



NOVA SCHOOL OF
SCIENCE & TECHNOLOGY

Interação Pessoa-Máquina

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Synapse

Stage 2: User and task analysis



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Problem: Quick and easy way to form groups for the assignments. Centralized system for teachers to manage projects.

Users: Description of each user class.

1. Students:

- age: 19-26 years;
- secondary/post secondary education;
- technical skills: high level of computer literacy;
- motivation: need to quickly form project groups with the required number of members to meet course deadlines and pass the course successfully, the application helps them efficiently find and collaborate with each other;
- attitude: using the app dedicated to creating student project group is encouraging for students because of the convenience (creating groups remotely), system uniformity (no need to ask students individually about the possibility of cooperation via instant messaging), clarity (easy to check who is already in a group and who is still looking for it). All these aspects save students time and stress when forming groups;
- challenges: potential concerns over whether the system is used widely enough to quickly match students to appropriate groups.

2. Professors/Teachers:

- age: 26-70 years;
- higher education;
- technical experience: varies significantly based on specialization;
- motivation: need to have organized and comprehensive view of students enrolled in their courses to track project progress to check if students need more support and if they understand the tasks;
- attitude: professors are more likely to engage with the platform if it simplifies their workload by making group and student management easier;
- progress tracking easier, the interface needs to be intuitive and accessible, catering to teachers with varying levels of technical experience;
- challenges: teachers with lower computer proficiency may find complex systems difficult to use. Simplicity and clarity are crucial for adoption across diverse academic disciplines.

Tasks: << Description of the 3-6 (or more) identified tasks. Every task should have an objective, pre-conditions, sub-tasks and exceptions (what can go wrong). You should also point out other characteristics, such as time constraints or frequency of use. >>

Teacher:

1. Create project assignments and define details (how many students per group, what are the milestones in project, etc.)
 - a. define the subject of the project
 - b. set deadlines
 - deadline for register the group
 - deadlines for each stage of project
 - c. set requirements
 - set the limit of people in the group
 - set the number of groups
 - choose the group of students/the class concerned by the project
 - define exceptions
 - decide if someone can work alone
 - decide if someone can join the course and the group when the groups are already formed
 - d. confirm the project
 - create the project
 - inform students that they can start choosing groups and subjects
2. Being able to retrieve information (which group ? what skills ? which project ? what progression ? reports ?) from a definite project, student, class or group of students
 - a. check who is already registered in a group and who is not
 - b. follow the progress of project development in each group
 - check if groups meet deadlines
 - check the documents uploaded on the platform
 - simple communication with students
 - make available spots if someone inform about quitting the group or the course
 - communicate with students about why they missed some requirements, for e.g., the reason why they did not meet the deadlines

Students:

Four scenarios :

1. Form a group : If the student has already formed a group with his friends and want to sign up as a group
 - a. Click on the name of the project
 - b. Click on the button "Create a group"
 - c. Input the names and student numbers of the students you want to form a group with
 - d. Define the group name

- e. Define the group photo/logo
 - f. Confirm the group's creation
- 2. Find a group - if the student is searching for one.
 - a. Click on the name of the project
 - b. Click on the button "I want to find a group"
 - c. Input the criterias of the people you're searching for (skills, number of people, working preferences..)
 - d. Be offered different profiles of potential group partners
 - e. Match until you have a complete group
 - f. Form a group (scenario 1)
- 3. Customize group:
 - a. Change group name
 - b. Change group photo/logo
 - c. Leave the group or remove someone
- 4. Provide the professor with updates on project progress
 - a. Check which key points a group has finished (i.e. ToDo List)
 - b. Upload reports
 - c. See the professor feedback

Scenarios: << Description of scenarios involving at least the 3 most relevant high-level tasks. While task descriptions are abstract (ex: buy grocery), scenarios are concrete (ex: Mr. Jones went to the supermarket, in his way home, to buy bread, milk, ...). These scenarios will be used later during user evaluation. >>

- 1) You're a student supposed to make a group of three for a computer science project consisting in the conception and implementation of an application.
 You don't know any student from this course and the deadline for making the group is set at the end of the week.
 You're searching for partners with great programming skills because you are more keen on conception.
 You decide to use the Synapse application to find students to form a group with.
- 2) You're a teacher who wants to start a group project for your students during the practical classes.
 The students are divided into 2 practical classes each week, and have to find partners within their practical group.
 You require that no one does the project alone, however the number of students should not exceed 3.
 You want the students to upload their groups and reports directly on the Synapse platform.
- 3) You're a teacher that supervises a group project for a class of 40 students.
 The deadline for submission of the groups' composition is over, so you want to check the number and composition of the groups and make sure everyone has a group.

Interviews: Summary of the interviews' results.

Teacher's interview:

1) Steps followed from the creation of the project to the starting day :

- define the parameters of the project (size of the groups, deadlines..);
- define the description of the project;
- set up the material/software if necessary;
- announce the project to the students;
- retrieve the information on the group's composition and subjects.

2) How do you define the number of students per group ?

- It really depends on the nature of the project, but must be adjustable.

Difficulties faced:

- If the total number of students is not divisible by the number of students per group, groups must have some flexibility;
- Sometimes if the students have to gather groups of 3 or 4, if there's too many groups of 3, a group might have to split in the end. Where do the students go?

3) What tools do you use to retrieve data about the projects (group composition, reports..) ?

- Email for sending the information
- Excel for group composition
- Depending on the project, project website when it's possible to store all the previous data from the different increments

4) If the student doesn't have a group and comes to you for help, what do you do?

- The teacher checks the excel spreadsheet for any vacancies in the groups and informs the student.

Free discussion: A difficulty that the teacher faces is students dropping out of the class without informing the teacher. They block potential vacancies for students who want to join the course, and some groups end up empty.

Students' interviews:

Student no. 1:

1) What criteria do you consider when choosing people to work with on a project? What factors are important to you when working in a team?

- a) experience and knowledge related to the subject of the project
- b) communication style (remotely, in place...)
- c) grades in subjects similar to the current one

- d) ability to work within the group's set deadlines (not the teacher's deadlines)
- 2) What problems have you noticed in yourself or others while forming groups?**
 - a) people want to work in larger groups than allowed
 - b) people choose the same ones in all the projects, they learn less from each other in that way, they do not want to mix up
- 3) What problems have you encountered while working in a team?**
 - a) someone dropped out of the course
 - b) someone did not complete the work expected from him
 - c) someone left the group and joined another
- 4) What form of feedback from the teacher is most helpful for you? How often do you need feedback?**
 - a) remotely
 - b) without grades during the process
 - c) writing comments as feedback after each bigger part of the project
- 5) What tools/applications do you most frequently use when working in group?**
 - a) Google Docs
 - b) Trello
 - c) GitHub Project
 - d) Microsoft Teams

Student no. 2:

- 1) What are the steps you follow when you want to form a group for a project?**
 - a) checks if he knows some people in the group (because it's more simple to communicate) or someone he has already worked with and it went well
 - b) if he knows nobody in the group : check if there's an exchange platform for the subject (discord, whatsapp) and sends a message saying that he's searching for a group
 - c) then to inform the teacher, depend on him/her (email, google forms..)
- 2) What do you use to communicate and centralize the data once the group is formed ?**
 - a) a messenger/whatsapp group depending on the people
 - b) google drive or gitlab/github if there's code
- 3) What problems have you encountered while working in a team?**
 - a) Not enough investment from some people of the group
 - b) People who work too much on their own, not sharing enough

Student no. 3:

- 1) What are the steps you follow when you want to form a group for a project ?**
 - a) If I know somebody in the class, I try to make the group with them or if I don't know anyone I ask people around me if they want to make a group for a project
- 2) How do you seek for people to form a group with and what difficulties do you face ?**
 - a) I ask people personally in the classroom, when the project is announced. If that's not possible I try to reach out to them online. I encounter some difficulties with finding the correct number of people to the group (eg. One person missing)
- 3) What do you use to communicate and centralize the data once the group is formed ?**
 - a) For communication I use group chats specially created for the purpose of the project and to distribute the data I use shared drives or github repositories depending on the form of the project
- 4) What do you use to send the data to the teacher (group members, increments..) ?**
 - a) I use one designated person to share all the progress of the group
- 5) Have you ever used any apps to group students together? If so, which ones?**
 - a) I didn't use any of such applications.
- 6) What advantages do you see in group work?**
 - a) More ideas coming from more people and support from the group mates if needed
- 7) What bothers you about group work?**
 - a) Difficulty of distributing tasks efficiently and lack of smooth work organization
- 8) If you had apps to group students together, what things would be important to you?**
 - a) To know how many people are already in the group, how determined they are to complete the project (bare minimum, everything perfect and above...) and what do they feel the best in, considering the project requirements
- 9) What form of feedback from the teacher is most helpful for you? How often do you need feedback?**
 - a) Encouraging face-to-face talk discussing what went well and what needs improvement or written comments telling what and in which direction the work could be improved. I need feedback after some milestones or when in doubt
- 10) Do you have any other clever ideas for questions for the project? ;)**

- a) How do you think the group work would improve, if making the groups was more thoughtful than just forming a group with random people?

Student no. 4:

1) Do you usually struggle to form a group for a project that requires it? Why is that?

- a) It depends on the size, if the group size is 2-3 people, he has a group of friends, if bigger, it's hard to find the remaining people. People are often in the same situation and/or those who usually don't have a group don't pronounce themselves.

2) Do you have trouble finding the people you're missing, and what do you do to try to find them?

- a) In most cases yes, and he:
 - i) Joins discord servers that have people enrolled in the same course.
 - ii) Ask some familiar faces if they know anyone who isn't already in a group. Tends not to work, people tend to stay with the same people.
 - iii) In practical class, asks the teacher on purpose, to see students' reactions.

3) What are your criteria to select people?

- a) Someone who tries to communicate and do the work with the team

4) Usually how do you submit your report, and when you submit it do all group members are aware of the submission?

- a) It varies, github, moodle or email. Most cases yes, however if the group has medium/large size, sometimes some people are unaware of the submission due to communication failures and/or the inability to check the submission on their own.