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Public Abstract
Ph.D.

Agricultural Education

Effect of Problem-Based Learning on Critical Thinking Ability and Content Knowledge of Secondary Students

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Recent concerns have been voiced over faltering attempts to foster critical thinking, higher-order thinking and problem solving in our nation's schools. Critical thinking, decision making, problem solving, and reasoning have been described as imperative for high performing workplaces. Proponents of problem-based learning claim that it is an effective strategy for improving problem-solving and critical thinking abilities.

The purpose of this study was to determine the effect of problem-based learning (PBL) on critical thinking ability and content knowledge and to examine the relationship between critical thinking ability and content knowledge among selected secondary agriculture students in Missouri. The target population for this study was secondary agriculture students in Missouri. Twelve agriculture teachers were selected. The resulting sample ($n = 140$) consisted of 77 students in the PBL treatment group and 63 students in the supervised study treatment group.

The study employed a quasi-experimental, non-equivalent comparison group design. Treatment consisted of two instructional strategies: problem-based learning or supervised study. Analysis of covariance indicated a treatment effect on critical thinking ability and content knowledge.

Students in the supervised study treatment group produced higher scores on critical thinking ability. While this difference was statistically different, there was no practical difference between the two groups.

The supervised study treatment group outperformed the PBL group on content knowledge. The difference was both statistically and practically significant. From the findings related to content knowledge, it can be concluded that students in supervised study classes tended to score higher on content knowledge assessments than students in PBL classes.