

Curriculum redesign of the Dental school of the Federal University of Amazonas

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ABSTRACT

The aim of the paper is to report the experience of faculty members of a Dental school during the process of developing and implementing a new academic program (AP). The AP has been redesigned taking into consideration the characterization of the course by discussing the profile of alumni, physical structure, objectives, curriculum structure, academic internships and methodological design. The new curriculum was implemented in 2012 and it focuses on interdisciplinarity, integrated outpatient clinics and a mandatory traineeship that consists of more than 40% of the curriculum between intra- and extra-mural activities. Difficulties were encountered during the implementation of the new program and the academic community sought tools to minimize them. The new education program is dynamic, and it has been improving every year.

Descriptors: Education. Dentistry. Curriculum.

1 INTRODUCTION

The aim of the article is to report the experience of faculty from the School of Dentistry of the Federal University of Amazonas (UFAM) during the development of the current Dental academic program.

2 EXPERIENCE REPORT

A favorable context for change

The School of Dentistry at UFAM was established in 1966. It was located in the *Nilo Peçanha* State School building, and later it was relocated to the Aparecida District, along with Pharmacy. In 1980, the School of Health Sciences was founded, which consisted of departments of Dentistry, Pharmacy and Medicine. It was then relocated to the *Praça XIV de Janeiro*, the current address of the School of Dentistry¹.

The School of Dentistry was founded on July 25, 2007, and became independent from the School of Health Sciences, which consisted of the departments of Pharmacy, Dentistry and Medicine. The School of Dentistry then opted for the system of non-departmental organization.

The curriculum structure of Dentistry still had basic courses that were offered by other academic departments, which were departmental systems, such as the School of Biological Sciences, School of Sciences, School of Arts and Humanities, among others, which consequently made content integration difficult.

From this point on, faculty members prepared for the development of the new academic program (AP) that effectively included the national curriculum guidelines (NCG), considering that there was a national movement for dental programs to fulfill these guidelines².

The first action of the administration was to organize the Faculty Working Group (TWG) to begin redesigning the AP. Now with a well-defined organizational hierarchy and motivated

by the administrative changes in the school, the FWG planned the strategies for redesigning the AP.

In order to do so, the history and experience of previous meetings and workshops held in 2003 and 2007 with external consultants affiliated with the *Associação Brasileira de Ensino Odontológico* (ABENO, Brazilian Association of Dental Teaching) was recovered, in which the weaknesses of the curriculum, critical issues and the actions necessary to comply with the new guidelines were discussed.

In 2008, the pedagogical week was organized in view of the observations during the teaching-learning process and monitoring of teaching activities by the academic program coordinator, program chair and FWG.

The central theme of the pedagogical week was *Teaching in Higher Education* and the main objectives of the meeting were professional integration and interpersonal relationships, discussions on teaching methods and assessments, teaching appreciation and the development of protocols for clinical procedures on conflicting themes among the professors with the purpose of preparing the faculty for the future redesign of the AP.

Other pedagogical weeks were held in 2009 and 2010 and the main theme was curriculum redesign. Participation reached 100%, which consisted of professors, professors of basic courses, pedagogues, academic representatives of each academic semester and alumni, that is, there was significant participation of all the actors involved in the development of the program, which was a rare occasion³.

During these meetings, the collective development of the new integrated curriculum proposal began by restructuring the characteristics of the program (profile of alumni, competences and professional skills and program objectives), curriculum structure, methodological

concept (methods for assessing teaching and the academic program), infrastructure, faculty members, and administrative staff.

During the workshop held in 2010, the college received consultants from ABENO to evaluate and discuss the proposal of the new academic program. The participation of all members was essential for the achievement of the objectives to write the first draft of proposals, which was later developed by the TWG.

The stage that required more time and reflection was to establish a calendar of meetings to identify the thematic areas, develop the curriculum structure, syllabus, objectives and bibliographies for each new course of the curriculum.

Thus, the meetings occurred systematically on Saturdays or at night and counted on the participation of professors and members of the FWG. These meetings were extremely important because it was the first time that professors from different programs got together to prepare a single syllabus for previously isolated courses.

Throughout all the stages of development, teachers from all departments were invited to participate. During the process, more significant changes to the basic courses were not possible for administrative reasons, since they were offered and coordinated by other departments.

The new academic program was approved by the university community and the Board of Teaching, Research and Extension in 2011, and it was implemented in the first half of 2012 as a single curriculum of the dental program.

General data of the program

Discussions regarding changes in the AP occurred for years in the dental program. Throughout this time, diagnoses regarding the main deficiencies of the previous academic program were identified, which was based on the Cartesian paradigm, among which the following

aspects were outstanding: great concentration of technical contents and little emphasis on the area of human and social sciences; pedagogical techniques focused on the teacher; lack of dialogue between the different areas or courses; unintegrated dental clinic model; absence of mechanisms to facilitate student participation in the program activities; conservative assessments with models based on memorization³.

These shortcomings were the result of the training model in the different dental programs of the country with a trend towards the training of the elite, focused on specialization and without any interest for public service⁴.

In order to meet the essential content for the dental program, which should be related to the health-disease process of human beings, as the national curriculum guidelines recommend, the framework of the new curriculum structure was the integration between 'health and society'.

One of the pillars of teaching is the area of health promotion, stemming from the knowledge that disease is not only a biological issue, but a socio-historical-environmental process that manifests itself in the biological process.

For this reason, the area of Collective Health is present throughout the program, with increasing complexity of the proposed course content, focusing on the study of themes, issues and problems specific to collective health and the public health system.

The reality of practice in the *Sistema Único de Saúde* (Unified Health System) was the starting point for the development of curricular activities, from the beginning to the end of the course. During the debates and development of the new academic program, practice was considered an important aspect so the changes in the AP were solely restricted to the course time load or simple redistribution of courses. All the possible tools were used to further the discussion about the responsibility for the training of students according

to the new guidelines, which was also experienced and reported by the dental program at USS in Vassouras/RJ in the last decade⁵.

The profile of the alumni graduated after the new AP is a professional with humanistic values, general knowledge, critical and reflexive training, who are prepared to work in all sectors of health care, following technical and scientific rigor. Based on this context, the new curriculum was designed.

Curriculum structure: framework of the curriculum

The essential course contents of the undergraduate dental program were related to the health-disease process of citizens, family and community, integrated with the epidemiological and professional reality of the geographic region. The course contents were based on four main areas (figure 1).

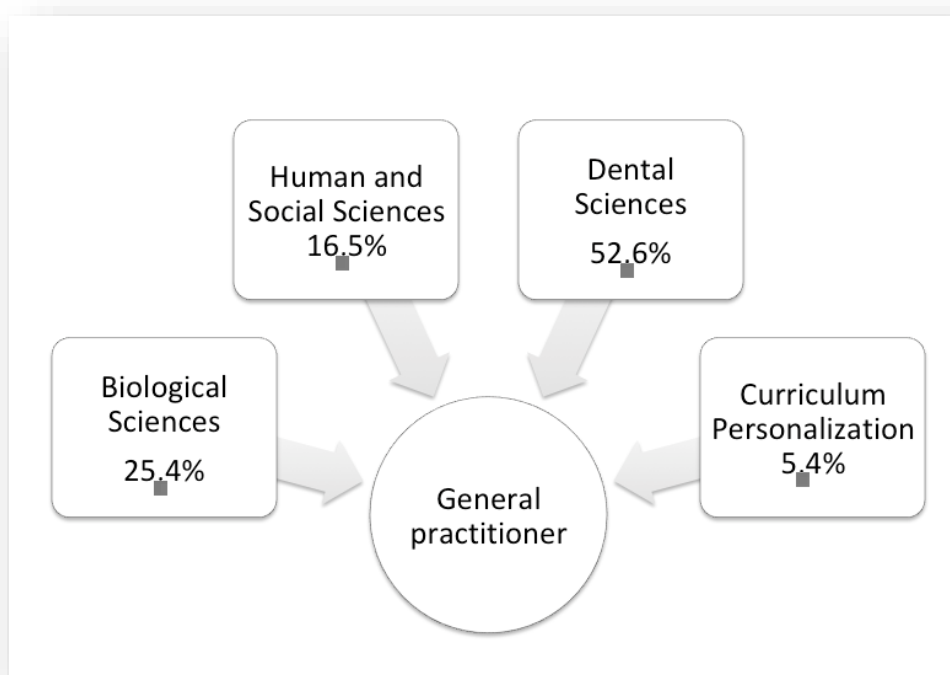


Figure 1. Framework of the curriculum structure

The area of biological sciences consists of courses that focus on molecular and cellular aspects of normal and altered processes, structure and function of tissues, organs, systems and devices applied to situations arising from the health-disease process in the development of the health care practice in Dentistry.

Human and social sciences address the different dimensions of the individual/society relationship, contributing to the understanding of

the social, cultural, behavioral, psychological, ecological, ethical and legal aspects regarding individual and collective dimensions of the health-disease process as well as the career management of alumni.

The area of dental sciences focuses on contents related to clinical propedeutics, dental clinic and pediatric dentistry. Curriculum Personalization consists of the development of the final course assignment (capstone project),

elective courses and complementary academic activities.

Planning the undergraduate internship program

The undergraduate internship program was for integration and knowledge of the students regarding the social and economic reality of the region. Undergraduate internship, within the context of the program, was understood as complete assistance to the patient provided by the dental student to the health users during intra- and extra-mural activities. It can also be fulfilled in multidisciplinary care and public and private health care services. The objective was to foster the relationship between teaching and services, broaden the university's relations with society and offer the future professional experience with various social realities, consolidating the pedagogical proposal^{6,7}.

From this concept, undergraduate internship was designed to have 1770 hours (300 theoretical hours, 1170 hours of intra-mural practice and 300 hours of extra-mural practice), accounting for 43.75% of the total program workload distributed over the last 7 academic semesters.

During the first two academic semesters and in the fifth academic semester, theoretical and practical knowledge in the field of collective health (the Brazilian health system, understanding the health-disease process and epidemiology) is offered to prepare students for practical activities outside the university walls⁸⁻¹⁰.

Intra-mural activities begin in the fourth academic semester. Students study Clinical Stomatology and later, Integrated Clinics I, II, III and IV and Pediatric Dental Clinics I and II. In the fifth academic semester, the activities outside the university walls begin with the courses on Collective Oral Health V and VI.

During the course on Collective Oral Health V, students observe public health services, both at municipal and state services, visit health units and participate in educational actions.

The activities of the course on Collective Oral Health VI are divided into modules. Students get to know the different realities of the rural area of Amazonas as well as develop activities in the health units of the Municipal Health Department of Manaus and reference centers such as the Hematology and Hemotherapy Hospital in Amazonas (HEMOAM) and university hospitals.

The proximity of students during their training to the local community where they will work is pointed out in the study by Salvador, Sant'Ana (2017) as imperative for future professionals to achieve the goal of offering comprehensive health care to the population, as required by an academic program that offers the opportunity for the actors to experience this problem.

Methodological Concept

After redesigning the academic program, it was expected that the professors would abandon the banking model of education in which teachers pour knowledge into students, who are a passive recipient of information, and are not able to observe, analyze and question their reality^{4,5}.

Thus, the current AP recovers a training model that focuses on student-centered methodologies, which combines science and social problems, and shifts from the pedagogical practice of content delivery to the problem-solving method or other active methodologies¹².

For two years (2012-2013) consecutive trainings were carried out with the professors with the purpose of them using these active methodologies in their courses. After this, the faculty board began to apply these active

methodologies every semester in all courses of the curriculum.

The systematic functioning of the Integrated Clinics followed the principle of increasing complexity in each academic period, based on the theoretical support of courses offered during the previous academic period and with a cumulative nature, but the department needed a computerized screening sector for the full operation of the clinics. The implementation of this stage was delayed due to difficulties with human resources to operationalize the sector. Teaching at the Integrated Clinics includes problem-based methodology, which is widely used in medical schools that seek differential training of students¹³.

The new curriculum came into effect in March 2012, and since then it has been offered to all students. For this purpose, curriculum equivalence was prepared, which was in force until the second half of 2016, during which the students' and professors' perceptions of their results were evaluated.

3 TENSION OF THE PROCESS AND FINAL CONSIDERATIONS

The main challenges during the consolidation process of the AP in the field of health have been described by Salvador, Sant'Ana (2017)¹¹. The first challenge is the need for investments in teacher training to prepare them for the challenges; the second is to bring the institution closer to public health services to strengthen partnerships so that activities involving teaching-service can occur in a more convenient way; the third challenge is to make the academic program the main tool for changes in management and teaching quality by means of continuous evaluations in which all the actors are important for this to occur.

In the first semester after the implementation of the curriculum at the dental

school, the main problems were related to the human resources. Students, who were accustomed to taking classes in specific outpatient clinics where only specialty procedures were performed, now had courses at the Integrated Clinic and their first impression was that they would perform fewer specific procedures in comparison with the old curriculum.

It was common to hear students comment in the hallways that "... *before we used to perform six endodontic treatments in the course of Endodontics, now we only perform two treatments in the course of Integrated Clinic III ...*". To mitigate this misperception, the program chair regularly held meetings with classroom representatives to listen to the student community and clarify any doubts about the new curriculum such as, for example, that the students would perform endodontic treatments in several courses throughout the entire dental program and no longer in a single course in one semester, as it had been the case in the old curriculum.

Faculty members were mostly concerned that the academic program had to be satisfactory, but resistance grounded on conservatism and insecurity regarding the new curriculum were also identified. The main challenge was resistance to teamwork to foster interdisciplinarity and integrated assessments, since this required time and effort from professors when compared to the old curriculum⁵.

To strengthen the relationship between professors and students, favor the implementation of the academic program and overcome difficulties, the FWG and college management monitored the delivery of the new academic program by formally consulting professors and students for 4 academic semesters (2012 and 2013).

The suggestions were discussed with

students in the classroom and with the professors in two pedagogical weeks. Many situations or suggestions of the academic community on integrated teaching plan, teamwork, integrated assessment methods and active teaching methodologies were consolidated during pedagogical workshops.

To facilitate the work process, following the suggestion of the FWG and approval of professors, a biweekly pedagogical meeting was held for two semesters, in which all the professors were assigned to meet with their teams and carry out the activities related to planning, delivery and monitoring of their courses. These activities included preparing teaching plans in teams, developing integrated assessments, training active teaching methodologies, and other pedagogical activities that aim at the proper functioning of the AP.

This common faculty meeting time was also used to hold meetings, trainings or workshops, as there were no undergraduate classes at this time during each academic semester, thus offering an opportunity for all professors to meet for discussions.

The objective of the faculty board was to analyze the teaching plans semiannually, giving suggestions so that all the courses carried out at least one active methodology and that the assessment methods were well described and integrated. The academic program coordinator has been engaged in working groups for discussing and training clinical protocols, such as drug therapy, use of fluoride and diagnosis and management of caries. The aim of these discussions was to assess all faculty, since they would be working in integrated outpatient clinics.

In an article published by Althaus (2017)¹⁴, the importance of active methodologies in the university context is clear, since they are based on the mediation of the teaching process focused

on the development of collaborative knowledge. As it is a different teaching method in comparison with traditional banking model of education, the training of professors and students is important for the active methodology to occur horizontally and achieve good results.

These activities were maintained by the department from 2014 to 2016 when other tensions influenced the progress of activities since the infrastructure and number of professors had not yet been optimized to reap better results, which is currently the focus of the college management.

Seven years after the implementation of the new academic program, the analyses reported by Hypolito (2014)¹⁵, which deal with the integration of the academic program with school management and assessments, can be understood. One of the pillars of integration is the collective development of the academic program in which all actors who live in that reality participate in changes; in this context, planning is fundamental for this to happen. The development of the program should drive teaching to become better and it must be based on the cultural reality of the school and community for it to become possible, and not only follow governmental guidelines.

Another point analyzed by Hypolito (2014)¹⁵ is the tendency of schools to base their school planning on the national curriculum guidelines or national examinations that misinterpret the training of students and do not guarantee improvement of the school. In Brazilian higher education, the main evaluation index is the result of the National Student Performance Exam (Enade), which is part of the National System for Evaluating Higher Education (Sinaes). Over the course of four Enade evaluations, the School of Dentistry of UFAM obtained score 4 and score 5 in 2016, which motivated the community to continue

moving towards a common goal by continuously improving the quality of the dental program and nurture good relationships among all actors.

RESUMO

Os caminhos da reformulação do Projeto Pedagógico da Faculdade de Odontologia da Universidade Federal do Amazonas

Este artigo relata a experiência de uma Faculdade de Odontologia durante o processo de construção e implementação de um novo projeto pedagógico (PP). O PP foi reformulado desde a caracterização do curso com as discussões sobre perfil de egresso, passando pela estrutura de funcionamento, objetivos, matriz curricular, estágios e concepção metodológica. Durante 12 meses foram utilizadas diversas ferramentas para sensibilização do corpo docente, incluindo a realização de semanas pedagógicas, oficinas, encontros pedagógicos e discussões nas assembleias docentes. O novo currículo foi implementado em 2012 evidenciando a interdisciplinaridade, a formatação de ambulatorios integrados e um estágio curricular obrigatório que compreende mais de 40% da matriz curricular entre atividades intra e extramuros. Dificuldades foram encontradas durante a implementação e a comunidade acadêmica buscou ferramentas para minimizá-las, fazendo com que o projeto continue dinâmico e amadureça a cada ano.

Descritores: Educação. Odontologia. Currículo.

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