Vågen 2022

IT Student Division equality survey 2022

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Front page picture by Dierk Schaefer

Introduction
Intention and conduction of this study

This survey was conducted by the IT Student Division's equality committee, EqualIT21/22. The aim of the survey was to identify areas of inequality affecting students belonging to the IT Student Division at Chalmers University of Technology. With this knowledge, the IT Student Division and the school (mainly the TKITE programme team) can work to achieve a more equal and inclusive environment.

The survey was conducted between April 8 and May 2 2022. It was sent to active Chalmers students who had attended or were attending the Software Engineering undergraduate program and students who were at the time enrolled in either of the related master programmes (MPIDE/MPSOF/MPDSC). Two versions (an English and a Swedish) were distributed, and the answers to both have been compiled in this report.

151 people answered the survey. 110 people answered the Swedish survey, and 41 people answered the English survey. 54% of the answering were currently enrolled in the bachelor's programme, 34% in an IT-master and 12% in a non-IT-master. 30% of the respondents were women which aligns with the 29% female enrollment rate to the bachelor's programme the three previous years.

Introduction

Method

Five specific areas were investigated in the survey: study premises, group work and group dynamics, assessment, scheduling and student events.

An additional section of the survey was devoted to background questions. These asked for the student's progress in their education as well as social background questions based on the seven grounds of discrimination as defined in the Discrimination Act. These queried about gender identity, sexual orientation and whether or not one is disabled, has experience as a trans person, has a different ethnicity than Swedish and if they has a religious belief.

The social background questions were used to make cross-group comparisons on other questions. No statistic in this report nor in our work presents the social background data as information in itself, nor can the amount of people belonging to one of these groups be found. This is with the exception of the share of female respondents being presented (this group was considered large enough for this to safely be presented). None of the social background questions were mandatory. Due to privacy commitments to the respondents, raw data has not and will not be shared outside of EqualIT.

Introduction
Structure of this report and possible sources of error

This report is structured in four chapters. Each chapter concerns an area where the survey found interesting results. The introductions of the chapters contain method details and their possible flaws. The findings are discussed throughout the chapters. The chapters end with a conclusion of the key findings and some proposals for resolving observed issues.

Regarding the report layout, the chart titles are paraphrased ing the survey questions.

Please note that this is a student organisation project by novice data analysts. While statements about the population has been confirmed by established statistical methods, phrasing of questions and other context is, as always, a potential source of error. For transparency, observed flaws of the method is given throughout the report.

A context worth mentioning is that since this report was conducted shortly after the relief of Covid-19 restrictions, many respondents have had a different Chalmers experience than previous and current students. For example, many students had limited experience using the study premises. Examination forms were adapted to fit remote work.

Also worth mentioning is that we got indications that people did not understand the background question aiming to find people with trans experiences. The phrasing was "Do you have experience of being a trans person?". This regards people who are or have been trans. This is however not as established of an expression as we thought, and we believe that some people responded "Don't know", because they did not understand the question.

Introduction
Special thanks

We, the authors, want to thank all who have supported us throughout this process.

We are hugely grateful to the programme team for TKITE at Chalmers who guided us and provided invaluable feedback on the survey design. Many thanks also go out to the GENIE project for introducing us to the equality initiatives at Chalmers. Further, we would like to acknowledge our successors for their participation in reviewing the survey before distribution. And, finally, this endeavour would not have been possible without the Software Engineering students who responded to the survey - *thank you!*

We hope these findings inspire action and awareness.

EqualIT'21/22:
Aline Eikeland, Sara Borg, Hanna Schaff

I. Accessibility

Accessibility on campus

Since accessibility is lacking for some buildings on campus, this was a topic of interest for this project. The question on accessibility surveyed for difficulties finding areas and if there are physical barriers.

A limitation is that the survey does not distinguish between the difficulty of locating an available lab/group room and the challenge of physically locating a lab/group room.

Accessibility on campus
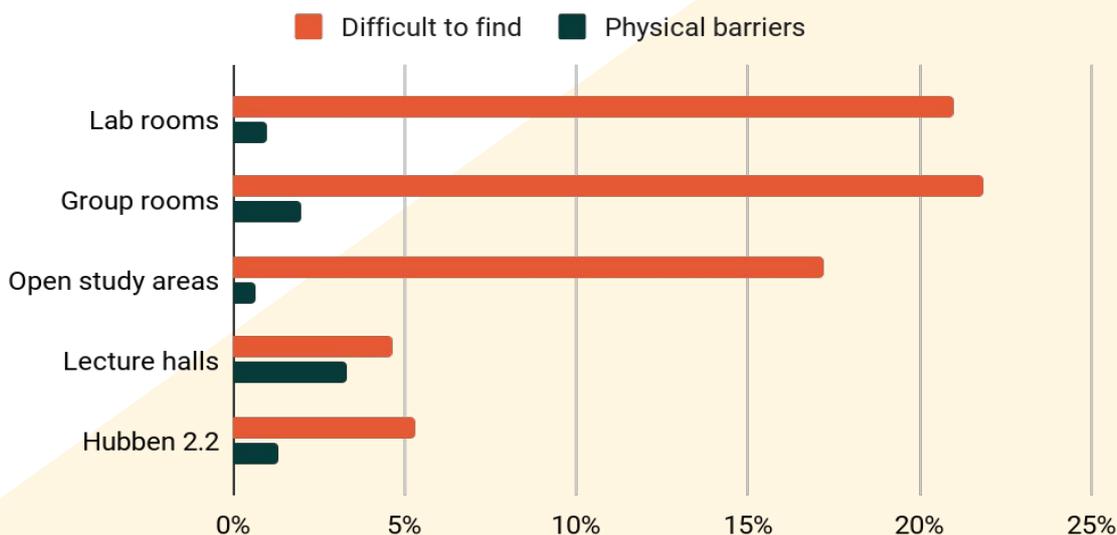## More than 20% have difficulty finding lab and group rooms

Surveying students about their perceptions of accessibility on campus was relevant in order to identify any potential locations that are difficult to access. The chart below addresses how respondents experience accessing different areas based on them being difficult to find or there being physical barriers.

The primary challenge reported by respondents is the difficulty in locating different areas on campus, rather than there being physical barriers. Among these areas, the open study areas, lab rooms, and group rooms are particularly identified as the most problematic.

Examining the two more problematic areas (lab and group rooms) reveals that 22% of the respondents find it difficult to access lab rooms on campus, and an additional 24% of the respondents face difficulties in accessing group rooms on campus. Note that these two groups of respondents only partially overlap.

To locate rooms on campus, the app Campus Maps may be used. If directing students to a room, the app should be suggested as aid. Rooms needs to be included in the app, with correctly formatted names.

Do you find it difficult to get around at Chalmers?

Legend: ■ Difficult to find ■ Physical barriers

Categories (top to bottom): Lab rooms, Group rooms, Open study areas, Lecture halls, Hubben 2.2

X-axis: 0% 5% 10% 15% 20% 25%

Accessibility in short
More than 20% have difficulty finding lab and group rooms

Conclusions:
- Respondents experience some difficulty locating open study areas, lab rooms and group rooms.

Proposals:
- Encourage usage of Campus Maps when referencing lab or group rooms.

II. Group dynamics
Workload, learning, impression and self-expression

The Software Engineering bachelor programme contains almost exclusively courses with group assignments. As of 2022, 16 out of 18 mandatory courses include group assignments. The 2 other courses are mathematics courses, which are outside the programme's main area of focus.

These courses handle grouping of students differently (mainly with regard to group size and method of composition).

This section on group dynamics investigates the respondents' experiences working in groups. Specific areas considered includes the respondents' relative workload and ability to learn, their general group preferences, their ability to be themselves, the assessment of their work and their experiences of abuse.

The questions about these areas were asked over group sizes and group compositions. Group compositions here refers to how a group was composed, since different courses have different methods of grouping students. Commonly used group sizes at the programme are pairings, trinities and larger groups of 4-7 students.

The aim of the survey was to identify what an ideal group looks like for a typical student. Analyses of the survey results were used to compose further conclusions and action points.

The questions were phrased as scales of frequency or quantity. All questions included an option of "Don't know" but the survey does not differentiate students with no experience of the group size or composition. This is a flaw of the survey.

Experiences with certain group sizes or compositions may be influenced by certain courses' content and administration. For example, students may experience issues working in smaller constellations if a course has insufficient resources.

It is also possible that students refer to different types of work when comparing individual and group work. While group work most likely refers to a project, laboration or other examining concrete task, some students may refer to, for example, individual exam studying as work in a solo group.

Abuse in group projects
A quarter reports experiencing abuse in a group project

Have you ever experienced abuse by a group member(s) in the following group compositions?
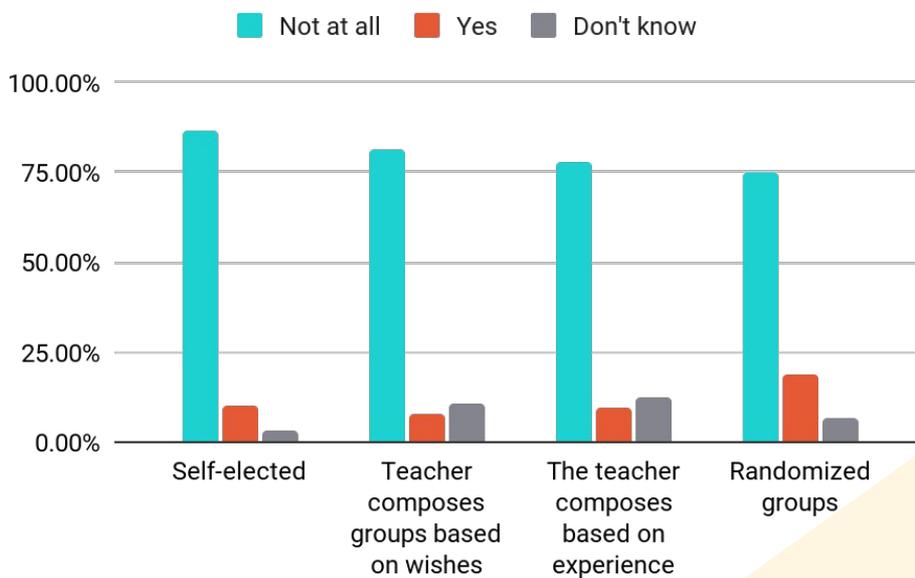
The total amount of respondents having experienced abuse in a group project adds up to 23%.

Group compositions matter. More people disclose experiences of abuse in randomly selected groups than in groups composed by the students themselves.

LGBTQ+ are more likely to have experienced abuse. This is the only group that can be verified as more victimised than the general population.
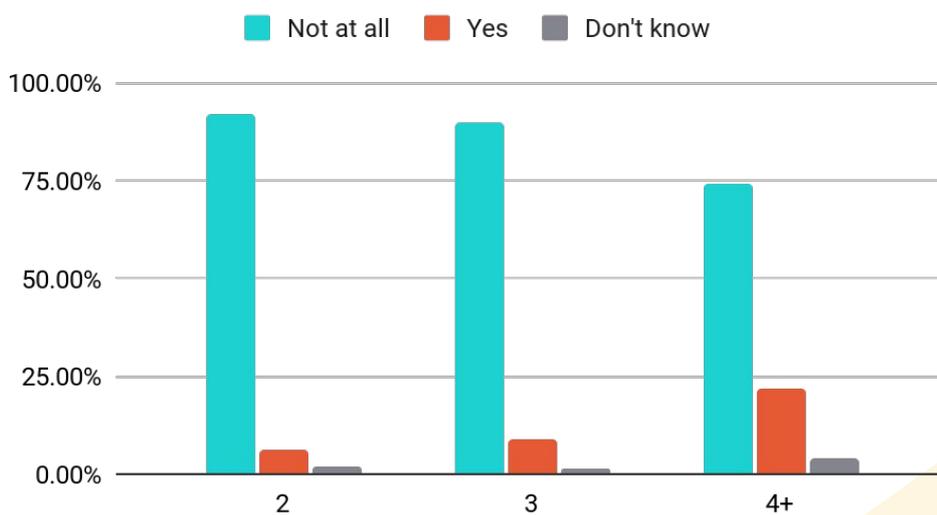
Abuse is unacceptable. Models for preventive and reactive actions exists and needs to be further developed in order for all students to feel safe and comfortable.

We believe that abuse can be one of the largest factors preventing diversity at the programme. A hostile environment can discourage marginalised people to apply to certain courses or the programme as a whole.

Abuse in group projects
Larger groups are more problematic

Have you ever experienced abuse by group member(s) in he following group sizes?

Another factor to group dynamics is group size. Students are more likely to have experienced abuse in larger groups - 22% of respondents in groups of 4+ members, in comparison to 6% in groups of 2.

Group sizes & workload
40% find the workload too high or low in large groups

The experienced workload in groups of different sizes is relevant to conclude whether the workload distribution is even within groups and which group size has the best workload distribution.

The chart below shows that more respondents experience a moderate workload when working in pairs than in any other group formation. Roughly 30% of respondents report that the workload when working individually is too high. Further, around 40% experience uneven workload distribution in groups of 4 or more.

Not displayed in the chart but noted as a result in the survey is that a larger percentage of men state that their workload is moderate when working alone than women (70% of men compared to 50% of women). In contrast, compared to

men, a larger percentage of women experience a workload that is too high when working individually (40% of women compared to 20% of men). The differences are insignificant between the genders in the other group formations.

The increase in both low and high workload for students in larger groups compared to pairs and trios suggests the workload distribution becomes more uneven for larger groups.

Causes may include there being a varying level of ambition between group members, the group excluding or isolating less experienced group members to menial tasks, the group lacking experience in project management and task division, the course work being structured in such way that there are insufficient tasks for all group members.

How is the workload for you in different group sizes?
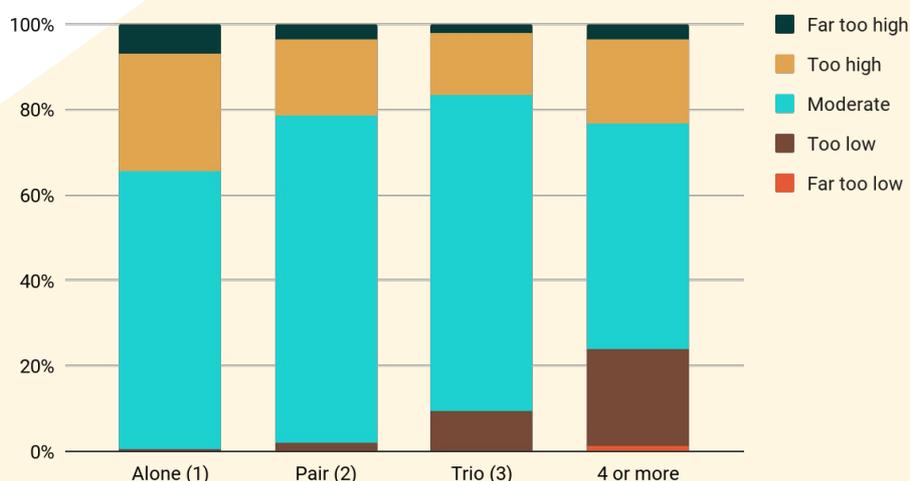
Group sizes & learning
Respondents report learning less in larger groups

For groups of two or more, respondents report a decrease in learning as the group size increases.

Only 10% report learning completely in groups of four or more participants. In comparison, around 50% of respondents report learning completely when working in pairs or individually.

Direct causes may include insufficient workload, social issues between group members or students failing to equally distribute the workload.

Supporting students with sufficient course resources may prevent these causes. For example, ensuring that the workload is sufficient and appropriately dividable may help students assigning tasks within groups.

On a larger scale, ensuring that students obtain sufficient prerequisite knowledge early in the programme would build their confidence in the subjects, hence enabling them to claim tasks before their group members. As students report learning well when working individually or in pairs, using these group sizes for introductory courses may be beneficial.

Further, including the study of group dynamics in the syllabi of mandatory courses may help students with conflict management and collaboration in general.

Teaching assistants are often present as support to groups. Usually this support is only defined as technical or academic. However, as assistants are an authoritative figure, they have the opportunity to step in and aid groups with social issues. The assistants should therefore receive training and instructions in aiding social situations.

How well do you learn in the following group sizes?

12
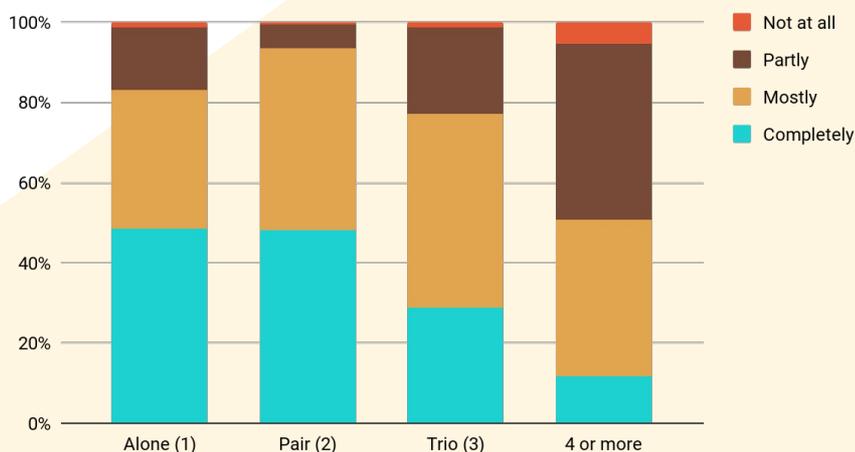
Group composition preferences

Most struggle with the favorite group composition

Respondents prefer self-elected groups over any other group composition. Among the other group compositions, randomized groups are the least popular.
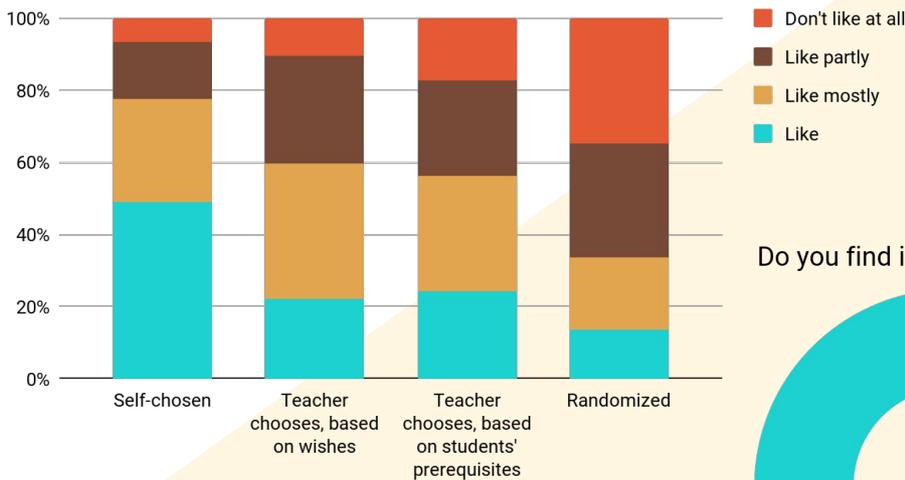
Note that almost 15% of respondents answered "Don't know" about groups the teacher has composed based on students' prerequisite knowledge.

Although students prefer working in self-chosen groups, most respondents experience some difficulty finding group members.
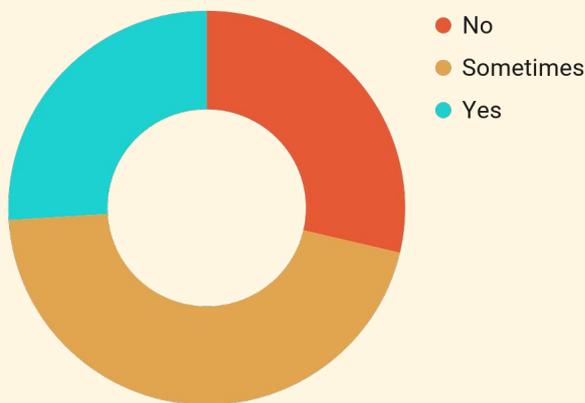
As students struggle to find group members, teachers could assist by offering class time or creating a digital discussion thread dedicated to creating groups.

If randomizing or arranging groups manually, teachers may include tasks to promote good collaboration (e.g. writing group contracts or planning a teambuilding).

What do you think of the following group compositions?

Legend:
- Don't like at all
- Like partly
- Like mostly
- Like

Categories: Self-chosen, Teacher chooses, based on wishes, Teacher chooses, based on students' prerequisites, Randomized

Do you find it difficult to find group members?

- No
- Sometimes
- Yes

Self-expression in groups

## 4% of LGBTQ+ respondents can be themselves in randomized groups

Most students state that they, always or often, can be themselves regardless of group composition. However, students are more often comfortable expressing themselves in self-chosen groups. In contrast, they are more rarely comfortable being themselves in randomized groups.

A significant difference in ability to self-express is observed between LGBTQ+ respondents and other respondents in randomized groups. In randomized groups, only 4% of LGBTQ+ respondents state that they can always be themselves. In comparison, 40% of other respondents state that they can always be themselves in randomized groups. Around half of the LGBTQ+ respondents report never or only sometimes being able to be themselves in randomized groups.

These statistics indicate necessity to work with inclusion across programmes, courses and the student division. This is a broad area with many areas for potential work. Some actions taken by the student division and teachers in the programmes include: normalizing presenting ones pronouns, including mentions of historical, marginalized scientists in course material, and celebrating queer culture by hosting events.

On a smaller scale, encouraging more meaningful connection between group members could create a safer work environment. For example by encouraging students to do teambuilding exercises or to use group contracts and other collaboration methods.

Can you be yourself in the following group compositions?
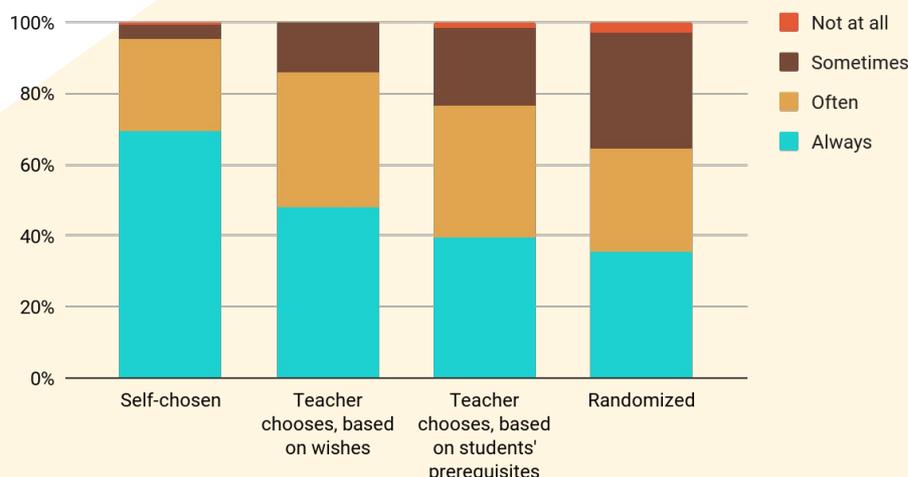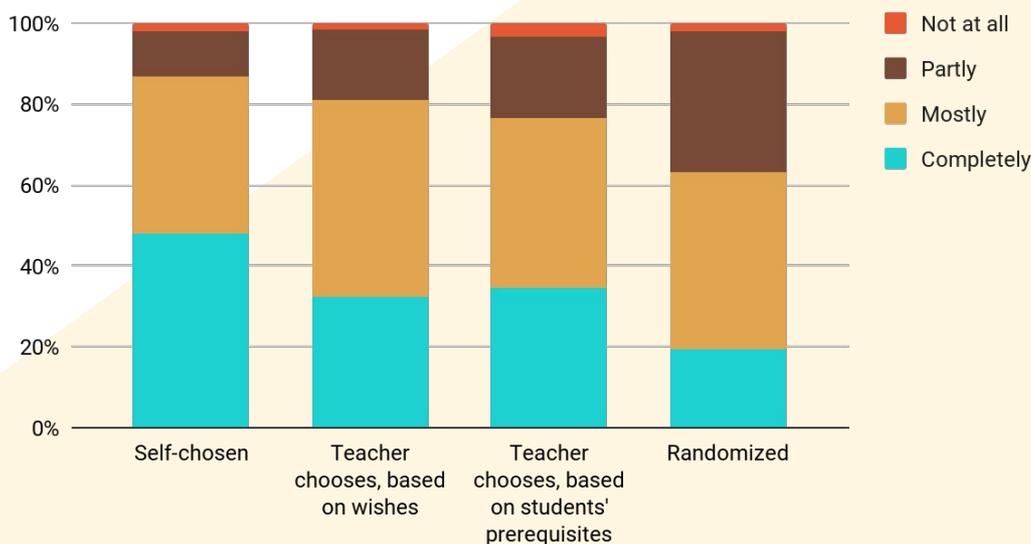
Group composition & learning
Students learn best in self-chosen groups

Responses about preferences for certain group compositions maintain similar proportions as the responses for experienced learning.

Generally, respondents learn more in self-chosen groups, while they learn less in the other group compositions. Note that many students state they don't know (or lack experience) regarding the other group compositions.

Once again, obstacles to learning during group work may include, for example, insufficient prerequisite knowledge or dysfunctional collaboration. Ensuring that each member can contribute (and thus learn) may require preparation in earlier courses (e.g. having individual assignments) and/or actively engaging students in analysing their group dynamics in the current course.

How well do you learn in the following group compositions?

Group composition & workload

Students in randomized groups experience uneven work distribution

Although respondents state they learn less in randomized groups than self-chosen groups, they also experience a too high workload in randomized groups.
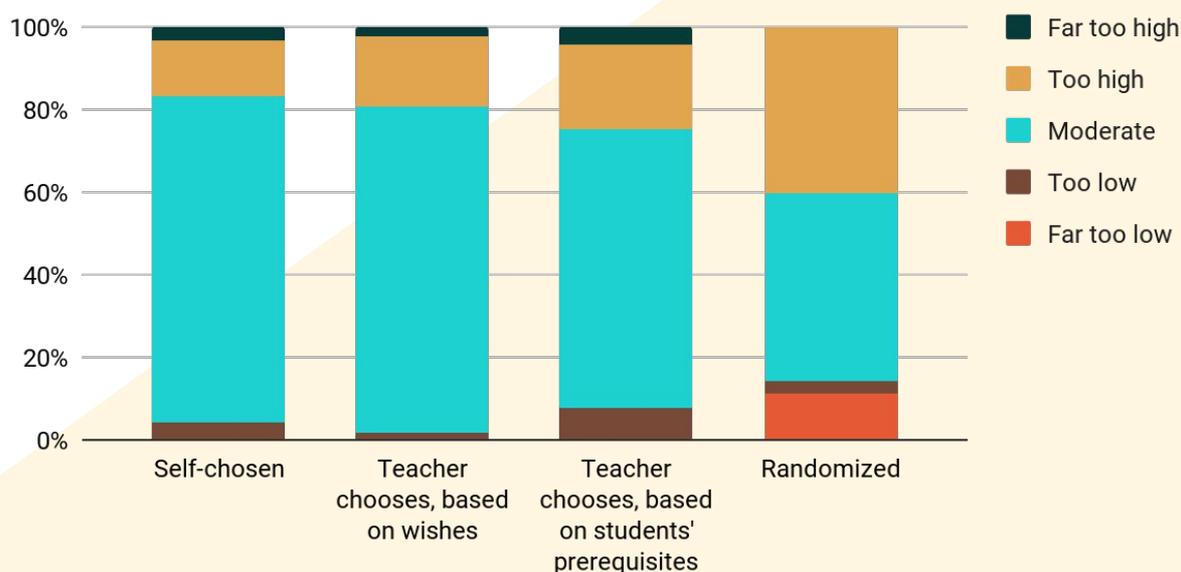
In total, close to half of respondents experience an unfair workload in randomized groups, with a larger amount considering the workload too large.

This can be contrasted with workload assessment based on group size,

where once again many respondents experience unfairness. However when queried on size, the distribution too much and too little work is very even.

We find it likely that this is due to group dynamic issues. It would be helpful if students were able to communicate better, even when grouped with strangers. Possible actions towards has been previously mentioned and can be taken both from the programme and student organisations.

How is the workload for you in the following group compositions?

Group dynamics in short
Clear preference for small, self-chosen groups

Conclusions:
- Half of respondents believe the workload is uneven in groups of four or more members. In addition, respondents experience learning less in groups of four or more than in other compositions.
- On all factors surveyed, respondents prefer smaller groups.
- Respondents have an ambivalent view on self-selected groups. On one hand, it is the preferred composition and reported learning is the highest for this composition. On the other, most have struggled to find peers.
- LGBTQ+ are more likely to have experienced abuse and are less likely to be able to express themselves than others.

Proposals:
- Actions needs to be taken to ensure the safety of all students. All students should know what one can do when affected. There must be efforts made from the programmes and student division to increase the understanding for and inclusion of LGBTQ+ students.
- Teaching assistants may be used as a helping resource for groups with social issues.
- The large amount of students experiencing unfair workload in larger groups indicates a problem. This may indicate an additional need for group dynamics work, but we also believe that it is necessary for examinators to consider whether the size and structure of tasks allows for an equal distribution.
- Responses indicate that students learn better individually or in pairs. Introducing individual or pair assignments in early courses may increase students knowledge and confidence.
- Examiner should consider the preference for self-chosen groups and could help students find group members.

III. Assessment
Examination forms and assessment in groups

This section investigates how students experience the assessments conducted within the Software Engineering programme. The questions asked addressed the different forms of examinations and assessment within groups.

The aim of this section was to see if students experience their assessment in courses to be fair as well as to how comfortable they are with the specific examination form.

Respondents seemingly related examinations forms to opposite groups when evaluating. Anonymous examinations were rated as much more fair than hall exams. It is likely that some students here compared it with non-anonymous examinations, while others did not. This means that respondents likely interpreted questions differently.
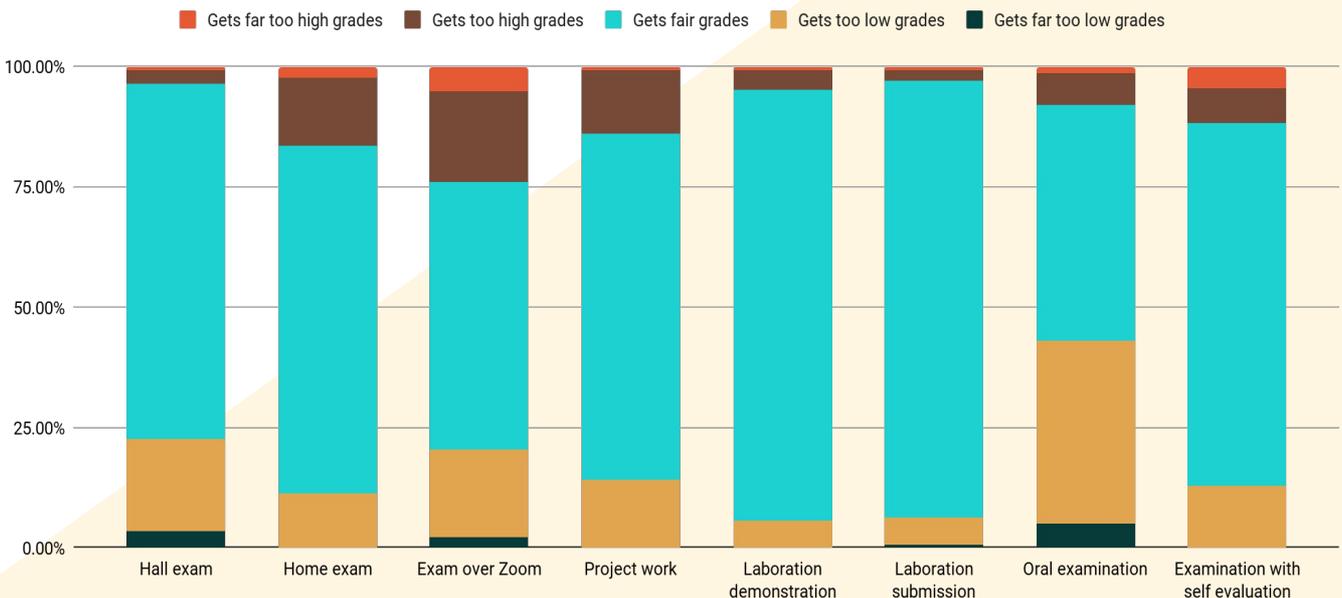
Examination forms

Respondents feel poorly graded during oral exams.

The majority of respondents do feel fairly graded with all examination forms, except one: oral examination. Of the participants surveyed, 40% feel that they are under-evaluated during oral exams.

Additionally, no examination form displayed any evidence of unfair grading based on discrimination grounds.

The chart displayed below shows how respondents experience their grading based on the specific examination form.

How do you feel that you are graded in relation to your knowledge in different examination forms?

Examination forms

## Examinations are uncomfortable

Examining a student's comfort level during a particular examination format is relevant. It can both directly influence their performance on the exam and affect their quality of life in general.

The chart below shows that respondents felt most comfortable with home exams, project work and lab submissions in regards of examination.

The largest complaint is with oral examinations, where almost half of the respondents are uncomfortable with them.

When presenting this data, it's noteworthy that the sole course which primarily utilized oral examinations has transitioned to a standard hall exam format. Nevertheless, the adoption of oral examinations requires careful consideration by examiners to both enhance student comfort and ensure fair grading.

How comfortable do you experience the following forms of examination?
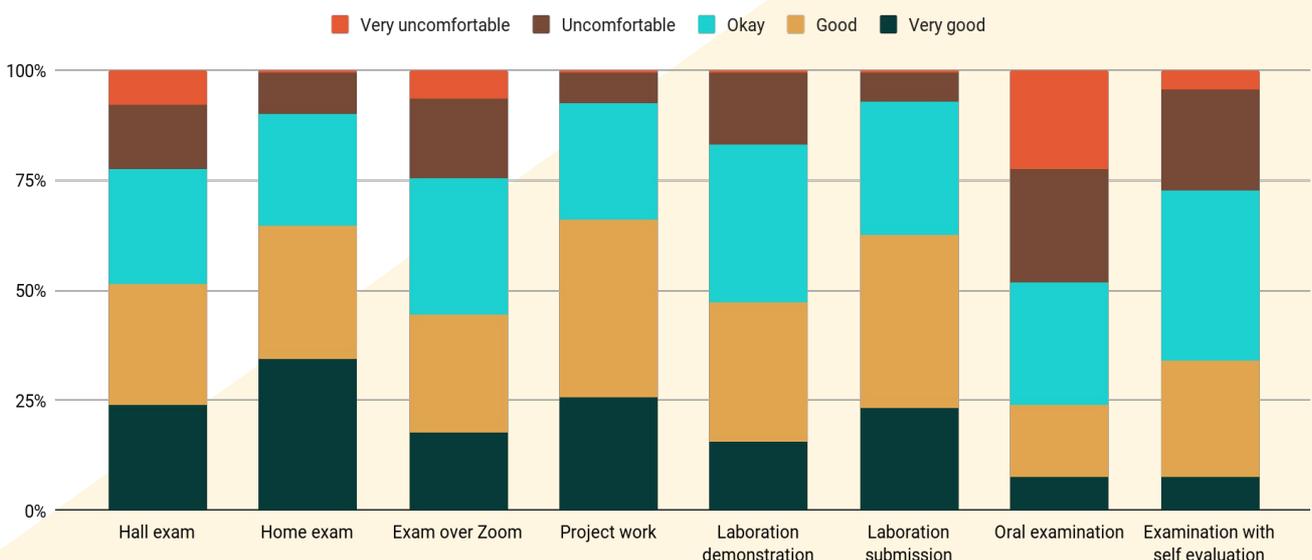
Group composition & grading

In randomized groups, only 60% consider themselves fairly graded

When considering assessment in accordance to group compositions, over 80% of respondents consider themselves fairly graded in self-chosen groups. Around 60% of respondents experience being graded fairly in randomized groups. Note that these numbers exclude respondents which indicated "don't know" to this specific question.

How do you feel you are judged in relation to your performance in the following group compositions?

Legend:
- Far too high grades
- Too high grades
- Fair grades
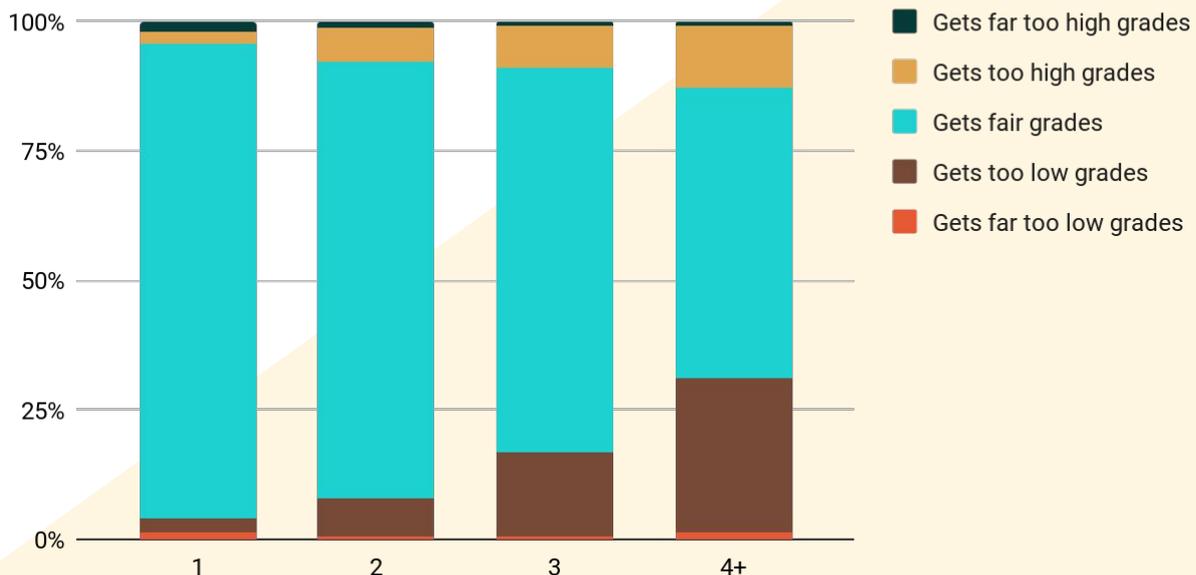- Too low grades
- Far too low grades
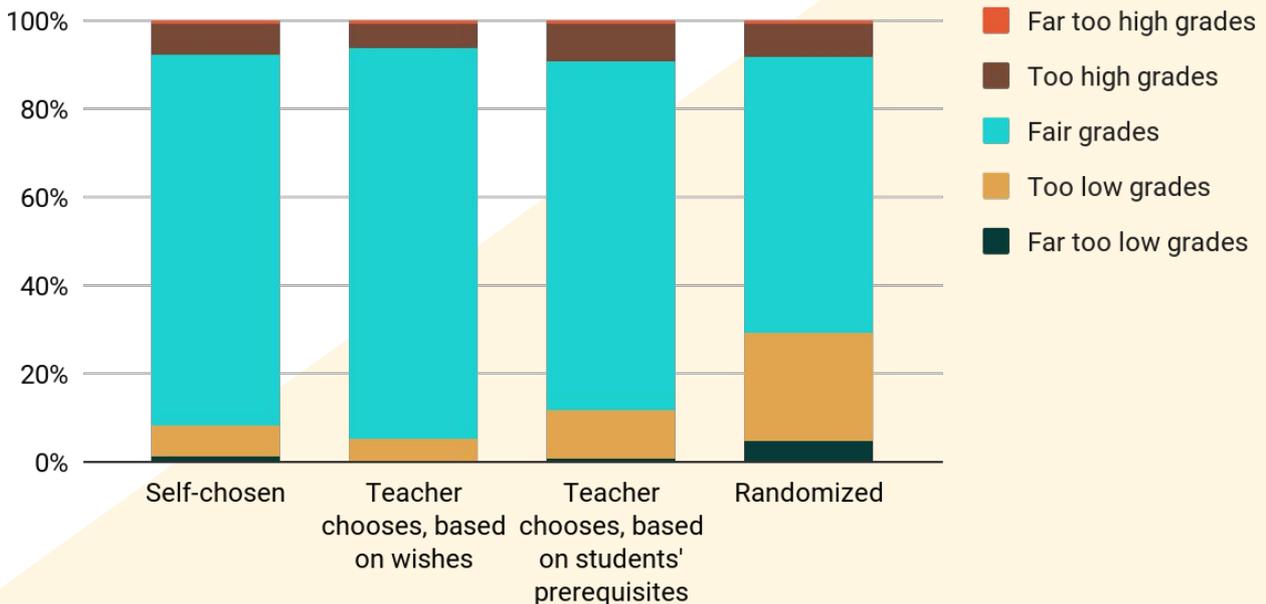
Group sizes & grading

Respondents feel both over- and under evaluated in larger group sizes

Compared to their experience in solo tasks and small groups, respondents feel increasingly both over- and undervalued in their performances in larger groups. While the majority of respondents experience fair grading in solo projects, about half feel unjustly judged in groups of 4 or more. Students states both being under- and overscored, with an inclination towards too low grading.
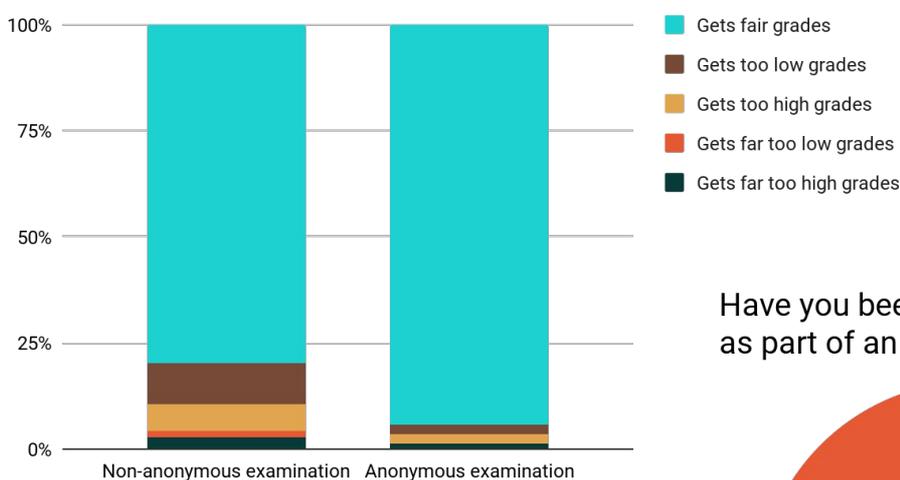
How do you feel you are judged in relation to your performance in the following group sizes?

Legend:
- Gets far too high grades
- Gets too high grades
- Gets fair grades
- Gets too low grades
- Gets far too low grades

Anonymous examination

A fifth have been tasked to leave personal data in anonymous examinations

Non-anonymous examination och anonymous examination

Legend:
- Gets fair grades
- Gets too low grades
- Gets too high grades
- Gets far too low grades
- Gets far too high grades

Students are more likely to experience fair grading in anonymous examinations. While most students consider themselves fairly scored under their own name, a significant amount of people do not.

A problematic additional finding is that 20% of respondents have been tasked to use personal data as part of a supposedly anonymous examination.

Since the study was performed shortly after Covid restrictions had lifted, it was likely an effect of examiners attempting to prevent cheating by personalizing questions.

Have you been asked to use personal data as part of an anonymous examination?

Legend:
- Yes
- No

Limiting unbiased grading opens up for discrimination and students fearing being able to openly not understanding course material, as well as criticizing the teacher.

Assessment in short
Examinations are generally uncomfortable for students

Conclusions:
- Every form of examination is considered uncomfortable.
- Respondents experience some examination forms as more just evaluations of their skills than others. They both find themselves under- and overvalued.
- Anonymous examinations are not always anonymous

Proposals:
- It is impossible to remove all pressure from examinations. Examinations use pressure to appropriately assess student skills and with graded assessments, all are never going to be satisfied. However, some actions can be taken towards a more comfortable experience where students can hopefully perform more accurate to their skills.
- Student organisations and student health teams may help with preparation and preventing anxiety. Course organisers can consider how one can make the examination experience as pleasant as possible. This could be especially helpful with oral exams, which students find the most discomfortable.
- It is unacceptable that allegedly anonymous examinations prompts the student for personal data. Whether the reason is to identify or provide different challenges to the students, it opens up for discrimination and lowers trust in the examinators and program.

IV. Scheduling

The effect of scheduling on students' lives

This section about scheduling mainly sets out to answer if scheduling is an issue and if so, what areas in life it affects. In addition to that, we wanted to find if late scheduling in particular is causing problems for students.

It is expected that studies collide with other day-time activities. It is still interesting to know what students need to de-prioritise due to studies.

Scheduling for minorities

Women & disabled people face disproportionate issues with late scheduling

The survey shows that 37% of all respondents experience problems with late publishing of schedules. In the chart below, it can also be seen that a larger fraction of women than non-women are struggling with scheduling. Non-women is a grouping of respondents categorizing themselves as men or other and those who chose not to categorize themselves. Non-disabled is a similar grouping.

Scheduling the course structure in due time is important to create a fair environment for all groups. This ensures that accommodations and considerations are in place for the people experiencing most difficulties such as women and disabled individuals. This proactive approach is crucial for leveling the playing field and promoting inclusivity for everyone.

Students stating problems from scheduling
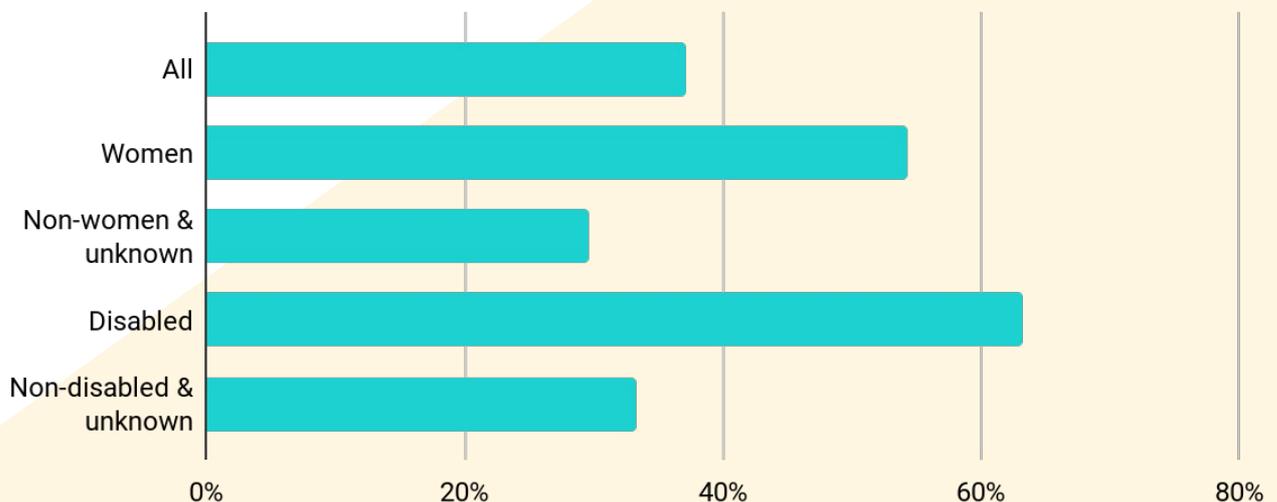
Scheduling conflicts
Late scheduling interrupts planning for parallel studies

The diagram below shows how students face issues in planning within different areas of life as a result of late scheduling. Note that the data presented excludes respondents who indicated "Does not apply to me". As a result, the percentages reflect only those for whom the particular area is relevant.

None of these subcategories indicated any suggestion as to why women have more issues with scheduling than non-women.

The area where the majority state scheduling issues is with their parallel studies.

Percentage of respondents having experienced problems with scheduling within different areas of life

Legend: No problems stated | Problems
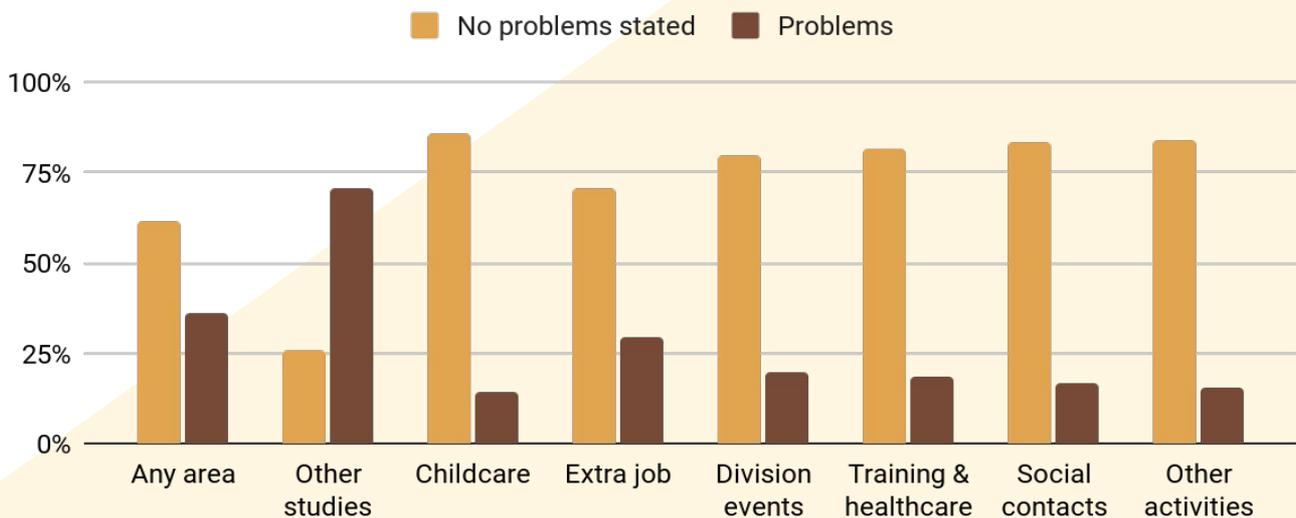
Scheduling in short
Bad scheduling mostly affects other studies

Conclusions:
- Scheduling collisions mostly occur with other studies. Most students have experienced issues scheduling problems with other studies.
- 37% of respondents experience problems with schedules being published late. Women and disabled people struggle the most.

Proposals:
- The school is not responsible for collisions with non-study related activities during study hours. However, potential collisions outside those hours and collisions between different courses can be problematic. The block schedule should prevent these collisions.
- There should be a deadline for course organisators to publish the course schedule. There should be routines for how one should publish a late schedule change.

Other notable findings

Vulnerable groups

- We did not find indications of students experiencing discrimination in grading on any of the seven grounds of discriminations.
- There were no indications of disabled students finding campus less accessible than non-disabled peers. However, it is likely that the survey was lacking in this area.

Student division activities

- 44% avoids some student division event because of social reasons.
  - Some do not feel like they fit into the group
  - Some do not think they know enough people
  - Some are uncomfortable with certain people attending an event
- 30% experience unspecified obstacles that makes it unthinkable to attend some events. This might be too vague of a question.

Main takeaways

When reviewing our results and this final report, we, the authors, find that the focus and the most dramatic results concerned group projects. Hence, this is also the area for the most critical takeaways. While student organisations can contribute to the comfort and learning outcomes of the students, the university has the primary authority and responsibility to accommodate. Listed below are our three most urgent suggestions for the school officials.

Teaching assistants should receive basic education on how to act when aiding a group with social issues. Abuse can never be accepted and all employees of the school should be utilized as tools to create a safe and fair environment. Teaching assistants receive semi-annual basic training as well as introductions to individual courses. Writing from experience, these sessions generally contain little or no information on group dynamics. Teaching assistants work closely with student groups and offer support in all other aspects of the group's work. By giving the assistants training in handling and supporting social issues, they may be able to help steer groups towards a more open and safe work environment.

Examiners need to provide solutions for students that need help finding a group. A majority of students struggle finding groups. It is likely that this might result in stress for an individual, as well as reduce the likelihood for a student to find a fitting group. Examiners and other course coordinators should make considerable efforts to find comfortable and efficient ways for students to find other students. Among other things, they need to recognize the exposed position of being a student without an obvious group belonging. Methods can be in-person mingling or forms with questions regarding in-person/remote work, who one wishes to work with, ambition level etc.

Group sizes should be reduced. The large groups have been shown to fail on multiple critical points. Limiting group sizes should be a top priority. By all means, the large groups are mainly a result of limited resources. The school can utilize automatic correction, extended use of teaching assistant and forums for students to assist each other with basic questions.