



Different ways of group formation – pros and cons

Løje, Hanne

Published in:

Proceedings of 5th conference on Exploring Teaching for Active Learning in Engineering Education

Publication date:

2023

Document Version

Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):

Løje, H. (2023). Different ways of group formation – pros and cons. In *Proceedings of 5th conference on Exploring Teaching for Active Learning in Engineering Education* (pp. 15-16). IUPN - Ingeniør Uddannelsernes Pædagogiske Netværk.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Different ways of group formation – pros and cons

Hanne Løje

Technical University of Denmark, Denmark

halo@dtu.dk

ABSTRACT

Keywords - Group work, group formation, group activities

Please indicate clearly the type of contribution you are submitting: hands-on, explore, poster.

Background

A central ability when doing professional engineering work is to be able to collaborate in multidisciplinary teams, therefore group work is a common part of an active learning strategy in higher educations to enhance deep learning and thus to develop teamwork skills. However, group work can be challenging for the students and difficult to do if they have none or little experience in group work and no guidance or support is available (Oakley et al., 2004). Group work can be a key component of student-centered learning, but the student-learning outcome can depend on the formation of the groups. Some of the factors, which can affect a proper development of group work, are the group composition, different motivation, expectations, level of commitment, lack of group norms etc. (Aranzabal et al., 2022).

Formation of groups can be done in several ways. One way is to let the students self-select group members. When the students can self-select members for a group, they often choose other students, they know and who share their own academic ambitions. This often leads to groups, which are unbalanced with regards to culture, background and skills. Self-selection has thou advantages as the students work with other students they already know, and they thus have some knowledge about the other group members strengths and weaknesses, which can help the group to work more effectively.

The teacher can also assign the students to groups. This can be done randomly based on a simple principle such as counting group members to a group nr. (1, 2, 3...6). It can also be based on some criteria like for example on test of personalities, test of preferences, educational background, cultural background etc. Having the teacher to form these groups, makes the groups more equal with regards to diversity, but there can be a higher risk of conflicts due to these differences (Hartley & Dawson, 2022).

Donovan et al. (2018) found in their study that the low competence students had higher learning outcome when they were in heterogeneous groups while mid- and high competences students performed well in both group types. Students of all competence types had better attitudes toward group work in heterogeneous groups. How to structure the group formation process to maximize the learning outcome is not clear.

Group formation takes time, which the teacher should be aware of and thus allocate suitable time for group forming activities (Warhuus et al., 2016). If the teacher has assigned the teams randomly, there is often a need for some extra time, to give the group members a chance to get to know each other (Hartley & Dawson, 2022).

The objective of this study is to discuss different ways of group formation and group activities to gather some tips and tricks. In the hands-on session, the participants will be introduced to try different ways of group formation and discuss pros and cons of these different ways. Furthermore, the participants will share their own experiences from teaching.

Hands- on activity

Introduction (10 min)

In the introduction, participants will be presented to the different ways of forming groups and which pros and cons there are connected with the different ways. Before the hands-on part starts, the participants are asked to fill out a small test based on their preferences.

Hands-on activity (60 min)

- **Part A:** Based on the preference test results the participants are divided into groups. Half of the groups are based on the result of the test done in the beginning of the hands-on session and the other half of the groups are based on a random formation without using the test results. In groups, the participants are asked to present themselves and to do some ice breaking activities as well as to do some other group activities introduced at the workshop.
- **Part B:** The participants stay in the same groups as before and now they must discuss the experience of trying the different ways for forming groups. Furthermore, they should also discuss their own experiences with group formation and what they do to have a good process for group formation.

At the end of the session (20 min)

- At the end of the session, there will be a wrap up of the group discussions by sharing examples including opportunities and challenges with regards to ways of group formation.

Expected outcomes/results (possibly data/experience from own practice).

The expected outcome from the hands–on session is creation of new experiences for workshop participants on how to organise group formation processes and sharing of experiences. The participants will be provided with ideas to use in their own teaching and the applied guides for activities.

REFERENCES

Aranzabal, A., Epelde E., & Artetxe, M. (2022) Team formation on the basis of Belbin’s roles to enhance students’ performance in project-based learning. *Education for Chemical Engineers* 38; 22-37

Donovan, D. A., Connell, G. L. & Grunspan, D. Z. (2018) Student Learning Outcomes and Attitudes Using Three Methods of Group Formation in a Nonmajors Biology Class. *CBE—Life Sciences Education* Vol. 17, No. 4

Hartley, P. & Dawson, M (2022). *Success in Groupwork*. Bloomsbury Academic

Oakley, B., Felder, R. M., Brent, R., & Elhadj, I. (2004) Turning student groups into effective teams

Warhuus, J., Tanggaard, L., Robinson, S., & Ernø, S. M. (2016) From I to We: collaboration in entrepreneurship education and learning? *Education + Training* vol 59, 234-249