoring skills is emphasized, supporting the hypothesis that creative metacognition can enhance creative performance. This review identifies gaps in*

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*applying creative metacognition theory in educational practice. It suggests future research directions, emphasizing the need for in-depth exploration to promote the development of students' creative abilities.*

## 1. INTRODUCTION

Since 2012, research on creative metacognition and creative performance has been emerging. Studies within the framework of creative metacognition theory have explored the factors influencing metacognition and how this theory enhances creative performance. A growing body of research demonstrates that creative performance is critical for innovation and problem-solving (Bowen et al., 2018; Dori et al., 2018; Giacumo & Savenye, 2020; Imran, 2019; Karwowski et al., 2020; Khasanah et al., 2017; Rominger et al., 2022; M. Urban & Urban, 2021). Moreover, metacognition plays a positive role in promoting creativity, and creative metacognition has become a frontier topic (de Acedo Lizarraga & de Acedo Baquedano, 2013; Jia et al., 2019; Mevarech & Paz-Baruch, 2022). It is believed that by improving learners' creative metacognition through preparation, better creative performance can be achieved.

**Creativity** refers to the novelty and appropriateness of creative ideas or solutions (Runco & Acar, 2012). Simonton (2012) defines creativity as the product of originality and appropriateness: creativity = originality * appropriateness. If something is neither appropriate nor novel, it cannot be considered creative. This formula underscores that originality and appropriateness positively influence creativity. Beghetto and Kaufman (2014) further elaborated Simonton's (2012) formula: C = [O * A] context, emphasizing that what is considered original or appropriate is determined by specific social, cultural, and historical contexts (Plucker et al., 2004). Beghetto and Kaufman (2013) found that teachers prefer students to produce appropriate creativity at an appropriate time and in line with context, and proposed a theoretical framework of creative metacognition. This framework combines self-knowledge (knowing one's creative strengths and limitations) and situational knowledge (knowing when, where, how, and why to be creative).

In higher education, *creativity* is commonly defined as either a thought process that requires both novelty and practicality (Greene et al., 2019) or as a practical process, often called creative expression (Cropley, 2000). Recent research and practice on higher-order cognitive processes, such as creative expression, have shown that students' creative performance is essential for innovation and problem-solving (Khasanah et al., 2017; Bowen et al., 2018; Imran, 2019; Giacumo & Savenye, 2020; Dori et al., 2018; Karwowski et al., 2020; Rominger et al., 2022; Urban & Urban, 2021). In higher education, particularly in art and design programs focused on fostering creative expression, researchers have found that cultivating students'