The Teaching Improvement Program:  
A learning experience for teachers and students 
in the Faculty of Pharmacy at the University of Costa Rica  

María del Carmen Acuña Rodríguez ¹

Abstract

The purpose of this paper is to introduce the project "Teaching Improvement Program: Innovation in Classrooms at the Faculty of Pharmacy". This project is currently under development at the University of Costa Rica as an initiative seeking to improve the teachers’ performance and the students’ learning process. A detailed explanation of the project’s background (its origins), methodology and results after two years of implementation is provided, from the perspective of the support given to the program by the Academic Evaluation Center. In general, activities have been well received by the students, and the project’s objectives have been accomplished.

INTRODUCTION

The Teaching Improvement Program is a joint strategy of the Faculty of Pharmacy, together with the Academic Evaluation Center² with the purpose of improving student learning processes for the major in Pharmacy at the University of Costa Rica. The program seeks to generate good teaching practices in higher education. It also aims to contribute towards a culture of quality for this Faculty.

The project is formally registered at the Vice-Rectory of Academic Affairs³ under the name of "Teaching Improvement Program: Innovation in Classrooms at the Faculty of Pharmacy".⁴ As indicated by its name, the project is about developing innovations at a specific moment, for which professors voluntarily join to participate in the experience. With this on mind, professors are asked to

¹ Psychologist. She has worked mainly as a teacher and researcher in different departments at the University of Costa Rica. She is currently working at the Academic Evaluation Center (CEA). Her main responsibilities include consultation on curricular design processes, program assessment processes, and teaching innovations. In addition, she is conducting research on topics related to higher education. Email: mariadelcarmen.acuna@ucr.ac.cr
² CEA, for its acronym in Spanish; the name is Centro de Evaluación Académica.
³ The original name in Spanish is Vicerrectoría de Docencia.
⁴ In Spanish: “Programa de Mejoramiento Docente: Innovación en las aulas de la Facultad de Farmacia”.
choose a subject or a class that they wish to change. This is done so that innovations do not turn into tasks that are not only difficult to accomplish, but also difficult to sustain over time.

It is important to mention that one of the main didactic strategies used by faculty professors in health sciences is the lecture-based class. However, as part of the teaching improvement, the Faculty of Pharmacy has agreed to adopt a constructivist pedagogical approach for most of their courses. This project is a response to that decision. Its objective is to work on identified weaknesses in the self-assessment process for the major’s reaccreditation, as well as matching the teaching activity with the proposed professional profile (i.e. the outcome profile).

BACKGROUND

The major in Pharmacy from the University of Costa Rica was accredited in 2003 and reaccredited in 2008. During the self-assessment process, faculty members came up with a concern about changing the program’s pedagogical approach to one that promotes meaningful learning. This is because, at that time, the syllabus was primarily focusing on an academic and technological approach, whose objective is the transmission of contents to students (Carazo, Rocha, Badilla, Acuña & González, 2010). Therefore, on 2009, the Faculty of Pharmacy Council adopted the constructivist pedagogical approach for its courses, in addition to implementing the behaviorist approach only “in those courses that, because of their characteristics, it was determined to do so” (Minute N° 660, agreement number VI, dated September 30th, 2009).

To comply with this agreement, there was a clear need to train professors on the constructivist model. For this reason, the academic unit created the Teaching Improvement Program (PMD) and initially requested support from the Department of University Education (DEDUN), whose professionals gave constructivism-oriented lectures to faculty members. Nevertheless, among the

---

5 In Spanish, the name is Programa de Mejoramiento Docente, and its acronym is PMD.
6 In Spanish, the name is Departamento de Docencia Universitaria (acronym: DEDUN). It belongs to the Faculty of Education.
results of some major courses’ evaluation, they noticed certain limitations on the way the program was being developed. The most relevant limitation was that the developed activities were too theoretical and did not cover the professors’ concerns.

Then, under advice from the Academic Evaluation Center, the commission leading the program decided to revamp its methodology. Therefore, the PMD was reformulated and oriented towards the development of constructivist innovations in courses by their own professors. Thus, in 2010, the PMD is formally registered as an innovation project at the Vice -Rectory of Education under the name "Teaching Improvement Program: Innovation in Classrooms at the Faculty of Pharmacy" (project N° 050). Nowadays, it is coordinated by a joint commission gathering these two university bodies (the Faculty of Pharmacy and the CEA).

METHODOLOGY

The Program belongs to the Faculty of Pharmacy, and it is advised by the Academic Evaluation Center. Therefore, as it was mentioned above, it was registered jointly by professors from both university units constituting the Commission of Teaching Improvement (CMD)\(^7\). This commission is comprised by two professors from the CEA and three professors from the Faculty of Pharmacy, allowing for one representative from each department.\(^8\)

The project’s main objective, as it was formally registered, is “To provide support to professors from the Faculty of Pharmacy in order to make innovations in their classrooms as a response to their own needs, to reaccreditation requirements, and to the results of professors performance evaluations” (Carazo et. al., 2010, p. 2). The project consists of specific course innovations that professors must design, develop, and evaluate. To ensure that innovations are sustainable over time, professors are instructed to select a particular class or subject that they want to

\(^{7}\) The name in Spanish is Comisión de Mejoramiento Docente, and its acronym is CMD.

\(^{8}\) The Faculty of Pharmacy has three departments: Department of Pharmacology, Toxicology, and Drug dependence (the representative for the project is Beatriz Badilla); Department of Pharmaceutical Care and Clinical Pharmacy (representative Milania Rocha); and Department of Industrial Pharmacy (representative Gustavo Carazo).
Participation is totally voluntary: participating professors have the initiative to improve their pedagogical practice. Besides, if professors request it, the Academic Evaluation Center provides counseling during the process and, occasionally, they are even provided with teaching materials.

As part of the results analysis, for each innovative strategy that is planned to be implemented, the professor or group of professors are requested to perform two tasks: first, students from that course must evaluate the activity (the innovation), and second, a colleague from the faculty must make an observation of the class the day the innovation is applied. (Both tasks will be explained below).

PMD was started under this modality on 2010, and it is still working in this way, so that now, on 2012, it is the third year of implementation. Under the current methodology, several activities described below have taken place, which together give shape to the program.

**Presentation of the project's current methodology:** On July, 2010, the Commission of Teaching Improvement organized an open workshop for all the professors of the Faculty of Pharmacy. The workshop had two objectives: first, to present PMD’s reformulation; and second, to conduct the first session of conceptual training within the framework of the project. In this activity, the advisors from the Academic Evaluation Center led a theoretical reflection about concepts that would be the basis for developing innovations in classrooms. Afterwards, Pharmacy professors presented the project’s background, justification, objectives, and methodology (which was new at that time).

**Conceptual training sessions:** working sessions dedicated to review important concepts of the constructivist pedagogical approach were carried out. It is worth mentioning that these were not lecture-based sessions; on the contrary, sessions were directed towards deeply thinking on concepts like innovation (since it is the foundation of this project); critical thinking, decision making capabilities, problem-solution identification (three characteristics that this major seeks to develop in their students); encouraging and discouraging factors, and meaningful learning (concepts to analyze results and to link these results to the completed work).
The teaching strategies used on these sessions were: video-conference, filing cards, analysis guides, plenary sessions and short readings (one or two page long maximum). All materials delivered to professors during these sessions were prepared by the CEA advisors specifically for this project (i.e. readings, filing cards and guides), which turned out to be easy to understand and focused assets.

**Experience socialization session:** This was also a training session, but it was more oriented towards sharing the results of their work. To do this, a guide to present innovations was provided. This means that the ruling concept for this session was the implementation of best practices in Higher Education.

**Advice to professors regarding their innovations:** these working sessions were performed in small groups (2-5 people) gathered according to the innovation strategies that they chose to implement. The CEA gave advice about design, implementation and evaluation for each innovation. In some cases, for example if the professor had selected only one topic without knowing which activity to perform. On the contrary, in other cases, the professor clearly knew what to do, and he/she only required support for very specific aspects. A relevant aspect for this joined effort is that professors are encouraged to express their fears about implementing methodologies, in order to reduce anxiety and mistakes that may eventually occur.

During these working sessions to plan on innovations, important learning was also achieved regarding constructivism, which came up spontaneously from the dialogue with Pharmacy professors. This means that reflections were generated by the ideas they supported on their own proposed innovations. Ultimately, working with groups of professors allows interchanging ideas and experiences.

**Observation of a lecture-based lesson:** by a professor’s request, an observation of a lecture-based class was performed. The purpose was to provide feedback to the professor about this activity, which is the most common. As a consequence, a guide specific for this observation was elaborated contemplating the criteria requested by the professor, and other criteria that the advisors deemed important.
Observation during the moment of the innovation: we have requested that, the same day an innovation is implemented, one or more colleagues from the Faculty of Pharmacy (people who are peers on the same major) go to make an observation of the class. The main objectives are to receive feedback from a peer, and to give peer companionship for the professor in his/her innovative strategy. To do this, CEA advisors elaborated a ‘guide for innovation observations’, and if possible, CEA people join and make their own observations that day.

Students’ evaluation of the innovation activity: considering that innovations are meant to students, it is imperative that they evaluate their function on the learning process, as well as the strategy’s logistics. The purpose should always be to continuously improve the professor’s work. This activity evaluation can be performed the same day of the innovation, the following week or by the end of the course, whenever the professor or group decides to do it.

The evaluating instrument used is designed specifically for each innovation, by the professor or group in charge, with support from CEA advisors, if requested. For some particular cases, support is given not only on instrument design, but also on its validation (for instance, a professors’ evaluation that a specific department decided to perform).

Presentation of the general results of innovations: each year (2011 and 2012) a general presentation of the innovations’ results from the previous year is carried out before all the professors and the Faculty of Pharmacy Dean, in order to share the accomplishments and to motivate other professors to participate in the project.

Reports and publications: based on the good teaching practices, at the end of each year a report of the work on this project is presented. Besides, professors have been encouraged to publish scientific articles showing their experience in order to share it with the rest of university community.

RESULTS
The following results were obtained from the project’s evaluation carried out by professors, as well as from the observations and internal analysis the advisor team performed.

- **Didactic products.** During the two years of project’s execution, several materials have been elaborated to guide the work done with participating professors, which were compiled on 2011 by CEA advisors. Those materials are:
  - Filing card to present innovation proposals (individually or in groups)
  - Workshop planning documents for training and experience socialization sessions
  - Theoretical-conceptual material for training sessions
  - Observation guides: for innovations and for a lecture-based class
  - Guide to present the innovations’ results
  - Guide for future interviews with professors who made innovations
  - Evaluation questionnaire for professors who made innovations
  - Questionnaire about teaching needs
  - Presentation about clickers, specific for professors
  - Video “Professors Who Learn” (“Profes que aprenden”)

- **Encouraging Factors.** Encouraging factors are conceptualized for this project as those conditions, both internal and external (people, ideas, resources, opportunities, times, knowledge, infrastructure, inter-personal and inter-institutional relationships) that encourage the initiative or innovation, so that they contribute to its sustainable accomplishment. Here is a list of the encouraging factors on PMD.
  - The will to improve professor’s performance. The main encouraging factor for each innovation, individually analyzed, is the person’s or group of professors’ intention that voluntarily decided to participate in the project to propose a way to change a specific aspect in the course, in order to contribute towards meaningful student learning. It’s important to highlight the need to improve the lessons and the methodology used in previous years.
- **CEA companionship for innovations.** Professors have highlighted the importance of counting with support and with the external follow-up to guide them with the methodologies that they want to implement.

- **Peer professors cooperation.** Great academic input has been accomplished through innovations planning sessions, in which professors have been able to share ideas about methodologies with internal colleagues from the faculty. This interaction makes them easier to fulfill.

- **Support within the faculty’s organizational structure to carry out innovations.** For this aspect, it was mentioned that either the department or the course coordinator, depending on the case, was cooperative to implement the innovative strategies.

- **Students’ disposition.** In general, students showed a good attitude and motivation towards the new methodologies that their professors developed.

- **Good professor-student relationship.** Pleasant interpersonal relationships, both personal and academic, have been favorable for the students’ reception of innovations. Likewise, these relationships have helped their involvement on the new tasks that they need to perform, which benefit their own learning process. It is relevant to consider that “human interactions are, by far, the determining factor for learning” (Acuña and González, 2009, p. 48).

- **Other successful innovations on different courses.** The example that shows successful innovation implementation in other faculty courses has caused an increase in professors confidence when it comes to develop their own changes.

- **Resources availability for innovations.** The Faculty of Pharmacy purchased audience response devices (clickers), which have been used by some professors as an innovative methodology both for reviewing concepts with their students and to do the evaluations on their courses. In addition, the CEA provided teaching materials that were necessary for the activities.

**Discouraging factors.** Discouraging factors are defined as those conditions that hinder the initiative or innovation, so that they block, restrict or limit the objective to be accomplished, its purpose and/or
the sustainability on which it is developed. Below is a list of the factors that have come up on the project.

- Students’ resistance. Many students have shown motivation for the changes; however, other students have shown a negative attitude towards innovations. Therefore, they have valued neither the developed activities nor the professor’s effort to improve. With this in mind, it must be noted that students have had a passive role during their learning processes, and they are used to lecture-based lessons as the main learning strategy. However, there has been a disruption of this type of strategy since the constructivist pedagogical approach implies abandoning such a passive role to become active participants in the construction of their own knowledge. It is considered that student resistance has occurred because taking an active role on the learning process means leaving a comfort zone as mere passive listeners.

- Time constraints. Designing the activities requires additional preparation time, and reality dictates that university professors are overloaded with work. Besides, the time needed for strategies development in class is limited because allocated hours are not enough sometimes.

- Uncertainty on logistics and lack of professors’ experience on methodology.

- Institutional aspects: infrastructure and size of the groups.

*Aspects that have changed with the project.* Besides the improvements on university teaching practices, there have been changes on two aspects of the academic unit dynamics.

- Professor’s resistance to change. The main obstacle for the projects to grow is resistance coming from professors. A portion of them think that the way they teach is appropriate; therefore, changes are unnecessary for their courses (paradoxically, many of them are the ones having a bad relationship with their students, and they also show the highest failure rates). Nevertheless, on the second year of the program, more professors have been incorporated to make innovations, and those who participated since the first year are doing more activities. Therefore, considering the successful experience of others, professors’ resistance will be gradually diminished.
- Inter-department linking. The Faculty of Pharmacy is divided into three departments: Department of Pharmacology, Toxicology, and Drug dependence, Department of Pharmaceutical Care and Clinical Pharmacy and Department of Industrial Pharmacy. Through training and planning sessions, CEA advisors have tried to bring these three departments to work together. This integration has fostered interchanges among departments and a closer relationship among professors.

*Progress during the time that the project has been in execution.* PMD has been effective for two years, and now (2012) is its third year. The project’s evolution perceived by CEA is related to professor’s autonomy to develop innovations. During the first year (2010), there was a high level of CEA dependence to help with activities design and evaluation because, in some cases, they did not even know what activity to do (they just had a topic chosen for the class they were changing). During the second year (2011), autonomy grew among certain professors, meaning that they worked with more independence from advisors (they did not require assistance, except for specific issues). For this third year (2012), the CEA is planning not only to compile the evaluation instruments created within the framework of the project, but also to encourage publications about experiences.

**CONCLUSION**

University curricula are cultural constructions (Grundy, 1987); thus, its construction is a dynamic exercise in constant motion. In the Faculty of Pharmacy, the teaching innovation culture that is progressively growing towards the improvement of students’ learning processes will have a positive impact on formal curricular changes that are created from now on. There have not been any quantitative evaluation of the work done in terms of indicators (for example, failing and passing rates) because one of the main goals of this program is to build up a quality and coherence culture regarding the activity of teaching, without the pressure of backing the results with numbers.
WORKS CITED


