EFFECT OF LEARNING STYLE, COLLABORATIVE VS INDIVIDUALISTIC, ON EXAMINATION RESULTS IN THE MULTIVARIATE ANALYSIS COURSE TOWARDS MSC DEGREE IN STATISTICS

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Nowadays, statisticians are expected to be good problem solvers as well as effective team members. Besides theoretical knowledge, skills for performing data analysis using statistical software are of utmost importance. Working with real data can be time-consuming and requires both subject-specific and technical skills, e.g., programming. In statistical courses, collaborative learning implemented for conducting problem-based tasks could help students to become efficient individual and team learners and to improve their performance through good planning and structuring of their studies.

This pilot study investigates the effect of collaborative and individualistic learning modes on students' performance in the multivariate analysis course towards a Master of Science degree in statistics.

Six tasks (problem-based) were randomized to be individual (three) or group work (three). Each student completed all six tasks. Furthermore, the students were randomized to groups of size two when conducting group work tasks. A repeated measures analysis was conducted when analyzing the performance of students at final exam. The significance level was 5%.

The findings revealed that on the exam, students performed significantly better on solving tasks that were conducted as group work during the course ($F = 19.3$, $p = 0.001$). Course evaluations showed both positive and negative attitudes towards collaborative work. Negative attitude concerned practical issues, e.g., planning. Positive perception was due to the possibilities of broadening a social network, learning how to better structure one's own learning, and discovering gaps in one's own knowledge.

The results of this study should be interpreted with caution due to a small sample size of 13 students. Yet, the obtained results give us some ideas concerning problem-based teaching and collaborative learning. Educators seek for teaching strategies in order to enhance student's learning and performance at examination. Hence, the effect of collaborative learning together with the attitude towards collaborative learning on students' performance should be further investigated.

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