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The Extension Activities in The Process of Training University Students

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Abstract

Since colonial times, social inequality is the reality that insists on persisting in the country, even with the great economic advances obtained over the centuries. Faced with these problems, there are several responsible for acting on their resolutions and/or mitigations. The important role of government (federal, state, and municipal), justice, ONGs, and even religious institutions are the most popular forms of action outside the scientific community, but Universities in extension actions to be an important vector for generating ideas and solutions so that we have a more egalitarian society. It was with this in mind that, in 2008 at the Universidade Federal de Juiz de Fora (UFJF), the Nucleus of Social Attendance of the Faculty of Engineering (NASFE) was created to allow the generation of social projects of Engineering and Architecture, but also to enable the students to live practical experiences, acting in real cases and developing skills and competences essential for their academic formation. NASFE is currently an extension project that aims at good Engineering practice in order to improve the quality of life of poor communities through the provision of free advisory services to Engineering projects. With the guidance of professors, students from the 2nd to 10th period of Engineering, Architecture, Arts and Design, and Social Service of the UFJF it is made possible to offer such services. Since November 2016 actions have been developing in partnership with the Center of Legal Practices of the Faculty of Law of the UFJF providing experience in multiprofessional and multidisciplinary activities. In addition to these services, students are organized into sectors to advance the practice of developing leadership skills so that they are able to assume leadership roles in the labor market and in public power. In this sense, NASFE is divided into three sectors: CIA (Communication, Infrastructure, and Service), Human Resources, and Quality and Projects, each of which is overseen by an academic member. Organization and opening of the requests, training, and management of the members and, finally, development, monitoring, and delivery of projects are the main activities of each sector, respectively. In 2016 and 2017, 71 consultations were carried out, divided into usucapian projects, proletarian projects, regularizations and architectural projects, mapping of risk areas, and technical surveys. Thus, even with the reduced number of students and professors facing the high demand of society for public Engineering, a satisfactory productivity was obtained, as well as allowing members a practical vision of the social responsibility of their future professions. In addition, in view of the great problem of cities with natural disasters, the NASFE-EDUCATION sector was implemented in March 2018 with the aim of promoting prevention through the learning of elementary school children and the school community, regarding social and environmental risks, and to bring up the discussion on the subject and necessary care. The development of educational actions in public schools has partners such as the Fire Department and City Hall of Juiz de Fora.

Keywords: Extension Actions, Public Engineering, Professional Training, Social Responsibility.

1. Introduction

Historical social inequality has permeated Brazilian society since the colonial period to the present day, with a marked concentration of income. According to data from the Brazilian Institute of Geography and Statistics (IBGE)[1], in 2017, only 10 % of the population concentrated 43.4 % of all income received in the country, while 90 % had the remaining 56.6 %. The discrepant distribution documented by the research can be noticed through the social problems faced by the Brazilian population. According to IBGE[1] data, half of the workers receive, on average, R$ 754.00, less than the current minimum wage. In view of the research presented, the need for programs, linked to the public administration or not, to develop activities with the objective of assisting low-income families, mitigating the effects of social inequality.

Although Law 11,888 of December 2008[2], guarantees the right to technical assistance for the design and construction of housing for low-income families, the reality still represents something very different. A large part of the population is deprived of basic resources, such as specialized technical assistance to ensure quality housing.

At the same time we have communities lacking technical assistance in Engineering and students with social conscience expecting the opportunity to expand and apply the knowledge acquired within universities. According to Bazzo[3], "the formation of the Engineer [...] has a social cost that must be rescued through a conscious action towards society." In the middle of the described scenario, the Nucleus of Social Attention of the Faculty of Engineering of the Universidade Federal de Juiz de Fora (UFJF) was established in 2008. It is an extension project linked to UFJF, formed mainly by undergraduates of the Civil Engineering cour- se and by teachers. The nucleus was created with the intention of uniting the previously identified demands: families in situations of social vulnerability, lacking specialized technical advice; and students willing to impact society with social actions, in addition developing technical skills in a practical environment. The multidisciplinary character of the work developed motivated the adhesion of graduates and mentors from other courses, as well as the establishment of partnerships with other segments linked to the UFJF. Thus, with 10 years of activity, the extension program is dedicated to offer low-income community Engineering and Architecture projects developed by students under the guidance of professors.

The expansion of the activities of the nucleus led to the creation, in 2018, of NASFE-Education, which constitutes a complementary project of preventive and informative character, aimed at the orientation of children. Through it, children are made aware of environmental issues, as well as obtaining basic knowledge on how to avoid, identify, who to turn to and how to act in situations of environmental disasters, so as to ensure their safety in the places where they live.

Since "Engineering can modify the environment, habits, and quality of life of people, their way of living, of getting around, and even substantially altering the behavior of society itself"[3], the extension project addressed in this article is of unquestionable relevance, both for those involved in the project, and for society as a whole.

2. NASFE: the Project

This topic will present a bit more about NASFE, bringing information about the proposal, how it works, methods and results.

2.1. Purpose

The extension project aims to meet the needs identified, with the first aim of promoting the welfare of society in matters of Engineering and Architecture, through the voluntary work of students and teachers. The core operating area comprises the city of Juiz de Fora and the volunteer students are graduates of the UFJF.

Among the projects developed, what has been offered since the creation of NASFE and that still has greater demand is the project for Adverse Possession process. This claim occurs when the landlord claims to own a land that has no record in his name. It is common in cases of informal succession of owners, when the land is sold or inherited without a formal registry in a notary's office to prove the new property, a very recurrent situation in the region of Juiz de Fora and even more common among low-income people, by the lack of information at the time of acquisition, or for financial reasons. The Brazilian situation in relation to this topic was the subject of a report by the magazine Exame (12/07/2017)[4], where Andrey Guimarães Duarte, president of the Notary College of Brazil, states that "approximately 100 million people live in an irregular real estate and are private of some type of urban or community equipment". In the city of Juiz de Fora it is no different: According to the director of the Union of Engineers, João Queiroz, in an interview with the newspaper Tribuna de Minas (01/27/2012)[5], it was estimated that more than 50 % of the buildings in the city of Juiz de Fora were irregular. After six years, there is no evidence of abrupt changes in statistics. In this way, it becomes clear why the project for the Adverse Possession process is the most executed within NASFE. Services are also provided such as electrical design, architectural adjustment project, architectural adaptation projects for accessibility and technical survey in general. The students are directly involved with the projects from the service phase until the final delivery, always with the supervision and supervision of the guiding teachers.

In addition, the assistance to the families is not restricted to the delivery of projects but extends to the informational scope. After a brief analysis of the panorama of the city served, it can be seen that "Juiz de Fora has 639 areas subject to landslides, 70 others where flooding or flooding may occur and 11 dams" according to the Local Civil Defense Contingency Plan[6], quoted in the G1 report on 12/08/2016[7]. The problem was also observed during NASFE visits to assisted families. It was realized that many of the problems detected could be avoided or mitigated if the population served had knowledge of simple practices related to environmental behavior. Thus emerged the newest and not least important action of the nucleus: the NASFE-Education. The actions encompass activities aimed at raising awareness of society, more directed to actions within schools. Thus, there is also an approximation by higher education of basic education[8], with mutual benefit of both parties (undergraduates and students of public schools). The goal is to create a more sustainable culture, believing that the ideas addressed will inevitably be replicated in the homes, through the children, also influencing adults, in order to positively impact society.

2.2. Metodology

Currently, the NASFE team is comprised of a tutor teacher, leading professors and graduates of Civil Engineering, Architecture and Urbanism, Arts and Design, Electrical Engineering, Environmental Engineering and Social Work courses. Each student performs tasks related to their area of training and acting interest. The beneficiaries of the projects, in turn, may be any members of society, with a proven income of less than three minimum salaries, which demonstrate the interest in the services offered. Regarding the target audience

of the campaigns linked to the NASFE-Education, it is constituted by children from public schools, with ages between 10 and 12 years.

The organizational structure of NASFE has been reprojected since 2017, counting on academic supervision, responsible for the management of specific activities. This type of organization proved to be practical and effective at a time when the team grew in number and it was noted the need to subdivide the students into leadership, in order to improve the performance of the extension project actions.

Four academic supervisors are maintained: Human Resources and Quality; Communication, Infrastructure and Attendance (CIA) and NASFE-Education. Through supervision, students are exposed to a broader laboratory in an environment of collective cooperation, as they are invited to interact with the group, contributing in a non-competitive way, but at the same time, having the possibility to develop leadership skills. Still, other skills are acquired, such as planning, supervising, designing and coordinating Engineering projects and services; identify, formulate and solve Engineering problems; to act in multidisciplinary teams, among other competencies cited in Resolution CNE/CES 11[9]. Each supervision is coordinated by a student member who is responsible for accompanying and advising the other members on how to execute the activities of the respective sector. The supervisor position is assigned by election each semester, to which any member of the core can apply. Such a system works as a way of encouraging students to constantly improve themselves so that they acquire valuable skills in the professional and social life of future professionals.

NASFE has a partnership with the Legal Practices Center (NPJ), a project linked to the UFJF Law School, which is dedicated to supporting people with low income through legal advice. The partnership assists NASFE with interdisciplinary guidance in cases involving legal issues, such as Adverse Possession's actions. In addition, there is the referral of the people served. Thus, it is ensured that due continuation of the ownership process, even after the end of the activities assigned to the area of Engineering and architecture. Other partner institutions, such as the Fire Department, the Civil Defense of Juiz de Fora and the Municipal Department of Urban Cleaning (DEMLURB) are decisive for the good performance of the project, whether contributing training, lecturing or engaging in specific NASFE campaigns.

Procedures for the execution of Engineering and architectural projects begin when a member of the society, identified as a requestor, contacts NASFE. At first, it is analyzed if the person is included in the social profile with income of up to 3 (three) minimum salaries. If the requirement is confirmed, a request with name, address, personal documents, documents related to the land, and other information relevant to the case is opened. Subsequently, the on-site technical visit is scheduled for data collection and measurements. After this, the next step is the elaboration of the project, consisting of graphic representation and technical reports. The project is reviewed and delivered to the interested party. All steps described above are recorded and can be consulted in the computerized system used by the group. It is SISNASFE, a web platform accessible by any computer and available as an application. The data query is done by login and all the information regarding a specific requester is registered under a code that functions as an access key. SISNASFE, besides improving service efficiency, is an important organizational tool, since it avoids the loss of information, even in the face of the turnover of members or any damages to which physical documents may eventually be subject.

2.3. Intern and Extern Actions

Seeking to look at workplace issues, weekly meetings are held with members of each oversight; weekly meetings with the tutor and monthly general meetings with all core volun-

teers. The monthly meetings have the purpose of exposing to the whole group the activities developed during the last month, as well as the activities proposed for each sector so that all members take note of the projects developed. Integrative dynamics are also proposed, conducted by the supervision of Human Resources and Quality. In addition to the meetings, periodic external meetings are promoted, focused exclusively on leisure and team integration. The Photograph 1 shows the group after a general meeting.

Photograph 1. General Meeting.

Another periodic action is the revelation of the so-called "member of the month", which has the sole purpose of motivating participation through the performance of members. The member of the month is elected by previously selected criteria based on the attendance and accomplishment and involvement of the core work, and each outstanding action that demonstrates interest on the part of the member is quantified and summed by the members responsible for the evaluation together with the coordinating teacher.

With the aim of improving the quality of the services provided and contributing to the professional training of the members, the team undergoes several pieces of training throughout all the management. This is the promotion of courses related to project management; relevant aspects of multidisciplinary projects, such as Adverse Possession process; operation of Engineering; and Architecture software, among others.

Quantifying the impacts of NASFE on society is another core goal. To that end, Social Work graduates are dedicated to obtaining parameters and conducting interviews with people assisted and other members of society, seeking to identify positive and negative aspects of the extension program, so that solutions can be developed that further improve project performance.

2.4. Results

The sectoral management started in 2017, as well as the development of activities linked to the nucleus has made possible a broader action with society, being visible from the increase in attendance and new actions of NASFE-Education. Between 2008 and 2016, an average of 12 projects was received annually, and in the year 2017, 25 projects were completed. Through changes with the inclusion of academic supervision, we can cite as results the possibility of expanding the portfolio of projects in 2018, increasing external and internal visibility, being cited as the reference in social-technical assistance by the media, public sectors and students' interest in participating in the nucleus. Photograph 2 shows the moment of delivery of a project of Adverse Possession to the applicant and the Photograph 3, students during the technical visit.

The actions of NASFE-Education also present the first results with the municipal school Professor Augusto Gotardelo, where during three alternate days it was possible to carry out playful activities of socioenvironmental awareness with 38 children from 10 to 12 years of age. Photographs 4 and 5 depict moments of school visits. The visits were carried out by members of the nucleus and teacher, accompanied by the pedagogical coordination of the school and counted with the participation of the Minas Gerais State Military Fire Brigade and the Municipal Civil Defense complementing information on the theme "Learn to Prevent" and the sub-theme "Too much water or water less than disaster?". In the month of July, a school gymnasium is planned to gather the external partners in an extension action of the Universidade Federal de Juiz de Fora.

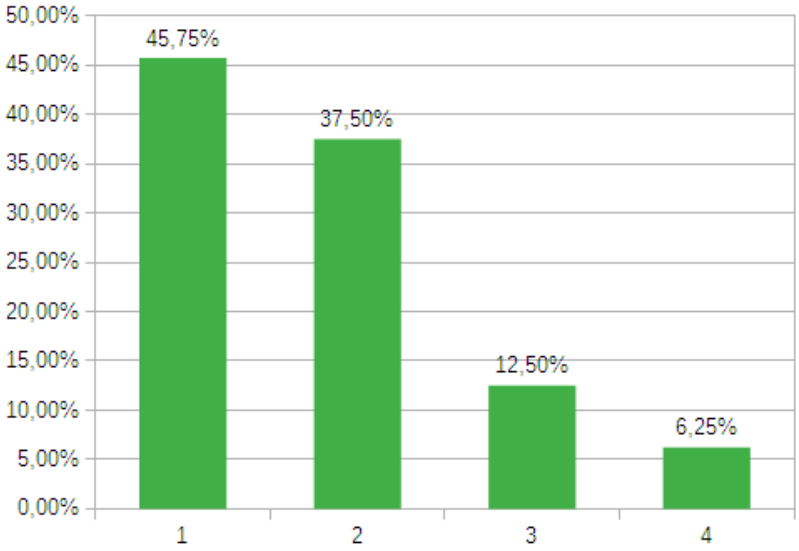
Photograph 2. Project delivery.

Photograph 3. Students and Professor on Technical Visit.

Photograph 4. NASFE volunteer during a lecture at school.

Photograph 5. Guidance of children to prepare rain gauges during a NASFE-Education visit.

Regarding the results of the surveys carried out with members of the society to obtain parameters of social impact of NASFE activities as an extension project, 32 families were interviewed after attendance, with the highest percentage (43.8 %) being identified on lands with housing, while 6.3 % of the interviewees have four houses on the ground (Graphic 1). With regard to the number of people assisted living on the ground one can observe the highest percentage (28.1 %) of the cases attended have two people residing in the place. It can also be quantified that the 32 cases reached a total of 130 people directly attended residents in the addresses served.



Graphic 1. Number of houses on the ground.

3. Conclusions

The need and importance of the performance of social entities aimed at meeting the demands of society is unquestionable. Based on the inseparable between teaching, research, and extension, NASFE promotes public Engineering actions to assist socially disadvantaged families through free services. The actions of NASFE-Education also involve the students of higher education with the basic education in the leisure activities of environmental education and perception of environmental risks. Thus, it is observed that the actions of integration and strengthening of local capacities have occurred from the dialectical articulation in the educational work with the school community in the actions with children and that has provided a return of practical knowledge to the students on the importance of incorporating new experiences in their training. The development of Engineering projects carried out by students with teacher orientation also has a dialectical character due to the contact with the population that presents their difficulties and realities of the scenario of each case. In this sense, the students return to the academic environment with a more holistic focus of the case and integrated to look for solutions from the Problem-based Learning[10-11]. In addition to mitigating the structural deficiencies of society, NASFE also contributes to the professional training of students, following a humanistic and critical perspective, through continuous learning, proactivity and social responsibility in the reduction of inequality and incorporation of population groups in a situation of vulnerability. The extensionist action presented in this article is a model that, if adopted, can be implemented in different parts of Brazil and South America as a whole, taking into account the profiles of societies.

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