

Problem-based Learning as an Aid to Teamwork in Mathematics Problem Solving among Pre-University Students

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ABSTRACT

Purpose - This study reports on the comparison of Problem-based Learning (PBL) and routine method of learning in encouraging teamwork among pre-university students in solving mathematics problems.

Method - The participants in this research consisted of selected students from a pre-university college. One group of 159 students formed the experimental group and a second group of 162 students formed the control group. The participants in the experimental group worked on problems in small groups of 3 to 4 students using PBL method. The control group was taught using routine methods. Both groups worked on mathematics problems involving sequences and series. The independent variable for this research is the teaching method used and the dependent variable is 'teamwork'. Data on student perception of teamwork before and after intervention were collected and analyzed using an instrument with Likert scale responses from 1 to 5.

Findings - The results showed that the PBL method was generally more effective compared to routine method in encouraging teamwork. The experimental group scored better in contribution to the team and team cooperation after intervention but did not perform as well in punctuality, non-prejudicial behavior and empathetic and non-judgmental attitude.

Significance - The positive result for PBL method indicates that it is a viable teaching method to encourage teamwork in pre-university colleges. This method can also be restructured to be used in disciplines other than mathematics. Shortcomings associated with this approach may be addressed through appropriate amendments made to facilitation methods.

Keywords: Problem-based Learning, Teamwork, Pre-university, Mathematics problems