

Supporting team collaboration in large courses through role-based group composition

In the first year of the Environmental Sciences programme, students learn how to analyse complex environmental problems at scientific and social levels and how to work out possible solutions. The approximately 150 students work together in groups of 5-7 students in both semesters. Because the technical content of the course is very demanding, difficulties caused by group dynamics should be kept as small as possible and not lead to differences in group performance. For this purpose, the students fill out a questionnaire at the beginning of the course with which they indicate their preferences for different aspects of group work and thus create their individual role profile. Subsequently, the groups are formed with the help of an optimisation algorithm to ensure for little diversity between groups with regard to averages and high-performers for different role aspects as well as gender and mother tongue. Students have first time access to their role profiles in the middle of the semester, then reflect in the group to what extent their team functions so far coincide with the results of the role test and where members have assumed other roles. A repetition of the role test at the end of the semester allows the students to reflect effects of the recent teamwork on their self perception with respect to team roles.

Experiences with three student cohorts since the introduction of role-based group formation indicate that fewer groups struggle with group dynamic related difficulties. Awareness of the various important functions within the group seems to foster mutual appreciation, which is reflected in well differentiated peer-feedback. While the role profile of the cohort as a whole remains constant over the semester, individual role profiles within the groups change considerably, indicating that teamwork during the course provides the students with opportunities to take on new roles.

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