

Regarding who to interview, we had two choices: either the teachers who organize the course and the groups, or students from the point of view of group members. We chose to

interview teachers first, thinking that they are the ones who organize and groups and can introduce methods or tools to the process.

We interviewed a teacher from the Oulu university of applied sciences, and another from Oulu university computer science department. Both teachers run software development courses with group works.

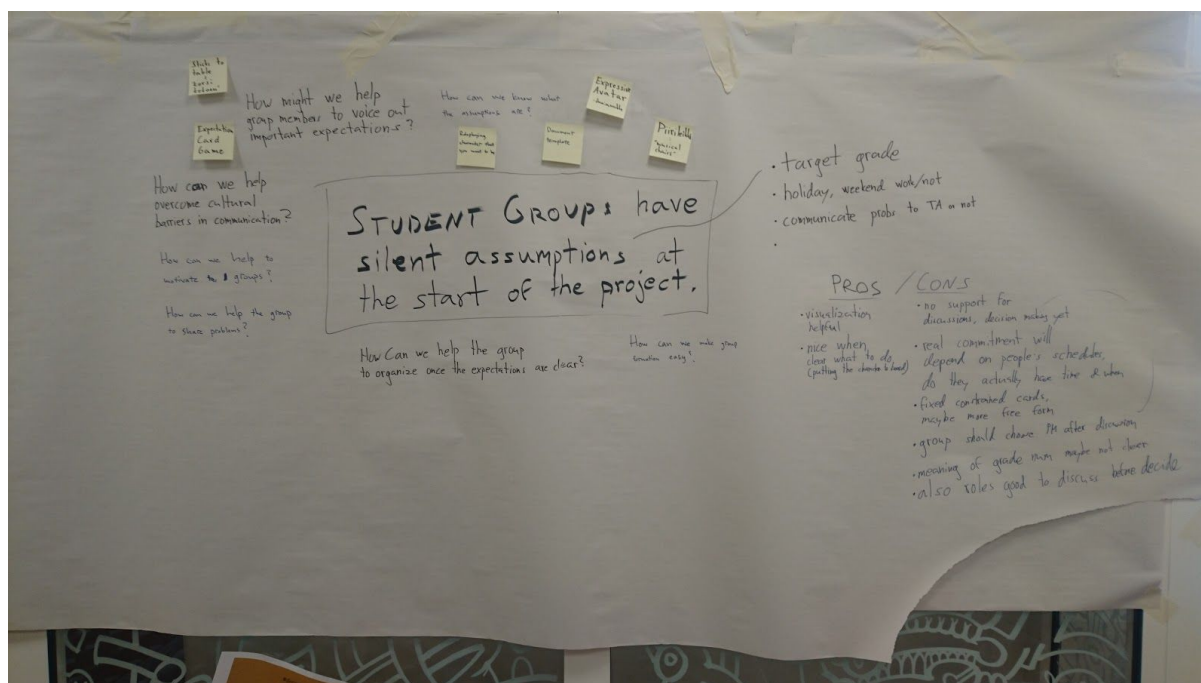
Our initial problem did not come up at all in either of the interviews. Instead, we learned a lot about running group works from a teachers point of view. We specifically asked about problems, so the teachers told about several problem points in course works. Two issues were raised by both teachers independently:

1. Students have differing goals regarding the courses: some need or want a great grade, some are happy to just pass the course. Specifically for international students (common in both schools), getting a high grade can be an absolute requirement due to the funding or company support (some students come from companies or government in South-East Asia to study computer science for a year in Oulu).
2. Students differ in their assumptions regarding holidays and weekends: Finnish students, especially middle aged people with children, often assume that school holidays are free time for them as well (they need to take care of the kids, maybe travel with them to ski in Lapland). Foreigners, or Finnish people without children, sometimes just ignore the Finnish school holidays altogether. Also, some students are happy to work on weekends (maybe they have a job during the week), whereas others absolutely refuse to do anything during weekends.

We learned many things about group works in general. One underlying assumption we had was that teachers care about and observe the groups. That was validated. Teachers are sometimes present with the group to see how it works. Both teachers also told that the reason for organizing group works is to bring together people with different skillsets, because different skills are actually needed to make the project. Interestingly they also pointed out that it is fine for the student projects to get into trouble in the project -- it can be a valuable lesson. Furthermore, the roles and responsibilities can change throughout the project: in the beginning the groups have to choose a Project Manager (PM), but during the project they can decide to change it.

3. Second round: New problem statement

We drafted a new problem statement around the notion that groups have silent or wrong assumptions at the start of the project. For example regarding the target grade or practice with holidays or weekends, the students may already know those beforehand, but don't realize that it would be something to tell the others right at the beginning. The difference is often between Finnish and foreign students. We also figured that cultural differences makes communicating these silent assumptions difficult.



Picture 2: New revised problem statement, formed after 2 interviews

4. First prototype

We chose two most promising ideas for prototyping: card-game and avatar. It was quick and dirty but served the purpose of expressing the problem statement with a concrete examples. Avatar-idea was done with legos, which were put on a board. Each figure represented a group member and they had features like goals and what holidays they wanted. A tower of blocks represented the grade. In the card game, numbers were hand out and each person in the team graded the topic card in question

It was interesting to note how much further the problem space got. A choice was made to combine the prototypes to one: Playing cards would be hand out first and secondly board filled with lego-blocks.

5. Playtest

We conducted testing of the first prototype in a physically realistic group meeting setting, but so that the participants had to imagine, role play, the situation. We managed to recruit one participant from the outside, and he is actually an international (Romanian) computer science student at the university, familiar with the kind of group projects we focused on. Other 3 testers were from the Jam, facilitators and a member of our group who was not able to participate in the development work earlier (he is also an international computer science student here). Other 2 testers were Finnish, so we had a suitable international setting.

The first task was for each participants to put their target grade number card on the table. Ideas was to then form consensus about the target and build the 'grade tower' accordingly. That failed: one of the testers started questioning the meaning of grade numbers altogether. The participants had also conflicting goals, some aimed for best score and for others it was ok to pass the course even with lowest score. We provided no means for consensus building with the tool. The group tried to form consensus by discussing but failed. In a real situation it can be a good results: they then know that they need to actually switch groups. However in the test it was just a deadlock, and we skipped to grade tower building altogether to proceed.

Latter parts of the game worked basically ok. Participants were able to pick roles and indicate their holiday practice and approximate level of commitment on the board. The resulting visualization of the commitment levels was a light bulb moment for the real test user: he saw how his idea of a great grade was not possible with this group, and was then ready to compromise.

In the feedback discussion, it became clear that it is important to have discussions first to base the decisions on. For example the choice of the project manager should be done by the group, after they have gotten to know and discussed about possible roles etc. People also reported that the parts where it was clear what to do the solution worked well: basically the placement of the lego character on the board to express your individual situation.

To summarize, we listed pros / cons of the prototype:

Pros:

- Visualization helpful
- Nice when clear what to do (putting characters on board)

Cons:

- no support for discussions, decision making (yet)
- real commitment will depend on people's schedules, do they actually have time & when
- fixed constrained cards, maybe should be more free form
- group should choose PM after discussion
- meaning of grade num maybe not clear
- also roles good to discuss before grade



Picture 3: First play test. People discussed a lot, and enjoyed the visualization on the board

6. Final prototype

Based on the lessons from the first test session, we changed the design of the tool. Instead of starting with the grade cards, we dropped the topic of grades altogether. The play is now started by participants filling in free form Goal cards to express their wish for the course. The goal is attached to the character in the beginning. Next, each participant places the cards for the possible roles she is willing to take in the project -- and withholds the ones she does not want to do. The idea is to break the ice and trigger discussion about goals and roles. After this the roles are chosen by picking the corresponding hats for the characters. Finally the characters are placed on the board to indicate the holiday practice & level of commitment: this part of the tool worked OK already in the first run and we kept it the same for the 2nd version. We could still add more structure / the scale to the commitment, for example number of hours in a week that the participant is planning to work on the project.

We were unable to recruit new testers for the new version in the time we had so the revised version is not playtested yet.

This (so-far) final design is described in the draft instructions we created for the tool:

Instructions:

1. Set up the parts according to the picture and deal the the cards to group members.
 - a. Everyone gets one of each card.
2. Everyone picks a character.
3. From the goal-cards, write down one specific thing that you want from the course.
4. Combine goal and character and show them.

5. From the role-cards, pick your possible roles to the course.
 - a. Everyone puts out any of the cards to the table on what role they can be in.
 - b. Discuss a consensus if some of the roles are left unfilled.
 note: If no project manager is chosen, it is chosen by team at end discussion.
6. Choose the role hat for your character matching the role-card.
7. Combine hat and character.
8. From the board, choose commitment level to the course by how many hours you are willing to put into it.
9. From the board, choose the holiday practise that best suits you.
10. Place character and goal-card to the board to right place matching the previous decisions.
11. Discuss the the commitment level and roles among the group and make possible changes by changing the character position on the table.
12. Take a photo of the board.

