Social responsibility as a pedagogical approach for the involvement of undergraduate chemistry students in the compulsory science education challenges: Experience of the Peruvian Chemistry Olympiad

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With the goal to get our undergraduate students more committed with the main local and global problems that affect our society and to help them recognize themselves as agents of change, we have recently redesigned the Ethics course, now called Ethics and Social Responsibility in Chemistry. With this new pedagogical approach, we involved our students in the design and put into practice of an inquiry-based lab session. Our Chemistry students undertook this project with their professors' guidance and with the support of our laboratory staff, with the final aim of sharing their work and receiving feedback in a workshop for high school teachers during National Chemistry Olympiad, which takes place in PUCP campus.

The methodology

- The class was divided in two groups and each group designed their own lab session under the condition that it should be carried out with materials that are of easy access in schools in any part of our country, and with the additional challenge of collecting relevant and motivating topics for high school students.
- By early November, they had already written and tested their proposals.
- Each laboratory guide included:
  - goals of the session
  - reasoning behind the choice of topic
  - theory needed by the student to make the most out of the session
  - main inquiry proposed
  - experimental procedure, which included questions to support the students in their exploration of the subject
  - space for registering results, observations and conclusions

The workshop

- The students were involved in the entire process of setting up a workshop to share their work and receive feedback from high school teachers.
- 31 high school teachers, from all over the country, participated.
- Our students acted as facilitators of the experience for the teachers, who initially adopted the role of students.
- After concluding the lab session, we asked for the teachers' feedback, with emphasis in pedagogy, in order to improve our students work and to have it be a valuable contribution for school teachers in Peru.

Conclusions

- This project proved to be a good way to involve our students in issues that extend beyond what they normally see in their courses. It showed them that, as students, they are already able to be agents of change in our country.
- The project also showed them the importance of interdisciplinary work, as they have enough chemical knowledge, but not enough pedagogical knowledge to make the impact they want to make all by themselves.
- The high school teachers were thrilled with the project because it generated useful resources for their practice and a much-needed space for sharing experiences with their colleagues from different regions in Peru.
- This project has laid the foundations for future collaborations with high school teachers in order to help motivate more students to pursue scientific careers.

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