Interprofessional health education: the experience of the Federal University of Sao Paulo, Baixada Santista campus, Santos, Brazil

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The purpose of this article is to critically describe and analyse the interprofessional education experience in health undergraduate courses on an expanding campus of a public federal university. Assuming interprofessional education guides health education implies the development of a proposal that disrupts centrality in specific disciplines and professional profiles. The description and critical analysis of this experience shows ways of implementing health courses, highlighting potentialities, weaknesses and challenges in the development of an innovative proposal. Interprofessional actions are present in different academic activities and structure the campus’ daily routine and the resistance to interprofessionality and the complex network of public services. Implementing new logics to educate health professionals also means defending public universities in the country and the Brazilian National Health System (SUS).

**Keywords:** Health education. Curriculum. Interprofessional education.
Introduction

Higher education in Brazil is currently structured around the National Education Guidelines and Framework Law no. 9394/1996 and, based on it, on the National Curricular Guidelines, enacted by the Brazilian Ministry of Education as of 2001. In health, the National Curricular Guidelines aim at reorienting the pedagogical projects of the undergraduate courses targeted at Brazilian National Health System (SUS), focused on health promotion, prevention, recovery and rehab. These guidelines orient future professionals to develop competencies and skills in order to be able to meet the users’ health needs with quality, efficiency and resoluteness.

Students and educators learn throughout their entire academic life, rebuilding their itineraries in the interaction with care and the community. Investments are made in learning situations that enable participants (students, teachers, health professionals, users) to connect with their own paths based on reflection and construction of new possibilities of action and production of knowledge (collaboration networks).

When focusing on the education processes developed in different undergraduate health courses, it is possible to observe that they face important challenges: education fragmentation, dichotomies in the pedagogical project, biologicism and hospita-centrism, students as passive receivers of information, teachers as transmitters of information, curricula not reflecting the community’s needs, work process distancing from SUS.

Historically, in Brazil, focus on competencies and skills specific to each care provision space was privileged based on each health profession’s logic. Implementation of innovative proposals of transformation of this scenario is enforced. Interprofessional education is among these change proposals.

Interprofessional education creates spaces for collaborative practice, enabling the combination of several professions to learn from and about others. Therefore, it is a strategy that enables health professionals to learn together and work in teams in healthcare practices based on collective construction of care and health processes. It is also a pathway for the community’s recognition as subject in the care process.

Interprofessional education has been discussed over the last thirty years, particularly in the United States and in Europe, aimed at a healthcare-focused education through teamwork. Its principles apply both to different undergraduate health courses and to permanent education of professionals who comprise a work team.

Interprofessional education is based on teamwork, which is a mutual relationship between technical interventions and interactions of its agents in a collective work modality. Teamwork favors integration and share of knowledge and experiences respecting diversity. This results in collaboration in the development of transformational health practices and in the establishment of a permanent dialog.

In this perspective, interprofessional education occurs through educational processes that privilege communication and interaction among different health professions, expanding the possibilities of comprehensive care and overcoming isolation and professional and disciplinary fragmentation.

Collaborative competencies are evidenced in interprofessional education. Reeves et al. highlight that six principles affect collaboration: shared identity, clear rules and objectives, interdependence, integration, shared responsibility and team tasks. These principles can strengthen interprofessionality and contribute to the health team’s effectiveness.

Interprofessional education can also be understood based on the re-signification of the concepts of education and health. It highlights the need to break traditional paradigms of education and healthcare practices. In this sense, education is emphasized under a dialogical and critical perspective committed to the construction of knowledge as an instrument of social transformation where educators and students act in interactive teaching and learning situations. Health is understood based on a social, historical and cultural concept, articulating comprehensive care, health team and interdisciplinary practices.

In Brazil, interprofessional education is a challenge for the qualification of health workforces. Peduzzi defends the need for a combination of initiatives and resources to boost interprofessional
education with the participation of teachers and health professionals connected to the services into where students are inserted in practical learning places.

Reeves\(^8\) comments that universities should understand interprofessional education before adopting it. Breaking the traditional education model aiming at an interdisciplinary and interprofessional education is essential\(^{22}\).

In Brazil, the interprofessional education discussion has significantly expanded. Over the last few years, it has been an important guiding axis of programs that instigate changes, undertaken by the Brazilian Ministry of Health and the Ministry of Education\(^{23}\). However, publications and investigations about the experiences and proposals under development in the country are still limited.

The objective of this article is to critically describe the interprofessional education experience in the undergraduate health courses of an expanding campus of a public federal university in the Brazilian southeastern region.

**Experience report**

The implementation and consolidation of Baixada Santista campus of Universidade Federal de São Paulo (Unifesp) result from the organization of the region’s society and coordinated fight of different sectors and levels. It is important to highlight that the policies to expand the public higher education developed in the country as of 2003 leveraged the democratization of access and permanence of youths and adults in Brazilian public universities.

Unifesp’s Baixada Santista campus initially developed teaching, research and extension programs in Health Sciences. The pedagogical project was a result of collective efforts of discussion related to the university’s purposes as a public institution in the area and to its articulation with the Brazilian society.

Therefore, in 2006, the implementation of the undergraduate Nutrition, Psychology, Physiotherapy, Occupational Therapy and Physical Education courses was proposed to the Brazilian Ministry of Education (MEC). In 2009, health professions were expanded with the creation of the Social Work course\(^{23}\).

Baixada Santista campus’ pedagogical project is based on the education of health professionals under the perspective of interprofessional teamwork focused on the user’s comprehensive care, articulating ethical, political, technical, scientific and human dimensions both in health education and practice.

The following guiding principles were adopted in this course: inseparability of teaching, research and extension programs; professional practice as a guiding axis; questioning education based on practice and research; interdisciplinarity; students’ active role in building knowledge; teachers as facilitators/mediators in the teaching and learning process; integration with the community\(^{23}\), acknowledging its active and interactive participation in the creation of care plans; formative assessment as a feedback of the learning process; and teacher development.

Considering interprofessional education as a guiding principle of this project resulted in the development of an educational proposal that broke the traditional discipline-centered structure and in the development of a specific professional profile. The curricular design of all courses are guided by four education axes (three common and one specific to each course) that continue after the undergraduate years. In each one of them, modules, which express curricular units, combine similar thematic areas that constitute the curricular proposal.
An articulation among all four suggested axes was planned, guided by the education of health professionals committed to consistent, critical and potentially transformational practices of the social reality, with a problem-solving methodological focus\(^\text{(i)}\) aimed at producing knowledge.

The axis “The human being and their biological dimension” comprises two nuclei: one nucleus of the necessary knowledge for five courses (the Social Work course is not part of this common axis) and one nucleus of in-depth knowledge based on each course’s specificities. This axis prepares students on the biological topics for an integrated and increasingly complex health education.

The axis “The human being and their social insertion” deals with health education as a process of social practices permeated by the concepts of health, illness and historical conditions, covering different dimensions of human life production (culture, work, education, life conditions, subjectivity, social relationships, social markers of difference).

The axis “Health work” enables students to understand multiple dimensions involved in the health-disease process and the provision of care; to know and understand the health reality and that of SUS; to understand the experience and interaction among different health professions and practices; and to understand the health work process.

The common axes’ dynamics involves educational work based on mixed classes (students from different courses constituting learning groups). This is

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\(^\text{(i)}\) The pedagogical project assumes the analysis of Freire’s critical insertion into reality as a problem-solving methodological focus in order to find elements that provide meaning and guidance to learning.\(^\text{24}\)
important for learning interprofessionalism. By sharing common spaces of study and theoretical discussion, practical lab classes and practices in territories, students learn with each other how to provide care and be professional.

The mixed design of classes follows the curricular organization in axes and modules. This structure enables to overcome the disciplinary metric, aiming at redesigning the boundaries and building new territories, without ignoring the professional and scientific fields that already exist. Therefore, the presented context adds a unique interprofessional mark to this innovative curricular proposal.

Axes “Specific in health” follow the specificities of each area according to their respective National Curricular Guidelines. These axes are progressively developed from the beginning of the course covering specific issues of all six professions related to the suggested courses. The modules’ workload of each course increases every year, maintaining weekly times for interprofessional teaching, research and extension program practices, with vocational internships among two or more courses.

The arrangement of axes and modules is part of a curriculum as social, cultural and historical practice in the educational itinerary. In the first year, the common axes take up approximately 75% of the weekly workload, and the specific axis’ curricular units take up 25%. This logic changes as students progress in the course. In the last year, the specific axes become central through curricular internships and course completion essays.

In the experience shared here, the curricular organization in axes has proved to be fruitful regarding the induction of interdisciplinary, interprofessional and collaborative work practices. By combining modules, the axes become closer to the disciplinary areas, content and topics, favoring a comprehensive view on knowledge. This trend of approximation has enabled collaboration in teaching, research and extension program activities, providing a discussion among common and specific axes.

The interprofessional learning path on campus is marked from the beginning by the Freshers Integration Week. This strategy has enabled students to experience activities in interprofessional teams and to start practicing hearing, exchange and collective construction from day one.

The campus’ educational proposal aims at creating networks among teaching, research and extension program activities. In this sense, a four-hour period per week was set aside to invest in the development of collaborative projects integrating teachers and technicians in a series of actions of extension and investigation. Curricular units’ activities (class situations) are not developed during this period.

Projects in partnership with Open University to the Third Age (UATI) have also guided interprofessional learning based on an intergeneration experience: university students, teachers and UATI students cohabit, share multiple knowledge and reach new understandings on the objects of study.

Besides extension programs and interprofessionality, projects are developed in partnership with several ministries, departments and non-governmental organizations. Interaction with the community, organized social movements and public policies favor the acknowledgement of interprofessionality as a powerful path towards comprehensive care. It also fosters the connection with arts (the annual organization of UNIFESTA, an artistic event organized by the entire academic community with musical, plastic and dramatic expressions) and with sports (the organization of TIBS, Baixada Santista Campus’ Interprofessional Tournament).
Imbricated with education actions, these actions are based on the perspectives of integration among teaching, service and the community. Therefore, one of the project’s marks is delineated: learning together in the health services’ spaces, learning with colleagues, teachers, health professionals, the team, users and the community.

Under this scope, it is important to highlight that the Baixada Santista campus’ insertion in the Brazilian Ministry of Education/Health’s Inducing Policies favors and fosters discussions and the implementation of new education actions. The following are highlighted among these policies: Pró-Saúde, PET-Saúde, Multiprofessional Health Residency, Professional Master’s Program in Health Education.

The education structure has been crafted in a powerful way in the production of different educational and evaluative methodologies based on the perspectives of participation, protagonism, co-authorship and interprofessional teamwork. Therefore, insertion into territories, inter-module seminars, critical essays, portfolios, questioning, motivating cases and field journals are examples of these methodologies.

In the educational journey, the production of narratives in axis “Health work,” module “Integrated clinical practice: analysis of health demands and needs” (third semester), has been configured as a unique space of care learning. In pairs, students from different courses pay fortnightly home visits and build a life and health story narrative with patients throughout the school year.

Regarding this experience with narratives, Capozzolo et al. 26 claim that: “using the narratives resource in the education of health professionals teaches us that shared senses are more powerful and that their joint collaboration is more effective than unilateral technical prescription. [...] They are exercises for a common clinic” (p. 453).

The module completion essays of axis “The human being and their biological dimension” and the colloquia of axis “The human being and their social insertion” were also important. By providing meetings, sensitive hearing, wide view and shifting movements, academic productions in pairs and/or trios of students from different courses have expanded and created inventive spaces of knowledge production and interprofessional healthcare.

Interprofessionality marks are not only in the students’ itinerary but also include teachers, from the admission and welcoming processes on campus to the creation of interprofessional departments. A special situation has been the constitution of “teams” or “groups” of teachers oriented by common teaching, research and extension program interests.

The collective work of teachers is being experienced with its powers and gaps regarding the pedagogical project’s innovations. Its powers include the teachers’ learning processes that are more integrating and anchored in teamwork, focused on collaborations towards the modules’ structuring, research and extension program projects in partnership. Regarding its gaps, we interact with metrics of greater enhancement of disciplinary and professional areas as opposed to others, issues in the equal dimensioning of the teachers’ workload, restricted importance given to education and emphasis on individual development in research, weakening the collective dimension of university teaching.

The pedagogical project implementation on campus required the elaboration of different strategies. After hiring the first group of teachers and technicians on campus, on November 2005, the strategies and actions to carry out the pedagogical project were collectively built by everyone: teachers, administrative education technicians and, subsequently, students. The first one was comprised of meetings with teachers from all axes, which preceded the admission of the first classes of the courses. These meetings enabled teachers and administrative education technicians to learn the interprofessional education’s guiding principles, interdisciplinarity, active methodologies and inducing policies.

Meanwhile, as new teachers were hired, before assuming their functions, they underwent a brief introduction to interprofessional education, active methodologies and specificities of the campus’ pedagogical project. At the time, this education was undertaken by a group of teachers responsible for organizing the education meetings and suggesting strategies to implement the pedagogical project.

The pedagogical and administrative activities quickly expanded, and the number of teachers seemed insufficient compared to the great number of demands. This resulted in the creation of
different levels to meet the needs of the campus’ expansion. Therefore, the Course Committees, Academic Departments, Committee for Management and Follow-up of the Pedagogical Project (CGAPP) and Undergraduate, Research and Extension Education Chambers were constituted.

CGAPP was constituted in the first year of implementation of the campus in 2006. It was a deliberative instance aimed at advising the campus’ management in affairs related to the implementation of courses, such as drafting and negotiating proposals and strategies for agreements with community services to implement teaching practices and vocational internships. This Committee concluded its activities in 2009, institutionally choosing to invest on the Undergraduate Chamber as a collegiate instance under the campi’s scope.

In 2006, 2008 and 2010, Political-Pedagogical Project’s (PPP) Assessment Forums were conducted on Baixada Santista campus. These events were mainly aimed at identifying and discussing the pedagogical project’s strengths, difficulties and critical nodes regarding the assumptions made and the educational practices’ daily routine (integration among modules, transversality of common axes, diversified learning scenarios, insertion into health services, integration among teaching, research and extension programs), as well as delineating referrals to overcome difficulties and critical nodes.

From 2012 to 2014, besides the collective moments of shared planning, the creation of a Curricular Assessment Project was approved by the Campus Congregation, and it included the Teaching, Research and Postgraduate Courses Chamber, and the Extension Program and Culture Chamber. It was a complex and delicate but rather fruitful journey for delineating an evaluative process that would articulate different voices and experiences.

In this context, in 2015, the Pedagogical Project’s Assessment of the campus and of the health courses was developed. Workshops with representatives of the entire academic community were held: planning, participation, registration, agreement, multiple dialogs and debates, evaluative experiences under an interprofessional education perspective.

Throughout the implementation of the campus’ PPP and after the graduation of eight Physical Education, Nutrition and Occupational Therapy classes, seven Physiotherapy and Psychology classes, and five Social Work classes, the interprofessional education proposal still faces challenges, resistance and resilience.

**Experience analysis: research views**

The implementation process of Baixada Santista campus’ PPP is complex, fruitful and challenging. Conducting research and creating knowledge about this process is a strategy of intervention, assessment and assumption of new paths.

The first research that undertook the campus’ pedagogical project as its central object consisted on the investigation “Interprofessional education in undergraduate health courses: preparing professionals for teamwork and comprehensive care” (CNPQ/PROCESS 409389/2006-4). This project joined researchers and teachers who work in different specific and common axes. Its objective was to investigate, monitor and improve this professional education proposal for teamwork under the comprehensive care’s perspective using the interprofessional education’s principles.

With an investigation developed under the case study’s scope involving students, teachers, technicians, managers and service professionals, qualitative data production techniques were used: participant observation (common axes’ scenarios), semi-structured interviews (11 managers, 13 teachers and five administrative technicians) and focus groups (students from the courses). A quantitative approach of the students’ performance was developed through the Progress Test. The test is periodically conducted in the data collection phase, aiming at building a cognitive growth curve of students related to the development of competencies for comprehensive care and teamwork.

The data analysis enables to understand the “power of interprofessional spaces”: how they shift the disciplinary division’s foreseeable places, thus shifting expectations, beliefs and values that guide the actions of students, teachers, service professionals and managers.

The objective of a second research, “Interdisciplinarity as an educational principle in undergraduate health courses: from plans to teacher concepts” (CNPQ – Process no. 401539/2006-7), was to
analyze interdisciplinarity as an educational principle and innovative proposal in undergraduate health courses, analyzing its potentialities, challenges and perspectives in higher health education.

The methodology involved: a) study of the PPP documentation of Unifesp’s Baixada Santista campus and of the pedagogical projects of the Physical Education, Nutrition, Physiotherapy, Psychology and Occupational Therapy courses; b) semi-structured interviews with teachers who worked in these courses and started teaching on campus in 2006 and 2007. The data analysis processes enabled to assert that interdisciplinarity emerges in the analyzed documents and in the teachers’ voices as a foundation, perspective, instrument and interface, representing a different way of being, knowing, doing and living together, respectively. The reported difficulties included resistance by professionals, education centered in the content fragmentation, lack of teamwork and difficulty in building more articulate interactions. Under the advantages scope, there is a convergence around the gains that health education can have with interdisciplinary practices: significant learning and production of interprofessional healthcare.

Researches focused on the campus’ proposal under the perspective of the students and teachers from the Physiotherapy, Occupational Therapy and Psychology courses were also developed, as well as the power analysis of the curricular internship and monitoring developed under the interprofessional perspective. Rosa, Souza, Souto, Batista and Batista, and Santos and Batista developed investigations on the aspects mentioned above, showing convergence regarding the interprofessional education’s importance given by undergraduate students as a health education that provides teamwork, collaborative action and interdisciplinarity learning.

A fourth essential investigative movement included a study with graduate students. The research “Analysis of an interprofessional health education project: perspective of graduate students” adopted the qualitative and quantitative approach to assess education as to its comprehensive care based on Physical Education, Physiotherapy, Nutrition and Occupational Therapy graduate students. They answered the RIPLS survey to assess attitudes and readiness for three factors: teamwork and collaboration, professional identity and patient-centered care. They also participated in the interview step to deepen quantitative findings. The results showed the development of essential competencies for health professions: problem solving, decision making, leadership, mutual trust and respect, communication with patients and other professionals, understanding the problems’ nature, understanding clinical cases under the patient’s perspective. Among graduate students, 84% are happy with the education they received and provided contributions for health education analysis under the interprofessional education’s perspective.

**Final remarks**

Experiences and investigations reported here show interdisciplinarity and interprofessional actions are present in different activities and are structuring elements of the campus’ daily routine. This requires that educators (teachers, and administrative health technicians) (re)learn the inventive and implied learning place, overcoming the illusion of accumulation of information, knowledge and tasks, besides the collaborative work experience, committed to social demands. Educators should also articulate the scientific rigor, technical quality, ethical behavior and social commitment.

Shifts also involve students: incited to a broader education build up by meeting other people, scientific information, daily routine knowledge, own practices, and by learning an active and interactive behavior in their own education, in building academic knowledge and in teamwork.

Interprofessional education is powerful in health education by articulating teaching, research and extension programs. This power emerges from the development of new institutional arrangements of actions (collective and including different professional areas), from new dynamics in health services, education, social work, sports (interprofessional team building in services, bringing education actions and extension program projects, for example, closer), and from the creation of research projects (and even stricto sensu postgraduate programs) based on the combination of different professions.
The PPP’s dynamic and innovative nature in health education based on an interprofessional education perspective and the power mentioned above result in challenges/devices to analyze and suggest overcoming: implementation of curricular internships in interprofessional logic, development of elective interdisciplinary modules and inter-unity curricular activities conducted by two or more axes, rearticulation of the Teachers Development program, creation of more collaborative practice and work scenarios that articulate universities and services, a more sustainable agreement among the relationships with public services.

However, how is it possible to learn how to practice interprofessional health education without challenges? This creative learning enables to acknowledge ethical, scientific and political senses in Baixada Santista campus’ curricular proposal. Overcoming challenges, suggesting new questions to health education, implementing new logics to prepare professionals and producing knowledge are also strategies to advocate for SUS and Brazilian public universities. Finally, other strategies also include defending rights and social accomplishments, and keeping inspired to create in favor of life.

Authors’ contributions
All authors participated actively in all the stages of the preparation of the manuscript.

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