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FOSTERING THE COOPERATIVE LEARNING OF MATHEMATICS IN ENGINEERING SCHOOLS

Abstract:

In this article, we report on the experience gained and the results obtained from an educational innovation project that has sought to introduce cooperative learning into the mathematics subjects of the first year of the Engineering degrees at the University of Malaga. In particular, we focus on the teamwork-based learning method that we have called the "Teacher-Apprentice" dynamics: Groups of 3-5 members are formed in which one of the members takes on the role of the Teacher, while the rest are the Apprentices. We introduce a system of incentives such that the group that progresses adequately in the subject has the right to group bonuses, which count towards the final grade awarded to each of the group members and which are different for the Teacher and for the Apprentices to allow for some level of competitiveness within the group. The selection of the Teacher is reviewed after each scheduled assessment test, where the student in the group who has obtained the highest score from among the group members will become the (possibly new) Teacher. The results collected to date reveal that group dynamics increase the motivation with which students face math learning, while helping them to correct conceptual errors through discussion with their peers.

Keywords:

Cooperative learning, Teaching methods, University Teaching, Mathematics, Engineering

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