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## **Online Group Formation**

### *Guidelines*

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# ONLINE GROUP FORMATION GUIDELINES

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United Nations  
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AALBORG UNIVERSITY

• Aalborg Centre for Problem Based Learning  
• in Engineering Science and Sustainability  
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# PREFACE

This text was written in response to an inquiry from the associate dean of TECH (Technical Faculty of IT and Design) Jakob Stoustrup and the associate dean of ENG (Faculty of Engineering and Science) Olav Geil at Aalborg University. The background was that, due to COVID-19 restrictions for the spring semester 2021, group formation was to be done online, in contrast to previous physical group formation, and there was a need for good advice and ideas for this process.

A big thank you to Lykke Brogaard Bertel and Thomas Andersen for feedback along the way.

## **ABOUT GROUP FORMATION**

Group work is a central part of project- and problem-based learning (PBL). Group formation creates the groups in which the students will work throughout an entire semester. These groups are key for the project work, as well as for courses and the social aspect. It is also a form of work that the vast majority of people will experience in their future professions. Therefore, a well-functioning group is all-important for the students' success with PBL, so it matters how this group formation is done. This has always been the case, but during the COVID-19 period, group formation has been even more challenged by the fact that the students are not physically present during the group formation. Furthermore, some group formations will be challenged by the fact that students have got to know each other to a lesser extent during their study and previous semester groups, as the previous semester has been predominantly digital for long periods. For the individual student, there is a lot at stake in group formation – academically, socially and emotionally – and the group formation itself can be stressful for some students. Many, often more than half, are nervous about it (Bundgaard et al., 2021). Whether online group formation makes students more or less anxious about the group formation is uncertain, but transparency in the process is important in order to minimise this.

It is unlikely that one approach will suit all fields of study across all semesters at Aalborg University. At the same time, it may also be time for us to try new ways of facilitating group formation – since we cannot meet up physically and have to shake things up anyway. Ideas that we may be able to use later, when it is once again time for physical meetings with, and between, the students.

In these guidelines we will therefore make various suggestions for how group formation can be done digitally. There will be various ideas with associated advice on what should be considered in an online group formation process. All this is for inspiration, and it is possible to combine several ideas – and to develop them further.

## **MODELS FOR GROUP FORMATION**

A previous study (Bundgaard et al., 2021) revealed that there are (at least) four archetypes of group formation across all the faculties at Aalborg University. These models are existing approaches which are used during physical attendance, and these models will be the starting point for ideas for online group formation. However, none of the models will be immediately possible to “translate” to an online version without adjustment.

# FOUR ARCHETYPES OF GROUP FORMATION IN GENERAL

## THE SELF-ORGANISING MODEL

This is often seen on technical-science programmes. "Self-organising" refers to the fact that, after an introduction to project proposals, students are left to form groups on their own. Supervisors or coordinators are rarely involved, and only get involved if problems arise.

## THE RELATION-BASED MODEL

Here, the focus is on collaborative roles in group work. At the beginning of the semester, students take various personality and collaboration role tests, and are asked to reflect on what competencies they bring with them into group work, and on what focal points the individual student must be aware of in relation to the development and strengthening of their competency profile. They also consider which criteria and work values are important to them when working in groups, and focus on what motivates them in relation to collaboration in groups. Group formation takes place in phases, where the students first identify the above (written on post-its along with the identification of the desired overall theme), then discuss with others who have a similar focus on working in groups and the same academic interests, and finally form actual groups. Students are directly encouraged to remain curious, keep an open mind, take as many perspectives into account as possible, and consider their group criteria when forming groups. The coordinator facilitates the process.

## THE SUBJECT-CENTRED MODEL

Here, groups are not necessarily formed on the first day of the semester, but after a few days or weeks. At the beginning of the semester, all students will be introduced to a topic or problem area that covers key aspects of the semester's project theme. In this process, which is facilitated by either the coordinator, tutors or assistant teachers, various themes or issues will be developed by the students through e.g. brainstorming or other methods. The students will gradually develop ideas for issues and project proposals, and through the course will orient themselves towards project groups that will address these.


## THE ADMINISTRATIVE MODEL

Known from most programmes' first project, sometimes more. As a rule, it is completely random who the programme secretaries put together in groups, but in many study programmes there will be a rule that there should preferably be a minimum of two students of the same gender in a group.

# FACILITATION OF ONLINE GROUP FORMATION BASED ON THE FOUR MODELS

## THE SELF-ORGANISING MODEL


In online group formation, it is not recommended that you use the self-organising model in the same way as you usually do, especially not with large cohorts, as it is very difficult for the students to get an overview of a large number of other students on an online platform. If group formation takes place at a single, joint meeting, the students will not be able to discuss with several students in the same way as during physical attendance, as the students will block each other's microphones. There must be greater control on the part of either the coordinator and/or the students. Here, you can take inspiration from one of the other three models.

- If you have small cohorts which will only form e.g. 2-3 groups, and the students already know each other well, the model can be used. Beforehand, the students should either get a thorough introduction to the project theme or access to fairly detailed material. If there are special themes or project proposals, next to their name on e.g. Zoom, students can indicate a preference for e.g. project proposal A, B, etc. This will provide a quick overview on an online platform. For example, the coordinator can set up breakout rooms in Zoom where, in various groups, students can meet with a few other students and discuss possible project proposals. It is also possible to create a Teams room, with subgroups (channels) which are suitable for the various project proposals presented. Here, the students will have the opportunity to move between the various sub-rooms, and thus discuss and split into groups according to interest or relations. During this process, it is also possible for the coordinator to see if individual students seem "alone", and to support them throughout the process. It may also be rewarding for the students to have digital whiteboard apps available. These enable the students to visualise, break down and brainstorm ideas in connection with group formation.
- You might ask the students to find a suitable platform to do brainstorming and other forms of knowledge sharing on. AAU has data processor agreements with the following:
  - a. Microsoft Whiteboard: Located in Teams
  - b. Padlet. See more here. 

# ...THE FOUR MODELS

## THE SUBJECT-CENTRED MODEL

You might consider postponing group formation for a few weeks, until all students have become more familiar with the topic for the semester. This could naturally lead to the formation of groups of students with special interests. This will be most obvious for semesters with diverse project proposals during the semester.

- If the projects are different, each student can indicate before the start of the semester, or shortly after, a prioritisation of the proposals in the project catalogue and send these to the coordinator. Next, the coordinator composes the groups, or the team is divided into smaller units for each project proposal, and within these smaller units, the students divide themselves into groups according to the self-organising model. This requires either that the project proposals are thoroughly described before the start of the semester, and/or that detailed material is available.
- As a tool, Kurt Nørmark's system can be recommended for allocating the students according to their interest in topics. See more here. 

## THE RELATION-BASED MODEL

Here, at the start of the semester or before, you can ask the students to complete e.g. a learning style test and submit the result to the coordinator or programme secretary. It can be considered whether the students should also include suggested themes. This is a particularly good idea during semesters which may contain very different projects. Based on this information, the coordinator or programme secretary can either set up individual groups or clusters of students which are deemed appropriate. These clusters could be of a size so that the students can split into two groups themselves, online. This also depends on how heterogeneous the cohort of students is. Students perceived as being "different" by the majority can be disregarded, greatly hurting them and depriving others of the opportunity to experience how working with someone who is not like yourself is a good thing.

- "Speed dating" can be an option, where e.g. via Zoom Breakout Rooms the coordinator divides the students into very small groups of 2-3 people, where they get a few minutes to talk to other students from the team at random. Once these minutes have passed, the coordinator lets Zoom divide the students into new random groups. For these meetings, the students must be tasked with telling the other person(s) what ambitions they have in terms of projects, their own working methods and competencies. This can also include the preferred theme, topic or issue of the project. The students submit feedback to the coordinator, who then either divides the students into clusters which then form the final groups themselves, or forms the final groups.

# ...THE FOUR MODELS

## THE ADMINISTRATIVE MODEL

This can be a good option, especially during early semesters, when students still do not know each other very well, and when cohort are often large. A recent study (Bundgaard et al., 2021), however, states that 85% of surveyed students do not want groups to be formed through an administrative group formation process, which means a solid argument is usually required for this. However, some fields of studies also experience that, sometimes, students indicate that they want groups to be formed administratively, which is why it is recommended that you involve the students in the process of choosing the kind of group formation they want. For example, this could be taken up at a steering group meeting or in a survey. In the spring semester of 2021 in particular, students in their second semester will not know each other as well as usual, as their first semester was predominantly digital, which means that administrative group formation may be a good alternative. This can be done in the following ways:

- Completely at random, although with the restriction that there should preferably be two people of the same gender in a group.
- Students can be asked to indicate in advance whether they have specific desires for one or two other students they wish to be in a group with. This should not be a requirement, as some students may not know others very well, and may have felt left out in the previous semester. The students are given a deadline, either at the start of the semester or a few days into it. These small clusters are then joined at random into whole groups.


This method will work best for semesters with fairly uniform project opportunities, as some students may otherwise risk spending an entire semester doing something that is outside their desired profiling.

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## POSSIBLE PLATFORMS FOR USE IN ONLINE GROUP FORMATION

- **Zoom** – It is possible to set up meetings through the Zoom platform. The good thing about Zoom is that it is possible to have many video icons on the screen at the same time, which makes it possible for teachers or coordinators to see a lot of students in the meeting at once. Through Zoom, it is also possible to make use of different reactions and raise hands. Zoom also has a polling option that can be used to vote for projects or indicate various preferences. Zoom can also split the participants into smaller groups – either at random (which can be used for e.g. speed-dating), or where the host of the meeting allocates participants to groups. In Zoom it is also possible for the students by themselves to move around between the rooms.
- **Teams** – Teams can be used for both meeting creation and digital, interactive rooms with channels. A possible structure for group formation in Teams could be a start-up meeting for everyone on the general page in an established Teams room, possibly with the use of breakout rooms, which is now also an available feature in Teams. Here, the coordinator will be able to give an introduction to the semester and provide practical information, after which lecturers have the opportunity to present the various project proposals. Once all shared information has been provided, it is possible for students to leave the meeting and access one or more of the channels created on the page. These could, for example, be named for the various project proposals. Here, students will have the opportunity to brainstorm, discuss and form groups, in the same way as they would have done through physical presence. Teams thus has an extra spatial dimension in relation to Zoom, and can work with several channels, where it is possible to split the students so that communication and discussion are made easier. Students can also move between channels themselves. Via this platform, it is also possible to make use of reactions and a show of hands, and to upload files to the room (e.g. project proposals, group formation notes, etc.)

## EXAMPLE OF LEARNING STYLE TESTS

- Felder & Soloman. See more here. 



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## POINTS OF ATTENTION IN ONLINE GROUP FORMATION

- Students must have their cameras on, as this allows for more personal presence and makes it easier to discuss. If students do not like others being able to see their private homes, they should be informed about the possibility of changing their background on both Zoom and Teams.
- Perhaps consider one or more icebreaker activities to start the meeting, and possibly a team-building activity for when the groups have been formed, particularly if this has been done through the administrative or academically centred model.
- Students must keep their microphones muted for large group meetings, as otherwise sound may echo.
- The chat function can be used to ask questions during presentations. Teams and Zoom both have "raise a hand" features that can be used.
- Be aware that barriers between students may seem greater when sitting at home behind a screen, and active facilitation and help may therefore be more necessary for some students.
- Discussions and speaking in large gatherings may seem intimidating to some students via online platforms.
- Pay attention to the introverts. Perhaps keep a separate Teams channel or Zoom room open where a teacher is available to handle personal inquiries from students who feel insecure about the process.
- Just as with physical group formation, some students may be perceived as different by the majority and be disregarded. Perhaps this danger is even greater with online grouping, as it is often (unfortunately) easier to disregard other people digitally than face-to-face.
- Remind students that recording the group formation session or taking screenshots of others and sharing these on social media is not allowed.

## REFERENCES

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