

## Education through work: reshaping the education of health professionals

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This study aimed to evaluate the Education through Work for Health Program ("PET-Saúde") that had been instituted at the University of Sao Paulo, Brazil. The subjects were dentistry preceptors and students who took part in the proposal between the years 2009 and 2012. A qualitative approach was used, in which data were gathered through focus groups and evaluated through thematic content analysis. The results show that education through work is capable of assisting in the education process, through expanding students' perceptions of the health/disease process and raising awareness regarding future actions within the sphere of the Brazilian Health System. One of the advantages is the establishment of interdisciplinarity in the education process. The results indicate that the program is a powerful instrument for inducing changes in the concepts among healthcare professionals.

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### Introduction

Since the creation of the *Sistema Único de Saúde* (SUS – Brazil's National Health System) by means of the 1988 Constitution, and subsequently, with Law no. 8080/90, which regulated it, the debate about the education of human resources to exercise their professions in a model of integrality of care has been intensified, as the legal framework of the Brazilian healthcare system places this model as the organizer of such education<sup>1</sup>.

The undergraduate programs in the area of health, specifically Dentistry, have promoted, historically, an education based on the model that focuses on technicism, curative and individualized practices and on knowledge fragmentation by specialties. Teaching has fed mainly on

knowledge coming from other countries<sup>2</sup>, which is incoherent with Brazil's economic situation and social reality<sup>3</sup> – it should be connected with society's needs<sup>4</sup>.

Over the last years, agencies like the Ministries of Health and Education, the *Associação Brasileira de Ensino Odontológico* (ABENO – Brazilian Dental Teaching Association), and researchers and professionals in the dental area have joined forces to change this reality.

The highlight is the development of the *Diretrizes Curriculares Nacionais* (DCN – National Curriculum Guidelines) for undergraduate Dentistry programs, simultaneously with the movement performed by other health programs, as the propelling engine of the transformation process. Implemented in 2002, the definitions contained in the DCN signal a paradigmatic change in education, in an attempt to materialize a critical professional who is capable of working in a team and of taking the social reality into account. They propose a dental surgeon with a generalist profile and solid technical-scientific, humanistic and ethical education oriented to health promotion, with emphasis on the prevention of prevalent oral diseases<sup>5</sup>.

In the context of such transformations, ABENO suggests that Dentistry programs should be organized in three axes in order to comply with the DCN: theoretical orientation, pedagogical approach and scenarios of practices<sup>6</sup>. The axis referring to scenarios of practice presupposes the inclusion of students in learning scenarios that are different from those available inside higher education institutions, as a potential device to promote adequate education.

The strategies that enable greater articulation between health services and educating institutions enhance the contact between students and the system's practices and daily routine, in an educational dialog that allows changing the traditional hegemonic conception based on a biological and mechanizing model<sup>7,8</sup>.

The interaction between higher education institutions and health services is recognized as a vehicle to adapt professionals to the population's social demands<sup>2,9</sup>, as service-learning experience helps students to understand that social, cultural or economic factors influence the health-disease process<sup>10</sup>.

In this context, the Ministries of Health and Education have created, as potentializing devices, two programs that focus on education through work as the central axis of change: the *Programa Nacional de Reorientação da Formação em Saúde* (Pró-Saúde – National Program for the Reorientation of Health Education), implemented in 2005, and the *Programa de Educação pelo Trabalho para a Saúde* (PET-Saúde - Program of Education through Work for Health), instituted in 2008. The latter, which is the object of study of this paper, aims to enable in-service improvement and specialization, as well as work initiation, internships and experiences, directed at teachers, professionals and students in the health area, according to the needs of the SUS<sup>11</sup>.

At the *Universidade de São Paulo* (USP – University of São Paulo), PET-Saúde started in 2009 with the participation of subjects from the undergraduate programs in medicine, dentistry, nursing, occupational therapy, physiotherapy and speech and language pathologies. In the following year, it was extended to the programs of nutrition, psychology, physical education and

pharmacy, with an interdisciplinary proposal<sup>12,13</sup>. Interdisciplinarity has been stimulated in education programs due to its potential for promoting an education that is coherent with the world's logic<sup>14</sup>.

The activities developed by the Program express a large variety and amplitude, ranging from monitoring the routine of Primary Care Units – performing job shadowing, visiting sectors, interacting with different professionals, understanding flows and demands – to performing home visits and interventions that are jointly planned, according to the needs of the territory, such as health markets and educational actions.

The study aimed to evaluate the PET-Saúde instituted at USP, in the campus of the city of São Paulo, focusing on the Dentistry program.

## Methodology

The study has a qualitative methodological approach. The subjects were the dental students of USP (n = 17) and the health service professionals (n= 35) who were participating or had participated in the tutorial groups of PET-Saúde.

Each tutorial group is formed by one tutor, six preceptors and twelve undergraduate health students. The tutors are university teachers who supervise the students and the care that is provided, playing the role of reference to the preceptors and/or to the students of the program; the preceptors, in turn, are service professionals whose primordial role is to supervise and guide the students' actions at the Primary Care Units<sup>11</sup>.

Data were collected through the technique of focal groups, as it can reveal dimensions of understanding that are usually not captured by the more traditional data collection techniques, such as cultural values or norms of the group<sup>15</sup>.

The focal groups were conducted through guiding scripts that contained the following axes: education/qualification for the SUS, knowledge about the SUS and interaction between teaching and health services.

The discussions were recorded with a video recording camera, and they were subsequently transcribed and analyzed by means of thematic content analysis<sup>16</sup>.

The project was approved by the Ethics Research Committee of the Municipal Health Department of São Paulo.

## Results and discussion

### Education/qualification for the SUS

Data analysis revealed the potentialities of the PET-Saúde of USP, campus of the city of São Paulo, concerning the promotion of changes in the health education process:

“Concerning our education, I think that we who were in the PET had a unique opportunity, because students aren’t close to knowing how it is yet, how the work in the public service functions [...]. I think that it has added a lot to our education [...]”. (S1)

“[...] we end up being a differentiated professional when we are part of the PET. When we see the work at the unit, we have contact with the community and get to know the health system better. So I think that this makes us be a differentiated professional”. (S2)

“[...] I see the PET today as an opportunity for students to better understand the National Health System and Primary Care [...]”. (P4)

The subjects recognize that being inside the scenarios of practice and close to the community can help the educational process, and this produces benefits in the professional sphere and in the scope of citizenship and humanization. Similar results have been reached by the PET-Saúde of the Federal University of Paraíba<sup>17</sup> (Northeastern Brazil). Apart from this study, the success of the Program, in the sense of offering to the subjects a wider range of knowledge about the reality of the health services, has been discussed by other authors in different localities of Brazil<sup>18-29</sup>.

According to Silveira<sup>30</sup>, the universities must offer, in their undergraduate programs, an education that is capable of developing, in the future professional, the appreciation of the public sector and social sensibility without neglecting technical qualification. The spaces where the dialog between work and education takes place constitute citizenship spaces in which service professionals, teachers, users and students establish ways of being and of seeing the world<sup>31</sup>.

Knowledge of practice in the SUS stimulates and awakes students to the possibility of exercising their future profession in the sector, which corroborates the idea that the Program is a powerful stimulator of improvements also in the health services, with the future inclusion of better prepared professionals.

"[...] as you open more space to Primary Care inside the university, you increase the students' interest in the career after they graduate [...]". (P1)

"I intend to work in the area. When I entered university, I didn't think much about this, but then I became part of the PET, and then I got to know people who already worked and so on". (S2)

"I have dental students who say [...] 'I intended to establish my own office, but today I think differently, today I think about graduating and working as a dentist in Primary Care, because I can see that it's very interesting, there are lots of things to do, it's a very interesting experience' ". (P5)

In addition, other potentialities of PET-Saúde are unquestionable, such as the amplification of the student's view towards the health/disease process, understanding its complexity. This adds specific knowledge of the educational area to the integral understanding of this process, which points to the germination of critical and reflective professional profiles, in harmony with the needs of the SUS, as shown below:

"But you know, a very productive thing when we provided the students' feedback is that some dental students said, 'today I can see that if he has cavities it's not only because he ate candies; many times, he doesn't have a toothbrush at home, he doesn't have anything to eat or, when he has something, he shares the toothbrush with the whole family'. So they no longer look only at the mouth". (P2)

"It's that 'problem' has several definitions, so we've learned that his home is a problem, his food, everything. So, at least I've learned to see, in a very different way, what a problem is to other people". (S1)

"[...] You learn to consider it not only as a mouth, as we've learned here, but as a problem. There's a whole context behind it, a very complex individual, and you learn to interact, to take care of these people [...]". (S1)

"[...] This has shown me that it goes beyond the tooth, the person's mouth. I don't have to look at the mouth and think 'I'm a dentist, so I'll

look only at the mouth'. No, I have to look at the person, what he is, where he comes from, what he eats, where he lives, and then I can think of opening his mouth to see what's wrong, but I have to see what's been influencing his mouth to be in that way". (S1)

A new and/or little explored concept is introduced to the students – social determination of diseases – and, at the same time, it becomes possible to understand that, beyond human biology, life conditions, the environment and also the political and social organization interfere directly in the population's health situation<sup>32</sup>.

The benefits extend to a humanized education of citizens and go beyond the academic and professional sphere.

"[...] I think that the PET helps not only in our education as a professional, but as a person, too, right?". (S2)

"I think that the PET develops empathy in us, it makes us have empathy with people, and this makes us grow a lot as human beings. And when you grow as a human being you can act better in any area because you'll have this characteristic of caring about people's pain as if it were your own pain. [...]". (S2)

The participation in PET-Saúde, mainly due to the professionals' contact with undergraduate students, as the preceptors admitted, add knowledge that enhances the professional practices exercised in the service, collaborating to improve Primary Care. The possibility of transforming the professional practices exists because questions and answers are constructed based on workers' and students' reflection on the work they perform or for which they are preparing themselves<sup>31</sup>. According to the preceptors, the interaction with students induces and stimulates the search for knowledge, as in the process of service-learning they become the students' greatest reference.

"[...] So, there are students all the time, but this makes me watch myself so that I can improve my work more and more. I'm an example to that person who is there. In some way, he's learning with me. If I do my job poorly, he'll learn to do a poor job, too [...]" (P2)

"As you're with students all the time, you have to study all the time because they ask questions all the time". (P2)

"We end up looking at ourselves, too, because the student comments on things. We, too, must recycle ourselves and change, because at the end he presents an evaluation". (P3)

"[...] our professional posture changes [...]". (P4)

"We benefit because we have to research, we have to read a lot, we have to study to be able to discuss with the students. So, we end up obliging ourselves to know a bit more". (P1)

These transformations, in an indirect way, contribute to improve the development of the work and of the Primary Care Unit itself. The fragments below reinforce this idea:

"[...] the unit's organization changes [...]". (P4)

"[...] and we, from the area of practice, end up creating conditions to improve our assistance work". (P3)

### **Knowledge about the SUS**

During the interviews, PET-Saúde was mentioned as a device that enables a better perception of the SUS, especially of Primary Care<sup>24,29,33</sup>, disrupting ideas and unfavorable opinions created *a priori*. When students break pre-conceptions at the moment in which they face reality, they demystify the public health service, and this causes surprise and admiration.

"Before I entered the PET, I was prejudiced against the SUS. I thought it was a system that did not function, that it was a hopeless system [...]. But when we have contact with it, we see that it's not like this. There are organized forms inside this system; it works". (S2)

"Me too, I was also prejudiced against it [...]". (S2)

"I imagined that it was a mess, that it was disorganized. When I started working there, I visited the sector and it's divided into zones, by colors, right, each family has a health agent. So, I thought it was really good. I thought it would be much worse, like, those who arrive first are assisted and the others aren't, but no, it's not like this, you know?" (S2)

"[...] you realize that the SUS isn't that image that you have from TV, in which nothing works; you realize that the SUS is much broader [...]".  
(S1)

A similar situation has been reported by Lucas et al.<sup>32</sup> when they refer to dental students who, after recognizing the fields of practice, replace their negative perceptions of the SUS by more positive perceptions, marked by surprise.

All these perceptions and concerns become possible due to the constant movement that students from all the programs involved make between the "real world" and the "studied world", that is, there is an articulation between the theory learned in the classroom and the practices established inside the SUS, and this facilitates and helps, significantly, the teaching/learning process.

Practical activities enable the acquisition of knowledge, skills and attitudes which are consistent with the real world<sup>34</sup>. A study that aimed to outline the profile of the dental students of the Federal University of Paraíba (Northeastern Brazil) with regard to their desires concerning their performance in the job market, their interest in the field of public health and their self-perception of academic education concluded that 65.1% of the students consider that internships in the primary care network are indispensable to facilitate the apprehension of the working routine in the SUS<sup>35</sup>.

Oliveira and Coelho<sup>24</sup>, in a study developed with PET-Saúde students in the Federal University of Mato Grosso do Sul (Central-Western Brazil) argued that one of the potentialities of the Program is the opportunity of interrelating theory to practice, aiding the understanding of the social, cultural and economic reality of the areas in which the activities are developed.

Ceccim and Feuerwerker<sup>36</sup> argue that the axis of integral care as an amplified dimension of assistance in the SUS must guide the education of health professionals, so that they are able to welcome users and to create bonds in their practice.

The fragments below illustrate the importance attributed to the interrelation between theory and practice to fulfill the learning process:

"[...] they've seen how it happens, they haven't read it in a book". (P1)

"What I've realized with the students I supervise is that they compare what they've learned in theory with what they obtain here". (P2)

"[...] the student said, 'how nice, you're saying what the books really say to us, what the papers are saying to us'". (P3)



"[...] it's completely different; for example, you read a text about territorialization and you visit the territory on the same day with the student and you discuss the relation according to the practical side, compared to the experience they have with the same themes in a formal course [...]" . (P4)

To the students, the theoretical exposition of contents and the experience in the university's clinics are not sufficient to provide an effective, real knowledge.

"You're able to experience what the public service is, because I don't think that what we have in the classroom is enough, you know? You're able to enter into a Primary Care Unit, to see how it is, how it works, what the pharmacy has, the drugs and everything else, right?" (S1)

"But what we learn in the classroom is totally different from what we learn in a Primary Care Unit. When we get there, we see that what we've learned in theory doesn't have much to do with it" . (S1)

"When we entered the PET, the first thing was that we saw the territory, but without too much discussion. We got to know the territory gradually, we walked the territory, we saw what it had, what it didn't have, what supported it, the schools, the drugstores, the church, a lot of things and this was what made us understand. It wasn't the class I had about territory" . (S1)

"We learned what it is in practice. Today we know what Primary Care is, the limits of Primary Care, and it's quite different from what we learn in theory" . (S1)

In the fragments above, the students emphasized the differences between what they learned in the curriculum disciplines and what they observed at the Primary Care Units. This discovery generates reflection on the contents approached by the Dentistry School of USP and their coherence with the oral health practices developed by the SUS. The discourses enable to conclude that the education is centered on the private practice of the profession and the clinical contents are presented to the students in a form that is disconnected with the discussion held by the disciplines related to public health.

Finally, the students recognize the contribution of PET-Saúde to materialize the content of the disciplines that are connected with the SUS.

“We see it. At least, I’ve felt that the people who were part of the PET in that period understood the objective of the discipline better”. (S2)

“Then, when I entered the PET, I started to understand the subject. It’s possible to understand the social sciences subjects much better when you do them in practice. Much better! You’ve got much more to learn”. (S1)

“I think that everything that you take to the practical field becomes more interesting, you know? The degree of interest is different when you are in the practical sphere. I think this is a very good thing [...]”. (S2)

### **Teaching/service/community integration**

The teaching/service/community integration can be conceptualized as collective and integrated work that is agreed among higher education students, teachers, health workers (including managers), and the community, aiming to qualify individual and collective care and professional education<sup>31</sup>.

This approach is fundamental to promote the understanding of human diversity and of the community’s dynamic, and also to create a deeper comprehension of the challenges related to general health and oral health<sup>37</sup>.

The educational perspective concerning service/school integration is based on a problematizing approach that enables the student to understand that the health professionals’ practice in the SUS is no longer concentrated only on the specific knowledge of their area; it requires a cross-disciplinary dimension in which, when they work in health teams, many types of knowledge are integrated and converge to the same direction<sup>38</sup>.

However, many attempts to integrate the academia to the health services present limitations, as observing the reality of the services and developing some specific actions related to them is different from having a deep knowledge of the reality, that is, specific visits are not equal to the student’s immersion in the daily routine of the services, which might generate effective interventions and even their transformation<sup>39</sup>.

The inclusion of different pedagogical scenarios outside the limits of the classroom, allowing a dialog with the practices and processes developed in the SUS that are targeted at health promotion, no longer focusing only on diseases, require, also, a change in the teaching/learning strategies, in which stimulating the students’ critical-reflective process is essential. This significantly alters the teachers’ role: content transmission ceases to be, momentarily, their central function and

they become, together with other subjects, service preceptors, or even workers who are not directly involved in the process<sup>40,41</sup>.

It is clear that the changes in the curriculum structures to achieve this ideal will demand diverse efforts and time to be consolidated. PET-Saúde was thought as an enabler and catalyst of this process, responsible for helping to guarantee the effective integration of the higher education institutions into the SUS.

The Primary Care workers linked to USP perform their daily activities with the constant presence of students coming from the actions of integration between undergraduate programs and the healthcare services and PET-Saúde. The preceptors distinguished the inclusion of students connected with the Program and the inclusion of students via other means. However, the preceptors did not specify the other types of students' inclusion in the services, that is, the professionals did not state if they were referring to supervised curriculum internships, supervised visits or other modalities of inclusion, or, when they did, they generalized the inclusions using the term "internship".

To facilitate the understanding, Table 1 synthesizes the main differences pointed by the preceptors between the inclusion of students through PET-Saúde and by means of other devices.

**Chart 1.** Main differences between the inclusion of students through PET-Saúde and through other inclusion devices.

	<b>Characteristics of students' inclusion through PET-Saúde</b>	<b>Characteristics of students' inclusion through other devices</b>
<b>Objectives</b>	Defined by the tutorial groups, based on the Primary Care Units' demands;	Defined by the disciplines;
<b>Inclusion</b>	Longitudinal;	Specific moments;
<b>Time to devote to the activities</b>	Defined by the students in harmony with the unit's working hours;	Reserved in the curriculum structures;
<b>Developed practices</b>	Directed at the service, in a general view and in an interdisciplinary way;	Directed at assistance in the educational area;
<b>Motivation to perform the activities</b>	Commitment to the program and awarding of scholarships;	Obligatory disciplines and evaluation through marks;
<b>Degree of involvement with the services' routine</b>	Higher;	Lower.

The analysis of the synthesis above inspires the idea that the inclusion of students through disciplines, in the way it has been conducted, induces the creation of a reality that is adequate to the needs of teaching, which, consequently, masks or even nullifies the organization and the real dynamics of the services. This situation generates losses to effective learning, in view of the fact that future professional inclusion will not happen behind masks.

In addition, the inclusion promoted by PET-Saúde is continuous and periodical. The selected students remain in the program for one year and they can renew the scholarship for one more year. They dedicate 08 hours per week to the activities developed at the Primary Care Unit, which enables to strengthen the bond between students and the live territory - the stage of health actions. The curriculum disciplines, in turn, usually promote the students' entrance in the health services in a limited way, with a lower number of visits, which hinders the students' effective integration into the health service and into the territory.

The establishment of integration between teaching and service promotes interdisciplinary experiences<sup>42</sup>. Interdisciplinarity represents resistance against excessive specialization and knowledge fragmentation<sup>2</sup>. It is necessary that health professionals develop an interdisciplinary work to increase the levels of quality in healthcare, mainly in Primary Care<sup>14</sup>.

The potential of PET-Saúde for the establishment of interdisciplinarity has already been confirmed by many studies<sup>18,28,29</sup>. In the particularities of the scenario of this study, the students were capable of understanding and appreciating interdisciplinarity and the preceptors strengthened the Program's power so as to guarantee it.

"One thing that I thought was very interesting in the PET is interdisciplinarity [...] I could see everybody working together, you know? You can lean on the other's work. So, we broaden our horizons and it's where we can include ourselves, too". (S1)

"[...] Working together is very good, working with the students has a fantastic intensity. I think that the great advantage of the PET is joining several professions, joining the student to the teacher". (P3)

"They're undergraduate students, I think that the contact with other professionals doesn't happen outside the PET". (P3)

"[...] there's always shared work at the unit". (P3)

"[...] what's good in the PET is this... we interact with all the professions, the doctors, there's the pharmacy. This is very good to us. To the students, it's even better". (P4)

## Final remarks

The results of the study translate the PET-Saúde of USP, campus of the city of São Paulo, as a powerful instrument of induction of changes in the conception of health professionals. By

promoting the immersion of students from the area of health and, mainly, from dentistry, in the reality of the health services, the Program contributes to break pre-concepts and to demystify the SUS.

The challenge of integrating the service into the higher education institutions requires an important process of mutual knowledge and rupture of classic prejudices. The higher education institutions must recognize that the service can represent an important locus of knowledge production and, therefore, it can become a pedagogic agent, provided that, on the other hand, it recognizes itself as such and does not consider the higher education institutions as structures that threaten the routine of the assistance.

The potentialities that have been unveiled extend to the workers included in the services connected with PET-Saúde, as the contact with undergraduate students induces to reflections on the work itself, which tends to become uncritical and mechanic in the daily routine of the practices.

It is concluded that the Program, by conceiving a teaching-learning process in which the service worker is included as the mediator of learning together with the university teacher, configures a significant learning process that encompasses and affects all the people involved.

The Program's transformation axis is the integration between undergraduate teaching and health services based on education through work. The investigation revealed the particularities of PET-Saúde in this aspect, understanding it as the point-of-departure to the ideal integration model. It is believed that many of the specific characteristics that were revealed can be incorporated into the interaction modalities that are present in the curriculum components with the aim of making them become more consistent. One of the great differentials are the developed practices which, in the case of the referred Program, are directed to the demands of the service and planned and executed based on interdisciplinarity, maintaining an expressive involvement with the routine of Primary Care Units.

### **Collaborators**

Graciela Soares Fonsêca and Simone Rennó Junqueira were responsible for the study's design, data collection and analysis, and also for writing the text. Celso Zilbovicius and Maria Ercilia de Araujo were responsible for revising the manuscript and for the bibliographic review.

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