Clocking Creative Thinking: Exploring the Dynamics and Efficiency of Metacognition in Individual and Dyadic Creative Processes

How can you keep children entertained during summer break? How can you improve team efficiency at work? How can you engage people in social initiatives? How can you motivate them to actively participate in environmental actions? The answer to these questions often lies in creativity—understood as the ability to generate new, yet useful ideas. Creativity is essential in everyday life, at work, and when facing global challenges. While it's commonly believed that creativity is a free-flowing process where ideas spontaneously arise without our control, scientific research has convincingly shown that we can consciously direct our creative efforts.

The proposed project aims to explore how people think about their own creative processes while solving tasks—in other words, how metacognition functions during creative challenges. The project will analyze three main aspects of metacognition: (1) monitoring, or reflecting on one's own creative process, such as evaluating the generated ideas; (2) metacognitive control, which refers to the conscious management of the creative process, for example, deciding when to stop generating ideas and move to the implementation phase; and (3) knowledge about the cognitive mechanisms behind creativity. We will focus on how the dynamics of these three metacognitive aspects influence problem-solving in creative tasks.

The project involves a series of seven studies that will examine how metacognitive processes unfold during simple, short tasks typically used in creativity research. However, special attention will be given to more complex, everyday problems that require creative thinking. We hypothesize that by exploring more intricate challenges, we can capture the relationships between metacognition and other regulatory processes, such as emotional management, as well as broader beliefs about one's own creativity, such as self-efficacy in performing creative tasks. Since many problems are solved collaboratively, the studies will also include an analysis of creative thinking in the context of teamwork—both with other people and artificial intelligence (AI).

The findings from this research will be used to develop a series of interventions aimed at supporting effective problem-solving in everyday creative challenges by activating the optimal dynamics of metacognition. The proposed studies seek to verify theoretical assumptions about metacognition in creativity and provide new insights into the social aspects of regulating creative thinking in team settings. The results of the project could be applied in education and in the design of solutions based on collaboration with AI. Ultimately, we hope this will lead to the optimization of how we handle real-world creative challenges, both everyday ones and those on a global scale.