

Unlocking Students' Access to Research Education

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1. Introduction/Background

Nowadays the involvement of students in research is not only desirable, but rather a mandatory activity in order to keep up with the medical progress. Most medical students cannot partake in high quality research projects and are not able to develop necessary medical research education skills such as: proper reading and understanding of research papers, critical evaluation of statistical data or implementation of research findings in their future clinical practice. The main issues that hinder the students to be part of research teams are 1) the lack of communication between students and researchers and 2) the lack of proper training, specifically targeted at research competencies. This can be fixed by 1) offering students opportunities to be involved in research projects and 2) by offering students access to resources focused on improving the necessary skills to become an asset in a research team.

2. Aim

We planned to support students' access to medical research education by gathering all the available pre-existing resources in our university (students, researchers, techniques and materials) in a comprehensive platform that would also offer them access to verified materials, would facilitate the collaboration between students and researchers and would lead to a higher number and an increased quality of research opportunities.

3. Specific Objectives

On short term, we planned to create a core group of 50 students whose needs to assess. Afterwards, based on the assessment, we intended to provide them with trainings for specific research skills, involve them in research teams, and offer them the opportunity to present their work at medical congresses.

On long term, we intend to:

1. Increase the number of students involved in research teams on the long term from about 5% to 15%, in a time frame of two years
2. Increase the number of students that publish as co-authors, in a time frame of two years

3. Provide an improved research education for students by offering access to verified materials on research methodology

4. Target Group

The main target groups were 1) medical students that would partake in research activities and gain access to research materials, and 2) young researchers who would recruit students and access the university's resources more easily.

5. Description of Work

1. *Data gathering.* We collected a list of active research projects and resources starting at the beginning of February. Our group contacted the chiefs of each one of the 69 research groups in our faculty in order to centralize all the necessary data. We used an easy-to-fill form that collected information regarding the active research projects (name, description, the possibility of students' involvement and their responsibilities) as well as available research resources in the group (techniques, materials, contact methods for accessing the resource).

2. *Implementation of the research platform.* Our team contacted the IT company at the beginning of February to begin the development of the research platform. We created a layout for the platform and offered constant feedback during the site construction. The platform has 2 interfaces: one for students and one for researchers. The students' accounts (4090 accounts for all the students in the Medicine Faculty, excluding the terminal years) were created using the university's database. The researcher's accounts were created by our team (at least one account for each of the 69 research teams). The access to the platform was offered both to students and researchers on 20th of May. We created an easy-to-follow guide (*see Annex 1 and 2*) for the platform's access, which was shared to students via private social media groups targeted at official university announcements and to researchers via email (to every chief of a research group).

3. *Applications and selections.* Every research group decided the deadlines for registrations and the methodology of students' selection. This information was public on the platform for every student. Students were able to apply for a project starting on the same day of the implementation.

4. *Feedback gathering and centralization.* During the platform's implementation and afterwards, we created questionnaires for students and researchers and collaborated with the Research Department of the Faculty of Medicine in order to address the requests of each side. After the feedback centralization during every part of the project, we contacted the IT company for the necessary changes of the site. After the implementation, we also gathered feedback regarding the end result.

5. *Students training.* We created a group of approximately 50 students interested in research for whom we organized specific research trainings: efficient article searching, efficient article reading, basics of statistics, in-depth statistics training, writing and presenting a case report, and reference manager training. After every training, we gathered feedback in order to start working on materials that would be of help for future students.

6. Results of outcomes/Impact of the project

1. *Outcomes of platform implementation.* Students can view the active research projects and can apply to be involved in a project by submitting a CV and a motivation letter; they can see the research resources available in the faculty; and they have access to materials that would help them integrate more easily in a research team (at the moment – a material about the proper approach to statistical hypothesis testing). Researchers can view the active projects in the faculty; the students registered to participate at their projects alongside their CV and motivation letter; as well as the available research resources in the faculty.

2. *Short term impact.* As a result of this platform, there are already 11 students involved in a research project, further selections being planned after the current exam session. The number of research projects in which students could be involved was 18, in areas such as urology, surgery, ophthalmology, diabetes, ENT and occupational medicine. The number of students who were able to present a short paper at a medical congress as a result of a collaboration with a research team was 18. Regarding the research trainings, the students found them overall useful and well thought, but we identified some parts that could be improved, such as: a larger number of shorter statistics trainings instead of two long ones, addressing in-depth research topics specific for particular fields, providing article

writing trainings. 6 research groups reacted strongly positively to the initiative, finding the possibility of their team's expansion a great asset for the active research projects. Additional 8 research groups that offered feedback also found the initiative a good asset and will use it to recruit students as soon as they need new members in their team. A more in-depth evaluation of the project made by the participants can be found in Annex_3.

3. *Long term impact.* We were not able to properly assess these results, as we need more time to see the overall impact of the project on the number of students involved in research and the articles published by them as co-authors.

7. Discussion

Students reacted positively to the implementation of the platform, being eager to be involved in research opportunities. Several research teams found the initiative useful and beneficial for a better management of their research projects. However, major drawbacks such as the difficult communication with several research teams and the pandemic conditions that did not allow all the interested students to partake at such projects limited the outcomes that we expected.

8. Limitations/major difficulties

Due to delays in the implementation of the platform, we could not properly create the materials and involve students as stated in the initial time table. This was a result of the university's process of documents approval and the IT company's internal delays. The communication with the research teams proved to be a difficulty, not being able to reach all the available groups through usual communication means. Moreover, due to the pandemic conditions, not many students are able to live in Cluj-Napoca during the research projects period of implementation.

However, we tried to find other ways to compensate for the delays, providing the interested students with several online research trainings and with opportunities to showcase their work at medical congresses.

9. Conclusions

Nowadays, exposure to research is crucial for proper medical training. This need can be turned into a valuable asset for research teams that can benefit from the

involvement of students. By facilitating the communication between different research teams and also between students and researchers, a higher quality of research can be achieved with the same available resources.

10. Dissemination

We presented the initial results at the General Assembly of the local medical students' association (OSM Cluj). We intend to further disseminate the results at medical students' congresses and at national assemblies.

11. Take home messages

1. Students are eager to be involved in research activities and researchers can take advantage of the opportunities to expand their team.
2. Specific trainings for students targeted at developing research abilities are necessary and should be included in the medical universities' curriculum.
3. Internal online platforms in a university can improve communication between specific groups that would otherwise not interact on a regular basis.

12. The project in the future

During the summer vacation, we intend to maintain contact with the students and the research groups that have started collaborating using the platform for proper follow-ups. Moreover, we will contact new research groups and continue promoting the platform among students. At the beginning of the upcoming university year, we intend to expand the access to the other two faculties of our university. Moreover, there are possibilities of extending the platform by offering access to our database to other national and international universities that are willing to collaborate within different research areas.