

Mathematics Education and Teaching from a Social Cognitive Theory Perspective

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Received: November 28, 2025

Accepted: December 28, 2025

Keywords:

social cognitive theory,
mathematics education and teaching,
efficacy,
self-regulation

Paper Type:

Research

Abstract

Social Cognitive Theory considers learning not merely as a response to external stimuli but as a dynamic and reciprocal interaction between personal, behavioral, and environmental factors. According to this theory, individuals play an active role in the learning process by observing their environment, evaluating the consequences of their own actions, and organizing their thoughts and ideas. To understand the acquisition of a complex discipline like mathematics, which requires both abstract thinking and concrete skills, Social Cognitive Theory (SCT) posits that students adapt to the social environment based on their prior skills, knowledge, and abilities. Every student in a social system absorbs knowledge and experience. Students learn through social processes, including observing the behavior of others (which plays a central role), imitation, and modeling. Students must actively engage in independent learning by seeking out challenges and learning opportunities to acquire new skills and knowledge. In this context, four topics were selected and discussed in SCT: modeling, goals, self-efficacy, and self-regulation. In this context, mathematical competence is conceptualized as a multidimensional construct that goes beyond command of algorithmic knowledge and includes metacognitive factors such as an individual's beliefs in their problem-solving capacity (self-efficacy—the faith in their ability to succeed at a specific task) and their ability to strategically manage their learning (self-regulation—the student's ability to manage their own learning process actively). The aim is to demonstrate, through theoretical and empirical evidence, how these two concepts shape motivation, perseverance, and ultimate success in mathematics learning. The purpose of this study is to examine the fundamental principles of Social Cognitive Theory as they relate to mathematics education and instruction.