

Development of the Dental Instruments Bank in a public university as a democratic tool in academic health training: experience report

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ABSTRACT

This article describes the experience of the development of the Dental Instruments Bank at the Dental School of the Fluminense Federal University (DIBDSUFF), Niterói campus, Brazil, considering the equity promotion perspective. The DIBDSUFF promotes access for socially vulnerable students to the necessary dental instruments required for clinical and laboratory activities during the professional training in Dentistry. This paper aims to describe the development and working processes of the DIBDSUFF highlighting its potential to enhance academic retention and to reduce dropout rates. It emphasizes the relevance of this initiative as a pedagogical tool considering three perspectives as follows: (i) the institution's social responsibility, (ii) citizen, ethic and solidarity education, and (iii) support for social inclusion and socioeconomic equity. As well as pointing out the limits of this strategy, the present manuscript emphasizes the importance of the involvement of academic community in building up more democratic and equitable practices in dentistry training. Finally, the relevance that the instrument bank can achieve in the post-pandemic context of COVID-19 is highlighted.

Descriptors: Social Vulnerability. Inclusion. Healthcare Education. Dentistry.

1 INTRODUCTION

The law 12.711 of 2012, the so-called Quota Law, which guarantees the reserve of places in the federal universities to students who fully complete their studies in public high schools for admission into federal teaching universities¹, was responsible to increase in the social, racial and cultural diversity amongst the undergraduate students across different university courses². The quota policy enacted a historical moment in tackling the racial and social exclusion in the Brazilian educational system³, especially among the most competitive entry courses and those considered of higher social prestige, such as Engineering, Medicine and Dentistry⁴.

In the case of Dentistry, the impact of quotas resulted in important shifts in student's socio-economic profile, once, historically, this course has been mostly attended by white students and by those who belonging to the middle and upper social classes^{5,6}. Low-income students face several difficulties throughout the course, including food expenses, costs related to commuting to the university, purchasing books, and photocopies. In several cases, students from other municipalities or states also have to deal with housing costs.

Similar to private universities, undergraduate dental courses in public institutions requires students to purchase dental instruments for laboratorial and clinical training during the course. Furthermore, dental courses usually entail full-time dedication from the students, involving at least two daily study shifts of subjects so that integral curriculum are taught within the required time by the university.

The extensive workload put on students makes it difficult or, in most cases, prevents them from performing labour activities to deal with the costs related to undergraduate course period. Additionally, the requirements for

adequate clothing, like a lab coat with sleeves, closed white shoes, white clothes and a large amount of disposable consumables, such as gloves, masks and caps, among others^{7,8}. All these factors contribute to the high costs for the students during the undergraduate course in Dentistry, even in public higher education institutions.

In this context, in most cases the student assistance programs are insufficient to retain undergraduate students in the Dentistry course. Besides of it being a full-time course, the total costs of dental instruments during the entire graduation varies between 12,000 and R\$ 15,000 Brazilian reais⁸.

However, the university has the responsibility to take action in order to promote equity among students so that they can benefit from fair opportunities during training. Previous studies^{7,9} validate this statement, emphasizing the need to remove elitism from Dentistry, and to challenge the preconception that, in order to graduate as a dentist, one must have high family income to endure the financial costs throughout the course.

When financially vulnerable students finally overcome these barriers and gain access to an expensive course such as Dentistry, the educational system itself creates inequities between those who can afford the solicited tools and those who cannot, creating social groups particularly related to power and privilege. Therefore, the institutional arrangements themselves need to create means that offer these students genuine opportunities to pursue their degree. Consequently, it is necessary to promote inclusion programs, appropriate management, curricular organization and other measures that the academic community consider necessary, to make dentistry training more equitable and inclusive¹⁰.

Specific social and ethnic groups create

different and unequal experiences during the professional training process in health. These inequalities are magnified in a course of high social status, such as Dentistry, proliferating in an environment of social exclusion. With the implementation of quotas, the challenge shifts to how to uphold social and racial diversity in the academic routine. It is the responsibility of the dental course to work towards this diversity, shaping it into an opportunity to teach students about diversity, acknowledgment, respect, equitable practices and critical viewing⁹.

In this sense, a provisional system of dental instruments was developed at the elective program linked to the project: Giving Voice (“*Dar Voz*”): The dental student and their academic routine at the Dental School of the Federal Fluminense University, Niterói campus. The objective of this paper is to describe and to reflect on the experience of the development and implementation of the dental instrument bank, as well as its challenges and capabilities.

2 EXPERIENCE REPORT

This is a report of a reflective experience that describes the development of the Dental Instrument Bank of the Dental School of the Federal Fluminense University (DIBDSUFF), initiated in 2019.

The Dental School of the Fluminense Federal University (DSUFF), is located in the city of Niterói, a municipality in the Metropolitan Region of the state of Rio de Janeiro. The course has a mandatory workload of 4035 hours and the period scheduled for curricular integration is 9 academic semesters. The curriculum includes 14 laboratory and 15 clinical subjects that undoubtedly requires the acquisition of dental instruments / materials by the students¹¹. In the second semester of 2018, there were 335 students enrolled in the undergraduate dental course¹².

A recent study showed that 42.3% of undergraduate dental students at the Fluminense Federal University benefitted from affirmative policies and around 24% of undergraduates had monthly family income up to 3 minimum wages. The study also pointed out that the majority of students (88%) were not engaged in any type of paid work activity given the need of full time dedication to the course¹³.

The target audience of this project are socially vulnerable students from the 1st to the 9th academic period of the undergraduate dental course at UFF.

The conceptualisation of the project emerged in 2018 due to the frequent complaints from dental students related to the high costs of dental instruments required for the laboratory and clinical subjects at DSUFF. The theme of “amount and costs of dental instruments” was recurrent at the academic community meetings promoted by the outreach project: “Giving voice (*Dar Voz*): The dental student and their academic routine” throughout 2018. The aforementioned project is comprised of teachers and students that aim to promote democratic debates alongside the academic community in order to discuss issues and also to propose actions aiming to improve the university routine.

Therefore, the DIBDSUFF was developed and conducted as an elective programme within the Giving Voice (*Dar Voz*) project. The team responsible for DIBDSUFF includes two professors, one of them acting as project coordinator, and three undergraduate dental students. Although not being part of the project team, member students of the DSUFF’s Students Union supported the project during all of the development stages.

The stages of conceptualisation and implementation of DIBDSUFF are described in chart 1.

Campaign to gather instruments. The first step occurred in the first semester of 2019 with the development of a campaign to raise awareness among dental surgeons, teachers and students with the purpose to encourage the donation of dental instruments to DIBDSUFF, which was still in the organisation stages. The Giving Voice (*Dar Voz*) elective project team prepared and circulated posts on social networks and through interpersonal contacts, aiming to encourage not only the academic community, but most importantly the dentists working outside the institution. In order to facilitate the contact between potential donors and the members of the team linked to the dental instruments bank, a mobile number (with the WhatsApp Messenger® application installed) and an e-mail were made available.

Collection of Instruments. The instruments were collected at donors' houses or workplaces and, in some situations, they were directly delivered by donors to the members of the team of DIBDSUFF.

Cleaning, disinfection, sterilization and storage of the collected instruments. The instruments were properly cleaned, disinfected and sterilized in autoclave in accordance to the biosafety protocol. Then, the identified instruments were stored in appropriate cabinets within the storage area at the dental school.

Cataloguing the instruments. Once sterilized, each instrument was properly catalogued. The instruments were grouped by nomenclature, number, quantity, brand and solicited subject and became part of the DIBDSUFF spreadsheet created in the Excel® program.

Development of the instrument loan notice. The following step of the project included meetings involving members of the project team and the Students Union to prepare the grounds of the notice call for the registration of applicants for lending the dental instruments. The notice held the norms for the loan process, renewal and return rules, as well as the prerequisites for applying, considering the necessity of priority offer to socially vulnerable students. In this way, priority is given to the student who was accepted into the dental course at DSUFF through the Placement Reservation System / Affirmative Action Policy of "SISU" (Unified Selection System) according to the criteria of the Undergraduate Dean ("PROGRAD"). The criteria are divided into 8 overlapping categories, taking into account the socially vulnerable groups, namely: ethnic (indigenous), racial (pardo and black), social class (gross per capita family income equal to or less than 1.5 minimum wages and secondary school at public school) and candidates with disabilities who are from families with income equal to or less than 1.5 minimum wages. Even though candidates who meet these criteria have the priority of borrowing instruments, students who are able to prove socio-economic vulnerability through documents as stated in the notice are also considered eligible.

Notice disclosure. Banners (physical and digital) were produced in order to announce the opening period of registrations. The social media accounts of the elective project Giving Voice (*Dar Voz*) and the Students Union were the main means of disclosure. On the physical banners, exposed on the murals of all floors of the building of the Dental School, a barcode (QR code) was attached that, when scanned, directed the user to the notice of the selection process.

Selection of applicants. For the selection of enrolled students, the criteria established in the notice were followed. The selection board was composed of professors and academics also linked to this project. The list of selected candidates was disclosed individually by e-mail to the applicants. The selected candidate should fill out a spreadsheet within 15 days with all the instruments they needed to borrow and also to forward it by e-mail to DIBDSUFF.

Simulation in spreadsheets of the distribution of instruments among candidates. At this stage, all the demands for instruments were inserted in the spreadsheet that contained the BIOFOUFF collection. Thereafter, the demands of each candidate was compared with the amount available in the bank. Thus, it was possible to identify some situations in which the demand was higher than the supply. In such situations, cases of dispute were considered so that they could be solved in the presence of the students involved.

Simulation of instrument distribution. Prior to the actual delivery of the instruments, the project team met with all the selected candidates in a private room in order to provide transparency on how the loan process works. The spreadsheet with the loan simulation was displayed on a multimedia projector for all those present. In cases where the demand for instruments by the candidates exceeded the supply, those involved in the dispute decided in a consensual and friendly way who would receive the benefit, respecting the degree of vulnerability spontaneously expressed by the candidates. It is worth noting that the cases in which there were disputes over instruments were rare and the consensual form of resolution proved to be adequate and guaranteed transparency to the loan process.

Delivery of instruments. The distribution of the instruments took place in the second week of the second academic semester of 2019 and was carried out through the presentation by the students of the study plan for the semester. Thus, the student proved their enrolment in the disciplines whose instruments were being taken for loan. At that time, the Term of Responsibility was signed as stated in the notice. For the execution of instrument loan, each candidate signed this term of responsibility in which they committed to return them at the end of their use (usually at the end of the course) properly sterilized and in good conditions.

Loan renewal. Each semester students were allowed to renew their loans and to compete in a new public notice to benefit from a new assignment of instruments in accordance with the needs of future subjects they are willing to study.

Chart 1. Stages of conceptualization and implementation of DIBDSUFF

Until now, there have been two loan have signed up have already had all their notices from DIBDSUFF and all students who demands for instruments met. It should be

highlighted that the project may be contributing to decrease student retention once it avoids the student leave of absence due to the need to raise financial resources. It has already been reported that student leave of absence in dental courses within other public universities for working purposes or even evasion may have the financial costs of the dental instruments as its main cause^{7,8}.

Thus, it is possible that the project is also contributing to student permanency, since the university's student assistance programs are insufficient to cover most of the costs of the course.

Despite this, the relatively low number of students who applied for the two notices of the DIBDSUFF drew attention. There are currently 23 benefited students, which is below than what was expected and below than the capacity of the bank's storage. A possible explanation may lie in the course's own elitist norms and the requirement of instrument brands that makes students feel embarrassed or afraid to use instruments that are not new or are not of the requested brand. The aspects of social integration and identity construction amidst their colleagues and their teachers become a high requirement for socially disadvantaged and black students, that are still the minorities in a course of high social status.

Another explanation may be related to the fact that low-income students do not even consider applying for the dentistry course. The existence of a social funnel of entry has already been identified in the dentistry course, which causes difficulties in its democratization, once as considered an expensive and elite course, low-income youth hesitate to apply, even in public universities⁹.

Data from the National Student Performance Exam ("ENADE") demonstrates that access to higher education is unequal across

different courses, showing the existing gaps between what is advocated by the Law 12,711/2012 (50% of the vacancies of course should be filled by quotas) and what occurs in some undergraduate courses in the country¹⁵. In a recent survey on the socioeconomic stratification of university careers in Brazil, the dentistry course is ranked as the third (behind only the Medicine and International Relations undergraduate courses) among those courses who tend to have people of higher socioeconomic background¹⁶. However, the reality of the DSUFF appears to be closer to the one recommended by the law, as long as 42.3% of students reported benefiting from affirmative action policies in 2019¹³.

In this sense, it can be assumed that those who benefit from affirmative actions in the dental course due to low income do not represent a meaningful amount within the university. Moreover, it is possible that students, although in an unfavourable socioeconomic situation, feel embarrassed when unable to present the instrument brand required in some lists and prefer raising financial resources at the expense of some degree of family indebtedness. These hypotheses should be examined in future research.

It was noticed that the engagement coming from the academic community in the dissemination of the campaigns to collect instruments resulted in positive outcomes, encouraging voluntary donation by former students of the university, dentists who no longer working in dental clinics and teachers. In such way, the storage of the DIBDSUFF currently holds 1736 instruments, enabling the loan to different groups of vulnerable students enrolled in the course.

It is important to highlight that strategies aiming to ensure the permanence of low-income students in the dental course might be promising

when encompassing the academic community as a whole. Besides being a critical producer of knowledge, the university as an institution should be able to ensure the future of its students and to take for granted its social and ethical responsibility in building up a fair and inclusive society¹⁷.

It is also worth mentioning the role of the Students Union in the development of this project, which actively participated in its formation, with a special accomplishment in cataloguing the donated instruments and in preparing the notice. The participation of students and the Students Union is essential in building up more democratic and equitable practices in university education.

In addition to this pragmatic perspective of reducing the financial costs for students in the acquisition of instruments, the proposal of a basic list of instruments for the undergraduate course also moves towards a disruption against the elitist culture that standardises modes of action of the academic community. Therefore, we refer to the existence of a specific social norm that goes through any educational arrangement in the dental course, whether pedagogical, curricular, organizational or political. It is necessary, therefore, to work so that students who are on the edge of their course due to such elitist social norm, are now included and recognized, even as actors necessary to the learning process about diversity and otherness through pedagogical processes that affirm diversity⁹.

In this sense, it is essential to develop projects addressing equitable practice. It is up to teachers to remain more conscientious and sensible to these differences and be willing to face the challenges of the power relations and conflicts that surround a practice that aims to reduce inequalities in an elitist context.

It can be noted that the social norm of the course results in practices that increase

inequalities among students, such as the indiscriminate requirement of a list of dental material, going in the opposite direction of having a social norm based on democratic and equitable practices. This ultimately reflects a requirement for more expensive instrument brands, or materials and instruments that frequently are not even used and could be of collectively use.

Thus, from its social and inclusive approach, DIBDSUFF intends to incorporate other practices related to the democratization of the course, such as the suggestion of revising the lists of materials and instruments requested by subjects. Thus, the next action to be developed by the project includes proposing a list of essential instruments for dental training suggested by the Brazilian Association of Dental Education (“*ABENO*”). This action would have impact not only on students who were accepted at the university through affirmative actions, but also on several undergraduates who struggle with financial difficulties in the purchase of instruments.

Another action that DIBSUFF has triggered, mainly by having the coordination of the course as a mediator, is the establishment of a dialogue with teaching community, in order to involve them with the project and to avoid possible constraints of students who use the bank's instruments, which might not be the brand that appears on the lists of materials of the subjects.

A recent study that described the experience of those who benefited from a dental instrument loan programme reported cases of humiliation and discrimination of students by teachers of the educational institution¹⁹. These events occurred because the instruments borrowed were not in accordance with the standard required by some subjects, despite the good conditions of use.

The relevance of the dental instrument bank goes beyond the material aspect, which *a priori* is already important, as it guarantees the loan of the instruments to those who would not have financial conditions to acquire them. However, in addition to this material aspect, initiatives such as DIBDSUFF offering new possibilities regarding its social role. In the experience described here, we sought to mobilize the academic community in the perception of the social differences that exist among students, as an authentic exercise of acting towards equality, considering its relevance and need.

The ways in which society can become more equal take shape in educational issues about the knowledge, attitudes and experiences that students go through during their training process. These are issues that become part of the student's learning, because we do not break up a pedagogy of acknowledging and knowing and a pedagogy of being and doing, in a vision of learning that brings together an ontological and epistemological project²⁰.

The dental instrument bank, as a proposal developed horizontally, bringing together teachers and students is aligned with the ethical, humanistic and social commitment, student-centred as an agent in his own training through an articulation between teaching, research and outreach/care. Therefore, DIBDSUFF acknowledges the pedagogical model as an environment consisting of social agents and not as a mere training for the labour market⁸.

It is worth emphasizing the pedagogical dimension of DIBDSUFF where the moral and cultural education of students is considered of equal importance, where the undergraduate course can be an environment of meaningful experiences of solidarity, humanity and equitable practices for a sociocultural formation of moral personality. As stated by Finkler and Negreiros (2018)²¹, this approach extrapolates the

professional training of higher education courses, reaching the ethical training based on how students themselves experience their own academic trajectory.

The network of interactions that occurs in the university is where the individuals develop and transform their identities, and engage or reject ideas, give meanings to their exercise as part of a university student community and also build their perspectives of acting as future professionals in their area, within the representation of professional category constructed from the acculturation of their characteristics and ways of acting²².

A necessary axis for this ethical formation is the practice of otherness, while recognizing the other as different in a respectful based relationship. DIBDSUFF has the potential to bring this more active practice inserted in the academic experience, with the understanding that undergraduate students are adults in the process of building their identities. Therefore, it is essential to look for real experiences of intersubjectivity in these relationships for the humanistic development of these students so that, instead of learning inequality and meritocracy, the students learn - while experiencing equitable practices - the solidarity and social and participatory responsibility, through a continuous critical reflection in decision-making and when facing what is different²³.

3 FINAL REMARKS

It was possible to notice that the development of the DIBDSUFF is aligned with three perspectives: the social responsibility of the institution; citizen and ethical training; and support for inclusion and socioeconomic equity. The first perspective of the institution's social responsibility, represented by the development of the project as a university elective action, refers to the institutional duty to promote access and

permanence of low-income students in the course. This aspect is even more relevant because it is a public institution, which in turn amplifies this responsibility. The second perspective, related to citizen and ethical training, occurred to the extent that DIBDSUFF brings into the daily life of higher education the need to have an equitable, solidary, collaborative and of social and political awareness practice, which Puig and Martín (2015)²⁴ call as culture in values. The third perspective, that supports inclusion and socioeconomic equity, is noticeable to the extent that the loan of instruments by DIBDSUFF has the potential to avoid leave of absence and evasion of students with financial distress.

The DIBDSUFF's experience has shown that a collective construction involving the entire representativeness of the academic community is necessary and that its scope is beyond student assistance. Its importance is also undeniable as a pedagogical device of ethical and solidarity education for training.

It is important to emphasize that the COVID-19 pandemic has created important consequences on family income. The financial impacts of this sanitary crisis on lower-income families and among informal workers have been disproportionately greater than the rest of the population. Possibly, students who, before the pandemic, would have the costs of the instruments financed by their families, may no longer be able to bear these expenses in a future return to the clinical and laboratory subjects. Thus, DIBDSUFF will may represent a promising alternative for students who were most socioeconomically affected by the pandemic.

It is expected that this experience report can contribute to other institutions developing their own loan systems, considering this an action that is part of the efforts towards the construction of a more democratic, less elitist, more equitable course and that reassures the socioeconomic

diversity of their academic community.

RESUMO

Criação do banco de instrumentais odontológicos de uma universidade pública como instrumento democrático na formação em saúde

O artigo descreve e analisa a experiência de criação do Banco de Instrumentais Odontológicos da Faculdade de Odontologia da Faculdade de Odontologia da Universidade Federal Fluminense (BIOFO-UFF), *campus* Niterói, Brasil, na perspectiva de promoção da equidade. O BIOFO-UFF **viabiliza** o acesso dos estudantes em situação de vulnerabilidade socioeconômica aos instrumentais necessários para as atividades clínicas e laboratoriais durante a formação profissional em Odontologia. O presente artigo tem por objetivo descrever o processo de criação e funcionamento do BIOFO-UFF, destacando seu potencial para reduzir a retenção e a evasão acadêmica. Salienta-se a relevância da iniciativa enquanto dispositivo pedagógico a partir de três perspectivas: responsabilidade social da instituição, formação cidadã, ética e solidária e apoio à inclusão e equidade socioeconômica. Além de apontar os limites da estratégia, o artigo ressalta a importância do envolvimento da comunidade acadêmica na construção de práticas mais democráticas e equitativas na formação em Odontologia. Finalmente, é destacada a relevância que o BIOFO-UFF pode alcançar no contexto de pós-pandemia de COVID-19.

Descritores: Vulnerabilidade Social. Equidade. Educação em Odontologia.

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