

Public Abstract

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Title:Instructional Strategies Used By Developmental Mathematics Instructors In Missouri Public Community Colleges To Promote Active Learning: An Analysis of the Cognitive Complexity

This study sought to identify the instructional strategies used by developmental mathematics instructors in Missouri's public 2-year colleges to engage students in the learning process, determine the cognitive complexity of the instructional strategies, and determine the support needed by instructors to engage students in the learning process. A sequential mixed method design was employed in which quantitative and qualitative data was collected. Initial participants in this study included developmental mathematics instructors from all 13 of Missouri's 2-year public community colleges. Quantitative analysis was completed on the demographic data and on the rating and implementation of recommended instructional strategies. Qualitative analysis was completed on the instructor descriptions of strategies from the survey. Additionally, three participants were chosen from the survey for case study analysis. Results indicate that developmental mathematics instructors describe the methods they use to engage students in the learning process comparably to those instructional strategies as recommended by the American Mathematical Association of Two-Year Colleges (AMATYC, 2006) to promote active learning, while including additional strategies. How the instructors rated the instructional strategies are given in depth. An overview of the instructional strategies employed by three instructors who were observed, and the cognitive complexity of the tasks and questions used in these instructional strategies is given. Furthermore, recommendations are given for support needed by developmental mathematics instructors. Implications are offered for the (1) AMATYC (2006) Framework, (2) Professional development on discovery-based learning, (3) Professional development on cognitive complexity of tasks and questions, and (4) Support needed to implement instructional strategies.