

## Social bonding and academic development between Surgical Instrumentation and International Smile Operation

Vinculación social y desarrollo académico entre Instrumentación Quirúrgica y Operación Sonrisa Internacional

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### ABSTRACT

Social connection through university extension activities allows students to apply their knowledge in work environments and collaborate with communities. The Fundación Operación Sonrisa Paraguay provides reconstructive surgery for cleft lip and palate; Through inter-institutional alliances, the Surgical Instrumentation program of the Faculty of Medical Sciences of the National University of Asunción participates in extension activities accompanying surgical interventions. The objective of the study was to know the results regarding the social connection and academic development between Surgical Instrumentation and Operation Smile. The study was descriptive, qualitative, non-probabilistic, intentional sampling, 18 students participated through a survey, three extension projects were analyzed. The results showed that 108 surgeries were attended with surgical teams outside the university setting, 23 students performed instruments, in terms of the opinion of personal and professional satisfaction, 83.3% described it as excellent, the following were also highlighted: teamwork, organization and empathy with the members of the foundation. We can conclude by highlighting the importance of inter-institutional alliances linking the university and society, in this sense the activity allowed not only the consolidation of knowledge but also the professional relationship with other professionals, allowing us to learn about other contexts of the labor market.

**Keywords:** social connection, surgical instrumentation, reconstructive surgery.

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The authors declare no conflict of interest.

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## RESUMEN

La vinculación social mediante las actividades de extensión universitaria permite al estudiante aplicar sus conocimientos en entornos laborales y colaborar con las comunidades. La Fundación Operación Sonrisa Paraguay provee cirugía reconstructiva de labio fisurado y paladar hendido; mediante alianzas interinstitucionales la carrera de Instrumentación Quirúrgica de la Facultad de Ciencias Médicas de la Universidad Nacional de Asunción participa en actividades de extensión acompañando las intervenciones quirúrgicas. El objetivo del estudio fue conocer los resultados respecto a la vinculación social y desarrollo académico entre Instrumentación Quirúrgica y Operación Sonrisa. El estudio, fue descriptivo, cualicuantitativo, de muestreo no probabilístico, retrospectivo de corte transversal, participaron mediante una encuesta 18 estudiantes, se analizaron tres proyectos de extensión. Los resultados demostraron que se asistieron a 108 cirugías con equipos quirúrgicos ajenos al ámbito universitario, instrumentaron 23 estudiantes, en cuanto a la opinión de satisfacción personal y profesional, el 83.3% describe como excelente, asimismo se destacaron: el trabajo en equipo, la organización y la empatía con los miembros de la fundación. Podemos concluir destacando la importancia de las alianzas interinstitucionales vinculando la universidad y la sociedad, en este sentido la actividad permitió no solo consolidar los conocimientos sino también el relacionamiento profesional con otros profesionales permitiendo conocer otros contextos del mercado laboral.

**Palabras clave:** vinculación social, instrumentación quirúrgica, cirugía reconstructiva.

## INTRODUCTION

In addition to generating knowledge, universities are responsible for transferring it to society (Rueda et al, 2020). Likewise, Audretsch (2014) indicates that universities, through the generation of knowledge, are the engine of social and economic development. In this sense, the mission of the instrumentation and surgical area of the National University of Asuncion (2021) is to train professionals with innovative vision and leadership, assistance, research and management skills, with solid human and ethical values, and a strong commitment to social responsibility (Instrumentación y área quirúrgica, 2021).

Among the practices of surgical specialties developed by students are reconstructive surgeries, participating in surgical teams with the application of technology and latest innovations in surgical medicine, such as cleft lip and cleft palate repairs led by the multidisciplinary team of the international operation smile foundation.

The university social linkage with organizations of international trajectory strengthens professional ties and allows the growth of the student in training, contributes to the people quality life, in this case

the beneficiaries are people of limited economic resources, mostly children, where at the end of the surgical act significant and gratifying changes are observed, giving back above all, a smile.

In Paraguay, the competencies of the surgical instrumentator are not only limited to his role as an instrumentator, but also as a circulator, operating room coordinator and sterilization centers (Law 6109/2018). So, it is the practical and extension activities where the student reinforces his knowledge and projects himself to the labor field by linking with other organizations, thus expanding professional opportunities.

The objective of the study was to know the results regarding the social linkage and academic development between Surgical Instrumentation and Operation Smile of Paraguay. Data collected through the report of activities that are being developed through inter-institutional alliances, where the Surgical Instrumentation and Surgical Area of the Faculty of Medical Sciences of the National University of Asuncion participated, which were presented as extension projects in the academic period 2023.

## **Social bonding and its relevance in surgical areas**

The National University of Asuncion (2021) establishes that university extension is a transforming pedagogical process of social commitment that contributes to the inclusive, sustainable and sustainable development of Paraguayan society. Likewise, the career quality criteria describe university extension as curricular activities in the scientific, cultural and community service areas within the professional environment of the instrument maker (ANEAES, 2020).

In this sense, following the line established in the university statute and the parameters detailed in the competencies of a surgical instrument maker, the activity of social linkage applied from the university extension in alliance with national and international organizations, is not limited to the surgical area, since cooperation with experts not linked to the university environment allows expanding the labor market panorama before the demands of recognized companies, since through these alliances it allows the growth of the members of the institutions and in turn allows social development.

Social linkage in health refers to the interaction between health professionals, communities and other social sectors with the purpose of improving care and, as established by the World Health Organization (2010), it promotes equity in health as a fundamental component of social justice. Therefore, from the university extension, leaving the classroom, it is possible to comply with this principle, empowering students in their commitment to social responsibility, attending the 108 surgeries, benefiting the same number of patients.

Social contribution through surgical instrumentation

Health professionals, with their actions, have an impact on the wellbeing and quality of life of people, in addition to the commitment of educational institutions to the training of their students. For their part, Sena et al (2023) indicate that since there is a close relationship between health equity and health determinants,

it is essential to apply an integrative, systemic and participatory approach, demonstrating the commitment of the international community through the implementation of the 2030 agenda.

The student of instrumentation and surgical area, during his training, acquires knowledge and skills from less to more demanding with respect to their practical development, that is to say, in the last year of the career must attend specialized and more complex surgeries, because the opportunities are limited due to the supply and demand of professional surgeons and centers, however, the possibility offered by the University and the organization Operation Smile is of great relevance not only for the patient who requires surgery but also for the student.

For Espino Castillo (2023), university social responsibility promotes ethical values by creating awareness of social needs and problems, collaborating from the institutions through the participation of the community in the solution of social problems. In this line, it is worth mentioning that the organization Operation Smile, is a foundation that collaborates with low-income populations, mostly children; among the students' appreciations, the existence of a significant change is highlighted when returning the smile and improving the facial appearance of people, at the end of the surgical act.

## **METHODOLOGY**

The study was descriptive, observational with a qualitative-quantitative approach where the results of the activities of three extension projects are presented, whose main objective was to know the scope of the social linkage and academic development between Surgical Instrumentation and Operation Smile. The extension activity was developed in 9 surgical days of 10 hours each, in the months of May, July and September 2023.

The quantitative component details the number of beneficiaries and students involved and the qualitative component measured the personal satisfaction of students, members of the organization and teachers through a Likert scale questionnaire. The qualitative component narrates positive aspects, opportunities and

weaknesses expressed by those who took part in the project.

Among the data collection techniques and the observation of the extension reports submitted to the University Extension Direction of the Faculty of Medical Sciences, the instrument used was an analysis matrix. On the other hand, a survey was carried out, by means of a questionnaire with closed and open questions, addressed to the participants of the study.

Three extension projects were analyzed, where 23 students participated in reconstructive surgeries, in 9 surgical days of 10 hours each, at the Hospital de Clínicas, Faculty of Medical Sciences, San Lorenzo. 18 participants completed the project survey (12 students, 5 members of the organization and 1 teacher).

The sampling is non-probabilistic, retrospective, cross-sectional, where documentary reports of the outreach activities were analyzed, and at the same time a feedback and satisfaction survey was taken from the participants of the outreach.

Documentary reports of the extension activities of Operation Smile Paraguay were analyzed, corresponding to the number of beneficiaries of the project and the number of students who participated in the activity, and at the same time a feedback and satisfaction survey was taken from the students who participated in the extension.

The information was analyzed and processed in Word and Microsoft Excel spreadsheets, represented in descriptive tables and percentages. Regarding ethical aspects, the principles of bioethics were respected at all times.

**Figure 1.** Reconstructive surgical instrumentation for cleft lip and palate.



## RESULTS AND DISCUSSION

108 reconstructive surgeries of cleft lip and cleft palate were attended, the professional interaction with members of the surgical team of the Operation Smile International mission was achieved in 9 surgical days of 10 hours each. The participation in the surgeries is detailed in Table 1 and Figure 1 below.

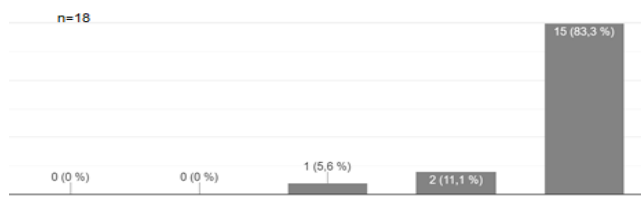
Regarding the professional interaction with the surgical team, positive aspects and weaknesses, as well as personal and professional satisfaction expressed by the project participants, 82% described as excellent, among the most outstanding positive aspects were teamwork, organization and empathy. The results of Figure 2 are described below.

**Table 1.** Cantidad de beneficiarios y estudiantes por fechas en cirugías reconstructivas en el marco del programa Operación Sonrisa Paraguay. 2023

Dates	Students	Beneficiary Children
22 to 24/05/2023	6	30
5/07/2023	2	6
18 to 22/09/2023	15	72
<b>3 projects</b>	<b>23</b>	<b>108</b>

Source: Project Analysis, year 2023.

**Figure 2.** Results of the satisfaction survey of participants in reconstructive surgeries within the framework of the Operation Smile Paraguay program. 2023



The pillars of the university are cemented and articulated through teaching, research and extension, which are the fundamental axes of any Higher Education Institution. In this figure it can be observed that the students participating in this extension project are mostly (83%) satisfied with the activities developed, since the process of these conferences have made possible the articulation between their knowledge and the service to the community through the application of their professional competences as surgical instrumentators.

Current practices and sciences are nothing like what existed just a few decades ago. Biology, medicine, communications and the new professions that have appeared confirm the changes in knowledge, while recognizing that social structures have become hierarchical and inequality has deepened, and that culture has not played an important role in education, despite the fact that new technologies have opened up the possibility of bringing knowledge to broad layers of the population (Bojalil, 2008).

Although higher education is generally a personal choice, however in the case of publicly managed HEIs they respond to national development policies, it is relevant to consider that graduates must have an impact on improving the quality of life of the population that finances to some extent their professional training (González-Casanova, 2016).

Achieving that the competencies of people educated in HEIs, meet the social demands of development, is a real challenge, even more so to make them feel proud with their achievements, is a

goal longed for by many educators; coincidentally based on the results expressed in this project, the participants have expressed to be very satisfied with what was performed in reconstructive surgeries under the Operation Smile Paraguay program; which allows evidencing a true social linkage with academic development that allows the professional growth of students at higher levels (Montemayor, 2015).

Institutional regulations point to extension as a transformative pedagogical process and social commitment, at the same time, García Torres (2018), indicates that university extension is a pedagogical and social process in the medical sciences. These statements become tangible when going through the process giving as results competent professionals not only in a purely technical sense, but also in the attitudinal and aptitudinal. When asking the opinion of the students and collaborators of the activity, it is evident the satisfaction with the contribution delivered from their professional area, in this case assisting the surgeries.

Contreras-Hernández et al. (2023), describe that the knowledge placed at the service of decision-makers, educational institutions play an important role in the generation and dissemination of knowledge, although a company can assume corporate social responsibility in the area of its interest, it is the universities that occupy a key space in the reproduction of knowledge. In fact, the surgical instrumentation career through the National University of Asuncion has links with other institutions of the public and private sector for the development of extension activities, having a recognition and support for its results.

The IES must promote with greater leadership their academic role of solving social problems through the application of the scientific method, projecting through university extension their attention to the improvement of the quality of life of society, subject and object of the future professional, considering that these have needs generated either by the absence of knowledge of the causes and effects of their actions, which could be solved through the effective linkage between academics and society.

**Figure 3.** Evaluation of participants in reconstructive surgeries within the framework of the Operation Smile Paraguay program, 2023

### Positive aspects, recognized of the extension activity by students

The good working environment, the care of the supplies and instruments and the availability of all the necessary and good quality materials.

The responsibility, the companionship of the students, the treatment of the patient, the organization of the surgeries where new experiences, techniques and knowledge in the area were acquired.

The organization of the surgeries where new experiences, techniques and knowledge in the area were acquired.

### Aspectos positivos, reconocido de la vinculación entre estudiantes y miembros de la organización a través del proyecto

A positive impact is generated in the students after each surgical day, since they recognize and value the way of working in the foundation, and that work is done among several disciplines, generating an effective interdisciplinary linking environment. They recognize the work to be done by colleagues in the administrative area, considering that thanks to them alliances and donations are obtained to continue with the work done by the participants. They value the skills developed by all the participants, considering that working as a team during surgical procedures is not an easy task initially; in addition, they recognize that for emergencies there is a multidisciplinary team (where everyone is trained for such cases) capable of solving the mishaps that may occur.

Therefore, academics must assume the tasks that are consubstantial and binding, such as teaching - extension and research, in order to help them to reflexively transform the future with the quality of people. Considering that within the institutions there are motivated students capable of appropriating knowledge for the development of activities that facilitate the advances demanded by society, whether scientific, technical, humanistic, or others (Bojalil, 2008).

### CONCLUSION

Among the expressions of the students it can be concluded that "the teamwork and recognition they show towards the result of our work as instrumentators is noticeable", "it is a great satisfaction to see the change generated in the children after the surgery, it changes not only the facial aesthetics but also the psychological part and of course the functionality at oral and phonation level". "It increased empathy and love for the profession". "Participating in operation smile was a great experience, and very satisfying to be able to help and be part of every smile! It was an excellent experience in the surgical field."

The university-society link, is evident in the university extension activities, the surgical instrumentation career encompasses a set of scientific, technical, technological knowledge, in addition to competent skills in their areas, framed in ethical values, with aptitude and competence, in these activities students put into practice and empower themselves as future professionals, preparing for the labor field.

Finally, the university-society link is highlighted in the social commitment, because this experience provided, according to the testimonies of the participants who were enriched and humanized through these projects, acquiring a spirit of solidarity with vulnerable people in need of qualified attention.

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## Intrumentación Quirúrgica y Operación Sonrisa Internacional ojokupytyva Avano'õ ha Ñemoarandu Jeguerojera

### MOMBYKY

Moirũkatu jokupytykatu mbo'ehaovusu rembiapo jepysove rupi oheja temimbo'épe oiporu umi kuaapy omba'apohápe ha oipytyvõvo umi tava'i oĩhápe. *Fundación Operación Sonrisa Paraguay* oikuave'ẽ oñemyatyrõ haḡua tembevo ha avei umi apekũkytĩmbyre oĩvaívape; ojokupyty rupi *carrera de Instrumentación Quirúrgica de la Facultad de Ciencias Médicas de la Universidad Nacional de Asunción* oĩ rupi umi tembiapo mbo'ehaovusu jeipysovépe omoirũva umi teteñembovópe. Ko ñehesa'ũijo jehupytyvoirã ha'ékuri jekuaase mba'épa oheja hapykuerépe moirũkatu jokupytykatu rupi ha jeguerojera tekombo'épe Instrumentación Quirúrgica y Operación Sonrisa oñondive. Ko jesareko ha'ékuri oñemoha'ãngahaíva hekogua ha ipapapyva, jehechauka noñemoneĩkatukuaáiva, ojehechakatu'ỹva, omba'apókuri porandueta rupive 18 temimbo'e, ohesa'ỹijóva mbohapy apopyrã ñe'ẽ mbo'ehaovusu jeipyso rehegua. Umi ohejava'ekue hapykuerépe ohechauka oĩhague hikuái 108 cirugías equipo quirúrgico ndaha'éiva mbo'ehaovusu mba'e, omohembiporu 23 temimbo'épe, mba'apokuaareko ha hekoitépe hemimo'ã ohechaukávo, 83.3% he'i oĩporãitereiha, upéicha avei ohechakuaave: tembiapo atyháicha, ñemohenda oñeñemoĩ pe ambue tapicha rendaguépe umi fundación peguáva. Ikatúniko ñamohu'ã jahechaukávo mba'éichapa tuichamba'e pe jokupyty interinstitucional ojokupytyva mbo'ehaovusu ha avano'õ, kóvape pe tembiaporã ohejá kuri omopyendahatãve umi kuaapy ha upéicha avei jokupyty mba'apokuaahára ndive, péicha ohejá kuri jaikuaa ambueichagua tembiapo.

**Ñe'ẽteete:** avano'õ jukupyty, *instrumentación quirúrgica, cirugía reconstructiva.*