

Student Mobility: Challenges and Opportunity for Unidad Profesional Interdisciplinaria De Ingeniería Campus Guanajuato (UPIIG-IPN)

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Abstract

The work context and the society's dynamism of the century XXI require - professionals who possess high qualification, skills of communication, with the handling of technological tools, the capacity of adaptation and consciousness of contribution for the social and economic development of its environment, with a vision of a globalized world. Developing these profiles marks a milestone for higher education institutions, what make them focus in the search of strategies for their graduates to achieve a successful inclusion in different professional, academic and multicultural contexts (Luchilo, 2006). Between such strategies highlights the implementation of programs of student mobility, which give place to a contemporary migratory phenomenon in response to the internationalization of the information, the knowledge and the technology (Fittipaldi *et al.*, 2012). This article presents the results of a study conducted on the experiences of the students of the Unidad Profesional Interdisciplinaria de Ingeniería campus Guanajuato (UPIIG), belonging to the Instituto Politécnico Nacional (IPN), that have participated in calls of student mobility, analyzing the advantages, disadvantages, challenges and areas of opportunity for the institutional program.

Keywords: Student mobility; Internationalization of education; Mobility; International mobility; Life skills.



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1. Introduction

The new forms of education are one of the main factors that promote student mobility, being college education the key for both: development of higher cognitive processes and definition of the fate of individuals, once they graduate from the school system (Gonzalez *et al.*, 2009). It is imperative that students get to know other countries and cultures, but also to raise awareness of the social reality of their own (Office de and Cooperación Universitaria, 2010). The internationalization of higher education should not be displayed as a purpose itself, but as a strategy to improve the functions of University institutions and a tool that contributes to the economic, social and educational development of each country and of the Latin American region, within a process of constant planning and evaluation (Cordera and Santamaría, 2008), cited in Garcia and Palma (2013). The international mobility of students, that is, the reception of foreign students and the students themselves that are sent abroad, has been an important indicator for the degree of internationalization of college education (Kehm, 2005).

The studies by Fernández (2010), Gil and Roca (2011) show that regional integration requires educational unification and academic mobility. It is represented by an increase of foreign students that, added to the traditional student exchange programs, expand and enrich the joint work among countries of the region to create their own dynamics, related to research, technology development and training (Fittipaldi *et al.*, 2012).

The international mobility of students from College Education is considered a way for the training of qualified personnel; it has created a spin in the studies about the impact of the knowledge migration in the two involved countries, which has developed a change of paradigm from the conception of "the leak of brains", towards the manifestation of its positive aspects as: the transfer of knowledge and technology in the generation of scientific, technological and educational global networks. A growing number of opportunities to study college education, in the country and abroad, is contributing to the increase of the competition in this market. In an attempt to attract the growing number of potential students seeking higher education, private institutions, and National Governments seek to differentiate themselves from their competitors (Verbik and Lasanowski, 2007). Likewise, Governments and employers recognize that the workforce of the future must include professional profiles well-trained in world level, with international work experience and able to solve economic and social problems of the local, regional, national or international context in which are performed (Junor and Usher, 2008).

In the last decade about 45% of the total number of students, approximately 1.2 of the 2.7 million students in tertiary education had experiences of academic mobility abroad; International students traveled mainly to the United States, the United Kingdom or Australia, countries that occupy the first place among the most popular destinations for studying abroad (Verbik and Lasanowski, 2007).

Germany and France have clearly understood their secondary role in receiving around 20% of the world's foreign university students, or 515,000 of the 2.7 million students in mobility programs. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), three out of every five foreign students studying in Europe decide to attend an institution in the United Kingdom, Germany or France, becoming to these countries in the dominant regional leaders (*Tertiary Students Abroad Learning without borders, 2005*).

In the last two decades, international student mobility has had great relevance as a form of the higher education beyond borders. A wide range of institutional strategies have been designed to encourage students to consider this type of education, either in the short term, on a trip of studies or educational exchange, or signing up for a longer period on graduate programs (*Rizvi, 2011*). In parallel, the international mobility of education has become an indicator of success and social status. A high socioeconomic and cultural status that implies: greater economic possibilities that allow the financing of the programs; a greater affective and moral support given that a more positive attitude is detected; greater knowledge of languages with respect to a culturally richer environment (*Belvis et al., 2007*). Similarly, international students believe that a diversified education provides them with greater confidence, maturity, linguistic competence and academic capacity (*Junor and Usher, 2008*).

2. Material and Method

The UPIIG initiated its student mobility processes in 2011, which is why it is considered relatively young in this type of process, compared with educational institutions such as the Technological Institute of Higher Studies of Monterrey (ITESM), a pioneer in this type of student transfers. However, for UPIIG it is vital to build a presence that allows recognition of this institution outside our borders. An interview was prepared to investigate the aspects, advantages, disadvantages, complications and areas of improvement of the process. Once the students have completed the mobility experience, they are searched for an interview. Of the 110 students who have had the opportunity to go outside the academic unit, 85 have been interviewed; Within the interview, questions are asked about: a) place and type of mobility, b) time of stay, c) type of financial support: institutional or family, d) administrative complications before, during and after the process, e) curricular aspects, f) school schedules, g) methodologies or forms of work in the university that received them, h) cultural aspects, i) aspects of communication, among others.

Once the interview is completed, the information is capture, transcribed, and ordered, to determine the qualitative aspects that mark a trend in the data.

3. Results

The results of the analysis of students who have completed semesters of student mobility, from the semester of August to December 2011 to date, obtaining the following information:

Figure-1. International mobility UPIIG

	2011	2012	2013	2014	2015	2016	2017	Total per program
Aeronautics		1	1	2	4	10	14	32
Pharmaceutical	1							1
Biotechnological		4	12	3	5	4	6	34
Automotive Systemes		1		4	4			9
Industrial						10	3	13
Total per year	1	6	13	9	13	24	23	89

Source: (Departamento de Extensión y Apoyos Educativos UPIIG, 2018)

As can be observed in table 1, the careers that most students of outgoing international mobility have had are those of aeronautics and biotechnology with 32 and 34 students respectively, it should also be noted that these are the careers that most students enroll in these Academic programs. In the case of the academic program of Pharmaceuticals, it was not possible to identify because the students enrolled in that career do not integrate the mobility experience. Based on the data presented in table 2, the industrial engineering career has had an accelerated growth compared to biotechnology and aeronautics, this is due to the fact that the staff in charge of the mobility programs of the UPIIG already has more experience and on the other hand the students consider that this experience is fundamental to substantially improve their curriculum and thereby increase the possibilities of hiring in industrial clusters close to the geographical location of the UPIIG.

Figure-2. National mobility UPIIG

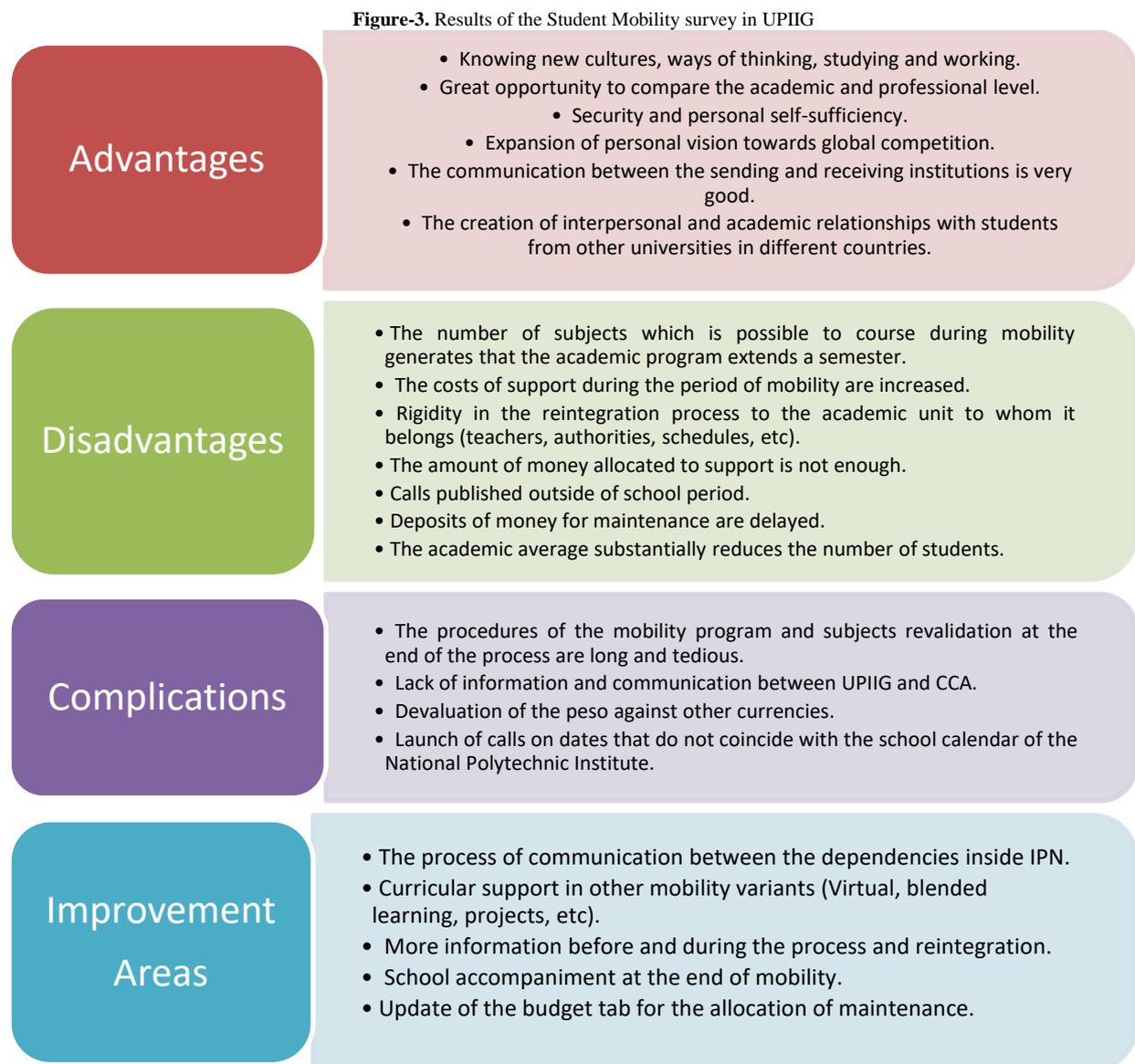
	2011	2012	2013	2014	2015	2016	2017	Total per program
Aeronautics								
Pharmaceutical			3					3
Biotechnological	7	7	2	2				18
Automotive Systemes								
Total por año	7	7	5	2				21

Source: (Departamento de Extensión y Apoyos Educativos UPIIG, 2018)

It is observed that the number of students who have opted for outgoing national mobility processes are very few, taking into account that the student enrollment for the semester from January to June 2018 was 2,173 students in the

different programs. This is a consequence of the complexity of the engineering programs and the required average, in addition to the need to have the competence of communication in a second language, which is basically determined by: a) the support received by the student at the level preparatory, b) the family impulse to have a bilingual training. On the other hand, the work of the UPIIG professors, which have encouraged students to train in other cultural, social, economic and family contexts, stands out.

The Mobility Survey in UPIIG, made to students in September 2017, took into consideration the following dimensions:



Source: (Hernández *et al.*, 2017)

4. Discussion

The Mexican Survey of International Student Mobility, provides information on 256 Institutions of Higher Education and research in Mexico, both public and private, in which 2,147,844 students were enrolled, in undergraduate and graduate programs, in the academic period 2015 - 2016, representing just over 35.3% of the total national enrollment at that level, with an outgoing mobility of Mexican students of 29,401 (Maldonado, 2017). This represents 1.37% of the total outgoing mobility enrollment of the 256 College Education Institutions that reported information. The main countries of outgoing mobility are Spain, the United States and France in that order of importance, in terms of incoming mobility, the United States is in first place followed by Colombia and France. As for the training fields, there are the areas of social sciences, administration and law, both on incoming and outgoing mobility. In outbound mobility, the Technological and Higher Education Institute of Monterrey (ITESM) was the institution that showed the greatest mobility, but the important growth that the National Autonomous University of Mexico (UNAM) has developed, reversing the indicator it established, is striking that private universities were those with the greatest number of students in mobility processes (Maldonado, 2017).

Maldonado (2017) reports that the National Polytechnic Institute is ranked seventh in the 2015-2016 cycle of the Higher Education Institutions in the ranking of outgoing mobility, which determines that as an institution there is an area of opportunity in this aspect considering that the UNAM is in second place and that in positions 5 and 6 are the state universities of Guadalajara and Nuevo Leon

The institutional context maintains the trend at the national level, according to the 2017 work report of the IPN; next, data will be presented in Figure 4:

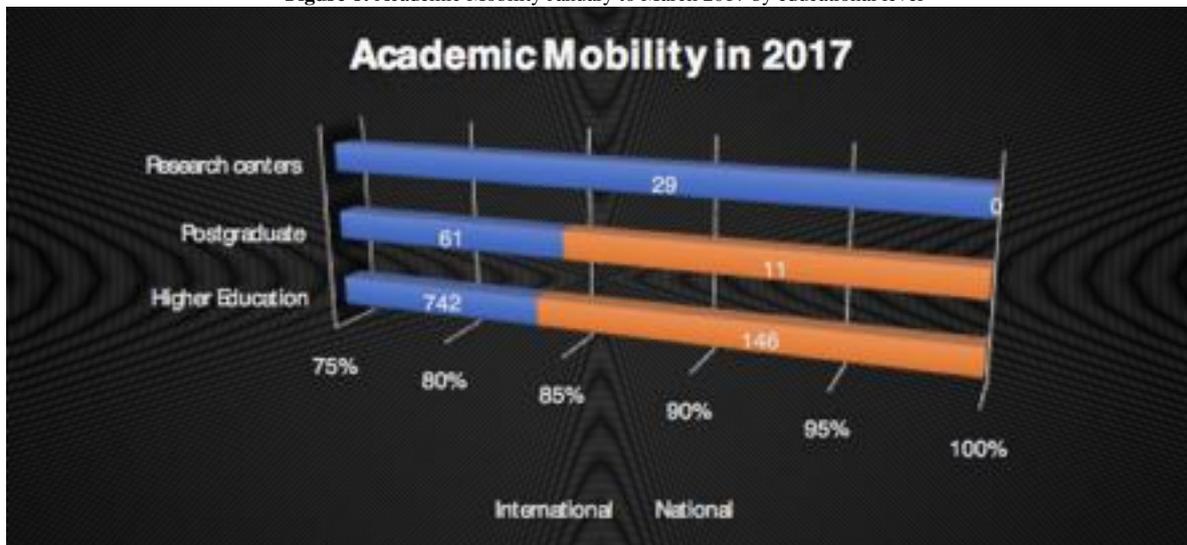
Figure-4. Participants in Academic Mobility from January to March 2017

	Mens	Women	Total
Students of the IPN	557	469	1026
International			
Higher education	429	313	742
Postgraduate	34	27	61
Research centers	13	16	29
National			
Higher education	56	90	146
Postgraduate	9	2	11
Students other institutions			
Higher education	34	55	89
Graduate level	0	0	0
Research centers	0	0	0

Source: (Coordinación and Cooperación, 2015)

The Figure 5 shows the total of the mobility developed during 2016, including the students sent by the IPN (internal), inside the country and out of it. Likewise, the students received from other institutions (external), inside and outside the country.

Figure-5. Academic Mobility January to March 2017 by educational level



Source: Own preparation with data from (Instituto Politécnico Nacional, 2017)

The foreign universities most requested by IPN students, according to their specialty, were: University of São Paulo, Brazil; Universidad Nacional de San Juan, Argentina; Université Technologie de Compiègne in France; Wrocław University of Technology, Poland. At the institutional level, the Academic Units with the largest number of students in mobility are: Higher School of Commerce and Management unit Santo Tomás, Higher School of Tourism, Interdisciplinary Professional Unit of Engineering and Advanced Technologies and Interdisciplinary Professional Unit of Biotechnology; for the graduate level, the most chosen were the institutions Helmholtz-Zentrum Geesthacht, in Germany and the University State of Campinas, Brazil (Instituto Politécnico Nacional, 2014).

The foreign universities that sent students to the IPN are: The School of Studies in Engineering HEI, Lille, of France; the Federal University of Santa Catarina, Brazil, and the Pilot University of Colombia; also, the units that received greater amount of visitor students in mobility were: The Higher School of Commerce and Management unit Santo Tomás and the Higher School of Engineering and Architecture unit Zacatenco (Instituto Politécnico Nacional, 2014).

Taking into account that the total number of students enrolled in the upper and postgraduate levels, who are candidates for mobility processes, was 100,702 students (Instituto Politécnico Nacional, 2014), the 318 students in mobility processes represent 0.3% of the total population, showing that this is an area of substantive opportunity for UPIIG.

The academic mobility requirements for the undergraduate level, according to the Coordination of Academic Cooperation of the IPN, are:

- To have covered 60% of the degree program at the moment of the mobility.

- Not to be in the penultimate / last semester of the bachelor's degree at the moment of making the application.
- To be a regular student and formally enrolled.
- A minimum of 8.0. (* Minimum average of 8.5 is required for UNAM, UANL, and ECOES Program).
- To have the language level that is required, according to the institution of destination and according to the established in the list of participating institutions ([Coordinación de and Cooperación Académica IPN, 2015](#)).

5. Conclusion

The increase of the mobility processes will be linear and proportional to the complementary activities to those academic processes stipulated in the UPIIG; among these stand out:

- The training and development in a second language of the teaching staff.
- Timely detection of talents in high school institutions that supply students to this academic unit.
- Improvement in the process of granting scholarships for students with limited resources and with academic qualities that allow them to be inserted in mobility processes.
- Development of faculty involvement campaigns of the teaching staff, to have a greater sensitivity regarding this process and provide facilities in methods of teaching and learning of the students involved in the complex experience called mobility.

Besides the previous, it would be necessary to continue with the advisory programs in the different academic departments, the impulse, and motivation towards the students for the acquisition of a second language, as a form of communication in the first instance and, in the next level, as a professional skill that will yield benefits in their work, social and cultural life.

However, there are problems that must be addressed to improve the operation of the program. For example, due to the differences between the current school calendars in the IPN and in the receiving institutions (especially in the registration process), there was a significant delay in receiving final minutes from the accredited Learning Units in the universities receptors. The UPIIG had to modify its criteria to re-enroll students who did not have their certificates in time. According to Tokic T. (cited in Fresán Orozco, 2009), it is necessary to promote among the aspirants to leave to other institutions the awareness of the importance of a good previous academic career. Most universities establish averages above 8 to accept students, and to request scholarships a minimum average of 9 is required. This limits more than 80% of the student population to make this academic experience.

Proposals

Among the concrete actions to promote the internationalization of university students, adapted from the study carried out by Eva Alcon in 2011, we suggest: the elaboration of an international curriculum, as well as an internationalization plan of the UPIIG, to expand student participation in International networks and government initiatives. Increased management of educational authorities, in programs such as Fulbright, with students from the United States; The Chevening scholarship, which is the scheme used by the British government for international students; Australia Scholarships, which is an initiative to promote cooperation in education and development in the Asia - Pacific region. This program is divided into three merit components: Bachelor and Postgraduate Development Scholarships, Postgraduate Leadership Awards and Endeavor program scholarships ([Junor and Usher, 2008](#)).

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