

Innovative Project in the Chemistry Teaching License Program of the Capivari Campus of the Federal Institute of Sao Paulo (IFSP) (Innova-Chem)

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Innova-Chem was conceived in 2016, by a group of then fourth-semester students, and implemented in 2017 by a collegiate group involving students, professors and the socio-pedagogical staff. Involvement in the project was voluntary for all participants, in respect to the principles of freedom and diversity that govern the program.

The objectives of the project are:

- a. To build a new pedagogical proposal for the Chemistry Teaching License Program, covering curriculum, methodology, evaluation strategies, and the role of professors and students in the learning outcomes;
- b. To map possible itineraries for educational innovation in institutions that were not created with an innovative mission, to serve as inspiration and reference for other institutions contemplating the adoption of innovative strategies.

The theoretical framework for the project includes studies that show that knowledge and competencies are built and developed through interaction, on the one hand, between the environment and the participants of a learning project, and, on the other hand, among the participants themselves with one another (Piaget, 2002; Vygotsky, 2007). The project is also committed to the ideal of an education that, besides being democratic (Dewey, 1979), is essentially focused on the transformation of reality and on the emancipating nature of the learning involved in the social, political and pedagogical aspects of the change process (Freire, 2014).

The project sought to create an environment that favored active, interactive, collaborative and meaningful learning, thus offering students real and diverse opportunities to prepare themselves to facilitate critical, emancipatory and integral learning on the part of their own students when the time comes for them to be engaged in teaching-and-learning activities in the area of Chemistry (hopefully outside the constraints imposed by the traditional educational paradigm).

The project intends the curriculum to be flexible, learning methodologies to be disruptive, and assessment strategies to be focused on all aspects of learning, on the belief that

it is only in an environment of this type that the role of professors and students can achieve a different meaning.

The **curriculum** was organized in the form of two “clouds”: a *Cloud of Pedagogical Objectives* and a *Cloud of Learning Projects*. Both clouds transcended disciplinary or subject-matter constraints. The **methodology** left behind the focus on teaching and lesson preparation in order to tackle investigative learning based on concrete problems and focused on projects that could solve these problems. **Learning management** is based on *Learning Itineraries*, that allow learners to follow different learning tracks or paths, individually or in small groups, and on a *Daily Agenda* tool that helps students plan the activities of each encounter with their professors or peers. **Evaluation** takes place any time students want to check their progress and instruments to assess learning are defined and agreed upon by professors and students together. **Professors** act not only as the content *specialists*, but also as *advisors* to the students, both in their specific learning projects and in their overall life. In this advisory role, professors act as more experienced partners in a continuing process of autonomy building.

Use was also made of Celso Vasconcellos’ concept of Zone of Relative Autonomy (ZAR). His thesis is that there is always space for innovation even in very closed, bureaucratic and highly hierarchical organizations, as schools normally are. In the midst of natural, social and legal constraints, as well as of personal, internal, artificial limits that are often self-imposed, members or participants in projects of change and innovation can find spaces in which they dare think and act outside the box, challenging existing paradigms (Vasconcellos, 2011). Those are the spaces that need to be occupied by those who desire to transform education.

The ZAR concept has served as an inspiration as students, professors and other collaborators in the project seek to collectively build and rebuild new, innovative and democratic ways of learning.

References

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