عنوان مقاله:

Metacognitive Skills of Engineering Students through Mathematical Problem Posing Strategies

محل انتشار:

دهمین کنفرانس بین المللی روانشناسی، مشاوره و علوم تربیتی (سال: 1400)

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خلاصه مقاله:

In facing the future, analytic and creative knowledge-based power in the frontier higher educational systems is acknowledged. In this respect, over two decades, the educational researchers have specified the effectiveness of problem posing tasks on fostering creative thinking components including fluency, flexibility, and originality in students. Problem posing is defined as the generation of new problems or reformulation of a given problem. However, it remained difficult to determine the effective problem-posing strategies with focus on posers' metacognitive skills to facilitate the problem posing oriented teaching approach in tertiary level. Accordingly, the present exploratory study is performed to explore undergraduates' metacognitive skills through problem posing strategies. The study employed purposive convenience sampling to select twenty four of first year undergraduates of four Iranian universities. Research instruments included problem-posing tasks organized through reconstructing the textbook integral problems based on structured and semi-structured problem posing situations. The constant comparative analysis of interview transcripts demonstrated students' metacognitive skills through problem posing strategies including understanding of problem posing tasks, planning of transformation, constructing new problems, executing, and verifying. They also used 'self-evaluation' approach in moving forward or backward among the five problems posing strategies to achieve results. It was demonstrated that undergraduates more employed the problem posing tasks understanding, and transformation planning strategies. Meanwhile, the metacognitive guestions/prompts assisted in formulating and verifying the problem posing tasks. This was addressed by proposing a problem-posing framework that integrates metacognitive skills in problem posing strategies to offer educationists the steps to design effective problem posing .strategies to improve undergraduates' mathematical problem posing performances

کلمات کلیدی:

Metacognitive Skills, Undergraduates, Mathematical Problem Posing Strategies

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