

Student Mobility in Latin America - Case Study of Electrical Engineering Students at Polytechnic School of University of São Paulo

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Abstract

With subjects as the globalization of the education lately stimulated by the Treated of Bologna and during many years stimulated by the European Community especially. In America the news treated like Mercosul and Alca that have education goals like:

- To approve a mobility agreement;
- to create a mobility program of students, teachers, researchers and administrators;
- to eliminate the legal restrictions that create difficulties to the implementation of the mobility program;
- To operate a data base of a graduation program in the region
- To consolidate the graduation programs of the region in the mark of the Protocol of Educative Integration for the education of Human resources in graduation level in countries that are members of the Mercosul
- To approve an agreement of recognition of university titles that allows others levels of studies in the countries of the Mercosul

A real good Foreign Student Guide about the laws and rules of academic questions and the about orientation about the life in the country could be a better solution about the foreign students problems in Brazil specially at São Paulo University. Special university departments that take care about the foreign student could be a good idea too.

Brazil is the biggest country in Latin America and has big and interconnected electric energy system based in hydraulic generation but in the last years the system are increasing the thermoelectric generation based in natural gas and has a new alternative energy program using, aeolic, small hydro plants and biomass specially from the waste sugar cane bagasse. Brazil has a special electrical energy conservation program called PROCEL and a gas and petroleum energy conservation program called CONPET. All that important experiences turns Brazil an interesting country to the students of other s countries in Latin America.

The paper will show based on the answers for a questionnaire applied to the foreign students and to the teachers the following conclusions:

- there is not a Guide for the Foreign Student in the University of São Paulo, where the students could find organized and good information's for a good stay in the country. The different departments offer dispersed information in the sites.
- The majority of the graduation students is of the South America with exception of Cuba, being distinguished the participation of the following countries: Bolivia, Peru and Colombia.
- The biggest difficulty of the students is the language and the shock with the Brazilian culture;
- the teachers experiences and comments about the teachers relations with foreign students.

A research about how other Brazilian universities and other universities in the world receive and how these universities do the life of the foreign students better will be presented in the paper.

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2. CASE OF STUDY

The group analyzed was a group of foreign students of the electric engineering department of Escola Polit_nica da USP, São Paulo, Brazil. Only effective students of the first semester of 2008 are consulted in the research.

3. TOOLS OF EVALUATION

The questions of the questionnaire are multiple choice questions and with defined options too. We have two questionnaires one to the students and other to the teachers.; the student questionnaires has 9 sections with 40 questions

The questionnaires filled by the students are a representative view of the population because 20% of the students answer them. The teacher questionnaire has 4 questions of multiple choice. We do an anonymous filling of the questionnaires. We had more data from the department and from interviews with the students

4. RESULT AND ANALYSIS OF THE INFORMATION

The continuation show the results gotten by application of the elements of assessment (Pupils and teachers questionnaire) as the themselves observations and analysis of the chosen information.

4.1 Results and analysis of the questionnaire applied to pupils

4.1.1 Profile definition

	Profile							
1	Age	20-25	25-30	30-35	35-40	Mais de 40		
2	Sex	M 76,47%	F 23,53%					
3	Nationality	Bolivian 11,76%	Colom- bian 47,06%	Cuban 11,76%	Ecuador- ian 5,88%	Peruvian 23,53%		
4	Marital status	Single 76,47%	Married 11,76%	Divorce 5,88%	Other 5,88%			
5	Graduation	Engineer 94,12%	Econo- mist 5,88%					
6	Postgraduation	Post PhD 5,88%	PhD 23,53%	Master Degree 70,59%				
7	Postgraduation pro- gramm where it is developed the research	LSP 17,65%	ELIANI 5,88%	GEPEA 5,88%	PSI 23,53%	ENERQ 17,65%	Robótico 5,88%	LSI 17,65%
8	Activities before trip	Work 52,94%	Study 47,06%					

The resultant statistics of the questions formulated at delimitation of the foreign student profile of postgraduation allow to define the follow profile in our case study:

- Apparently the foreign students develop studies of postgraduation, between twenty and thirty years old, specially studies of expertise.
- Seventy and six per cent of the students are male and only twenty and four per cent are female, this confirm the tradicional masculine presence at electrical engineering area
- The most significative piece, as for the origin, it make part of Colombia, while Peru and Cuba show similar participations
- Seventy and six per cent of the students are single, only one small percentage are married, divorce or in union.
- Ninety and four per cent of the students are graduated at electrical engineering specifically
- Seventy per cent of the students are developing studies of master degree.
- The most percentage are developing researches at areas of electronic, power system and regulations and power quality, this allow to find that the trajectory of the department is recognized at international level.
- It looks to show up an indifference in the moment of to continue the studies of postgraduation, since as people that worked as that studied, decided ending the activities to begin these.

4.1.2 Social dynamics

	SOCIAL DYNAMICS			
9	Attitude usp workers	Inclusion 82,35%	Indifference 17,65%	Exclusion 0
10	Attitude teachers	Inclusion 76,47%	Indifference 23,53%	Exclusion 0
11	Attitude Brazilians	Inclusion 64,70%	Indifference 25,30	Exclusion 0
12	What is the integration with Brazilian culture?	Good 70,58%	Normal 11,76%	Bad 17,66%
13	Did you experience some kind of culture, social shock?	Yes 58,82%	No 42,18%	
14	Did you experience some kind of discrimination?	Yes 29,41%	No 70,59%	
15	Do you strange your country?	Yes 94,12%	No 5,88%	

This questions make social dynamics part, look to analyze the social interactions of students with certain sectors university community and Brazilians. the statistical data strongly suggests:

- the attitude of both students and other Brazilians with students stranger is inclusion attitude (more 70%) with a small difference indifferent and no exclusion.
- half the students are experiencing or experienced shocks meanwhile the other half not. shocks that were experienced:
 - o Culture shock (food)
 - o Social shock (Insecurity, social values, interpersonal dynamics especially sentimental level.)
 - o Ambient shock: high pollution levels
- Most students do not experiment discrimination. the small minority that experiment was discrimination by race.
- Almost all students miss their country, their family, food, climate, security, etc. Cuban students speak to miss the beaches and politics system.

4.1.3 Economic dynamics

	ECONOMIC DYNAMICS			
16	Which economic resources do you live	R. own 23,53%	scholarship 76,47%	others 0
17	House rental value (rental/month)	\$<R\$300 29,41%	R\$300<\$<R\$500 58,82%	\$>R\$500 11,76%
18	Food value (cost/month)	\$<R\$200 17,65%	R\$200<\$<R\$300 52,94%	\$>R\$300 29,41%
19	Mobility value (cost/month)	\$<R\$200 76,47%	R\$200<\$<R\$300 23,53%	\$>R\$300 0%
20	Book-internet (cost/month)	Yes 41,17%	No 58,83%	
21	Entertainment (cost/month)	Yes 100%	No 0%	

- Most students have their scholarships as main income, and even those who support themselves with own resources wish to have a scholarship granted during their post-degree activities. It must be accounted that students

visa are conceded for a limited period, and does not permit engagement on paid activities.

- Students are allowed to request scholarships from their native countries and also from the educational institution itself; Brazilian foundations for R&D funding like CNPq, CAPES and FAPESP offer scholarships quotas for Brazilian Universities according their qualification and annual performance, independently on students origin. Usually obtained scholarships are from Brazilian foundations due to faster formal procedures.
- Monthly expenditures with pension or house rent are around R\$ 300 and R\$ 500. Some of its characteristics are:
 - o Rented houses or apartments with 3 (three) students (rep_lucas).
 - o They may or may not be constituted by students of both genres.
 - o Theirs living areas are shared.
 - o They are near university, 15 minutes of walking distance on average.
- Monthly expenditures on food are less than R\$ 300. Such expenditures are partly due to adaptation issues: rice and beans, base of most Brazilian meals, are not popular among foreign people.
- Monthly transportation expenditures are less than R\$ 200, because living places are located near university, turning out bus or metro travels unnecessary.
- Students are offered free bus service inside university campus all week; a student transportation pass for use on public transportation system is available, allowing 10 (ten) monthly tickets by half the regular cost.
- Besides living, food and transportation expenditures, meaningful expenses (when compared to scholarship values) are cable TV and internet access. Such services are of importance because they offer a communication media to their families and also a way to carry research and educational activities from home.
- Entertainment expenses are minimum, due to the high living costs on São Paulo, specially regarding entertainment. Usually students go to the movies; large expenses on entertainment are usually taken on traveling to other cities.
- All University of São Paulo students are granted with University Hospital care, which are located inside the campus. Medicine and supplementary costs, however, are not covered.
- Average values on student expenditures are of R\$ 800, accounting for living, food, transportation and few entertainment activities.
- Present day values of scholarships goes from R\$ 930 – mastering students – to R\$ 1200 – doctoring students; when compared to regular expenses, one concludes that scholarships are barely enough to cover then.
- According to Brazilian Ministry of Education, scholarships from federal funding institutions will be readjusted by 20% to 30%.

4.1.4 Post-degree choices

	Choice	
22	Why did you choose Brazil to your post-degree studies?	
	One of the alternatives	35,29%
	Fast admission process	17,65%
	Agreements with country of origin	17,65%
	Near Peru	11,76%
	Quality	11,76%
23	Why did you choose USP to study?	
	Good references	41,18%
	Contacts	41,18%
	Interest areas	17,65%
24	Why did you choose the USP of São Paulo to study ?	
	Contacts	47,06%
	Good references	23,53%
	Big city	11,76%
	Interest are	17,65%

25	Why did you choose the Escola Politécnica to study ?	
	Interest area	47,06%
	Good references	23,53%
	Master degree continuation	11,76%
	Contacts	17,65%

In search of answers as to why the student chose Brazil, USP and the polytechnic school for her postgraduate studies, we found the following:

- The reasons why the student chose Brazil are: because it was one of the alternatives together with other countries like Chile, Argentina and Mexico; due to the agreements with her home-country; it seems like the selection process and the determining of new students to USP is fast; and for the Peruvians, the neighborhood with the country is very important.
- The reasons why the student chose Brazil are: Contacts and good references of the institution, quality that is shown on the ranking of Times Higher Education, QS World University Rankings 2007, where USP is in the 175th position worldwide, it is the first Brazilian and Latin-American university together with Automa university of Mexico. Contacts and level of the area of interest are other reasons to study at USP.
- The matter of contacts is a predominant factor in the choosing of an institution. These contacts are manifested in how one relates to people such as friends and professors, mainly, those who studied in this institution.
- The quality and level of development of the area of interest is very important when one chooses in which annex of the university to study, even though it is generally in the same area (engineering) as suggested by the profile study of the previous point.
- It seems like the fact that the institution is located within a big city is important during decisionmaking since this offers advantages in different aspects.

4.1.5 Institutional Dynamics

INSTITUTIONAL DYNAMICS					
GUIDANCE					
26	Did you receive guidance in terms of:	CCINT	Secretaries	Professors	Others, specify
	Visa	35,29%			64,71%
	Accommodation				100,00%
	Food				100,00%
	Registration		52,94%	29,41%	17,65%

INFRASTRUCTURE					
27	How would you classify the following infrastructure	Good	Normal	Bad	Comments
	Classrooms	76,47%	23,53%		
	Study rooms	100,00%			
	Libraries	100,00%			
	Equipment	29,41%	70,59%		

PROFESSORS					
28		Very high	high	Normal	Deficient
	How would you classify the formation of your class' professors?	29,41%	29,41%	41,18%	
29	How would you classify the formation of your advisers?	58,82%	41,18%		

30		Very good	Good	Normal	Other, specify?
	How would you classify your formation?	41,18%	58,82%		
QUALITY OF THE EDUCATION					
31		Very high	high	Normal	Deficient
	The level of the postgraduate compared to your country (area)		58,82%	41,18%	
32			Yes	No	Why?
	Were your educational perspectives met?		100,00%		

ADDITIONAL OPPORTUNITIES OFFERED BY USP					
33	USP offers you opportunities like:		Yes		No
	Language course		100,00%		
	Scholarship		88,24%		11,76%
	Accommodation		50,00%		50,00%
	Food		88,24%		11,76%

The questions asked in the institutional dynamics section aim at evaluating the role of the university in guiding the student and, at the same time, they evaluate the infrastructure, the professors, the quality of education received and the potential services that the university can offer to the students. The following are concluded:

- The main directions given to the student both for accommodation in São Paulo and for regularization of the processes with the university were given by friends and acquaintances; In the meantime, more specific orientations such as how to go about the visa procedures and registration were given at the receptions of the department and the commission of international cooperation – CCint, at USP.
- The students classified the study rooms, classrooms and libraries as good infrastructure although they think that the equipment used for the pedagogical activities should be modernized.
- The student considers the formation of the class professors and the advice received during the postgraduate period to be good, meanwhile the formation of the advisors is very high.
- They respect the quality of education and the level of Brazilian postgraduate studies when this is compared to their home countries; they think that it is comparable or a little superior.
- All the students think that their educational perspectives were fulfilled.
- A majority of the students think that USP offers opportunities for learning Portuguese, food and scholarship, but they find access to accommodation very difficult since the number of vacancies offered is very low compared to the demand and the selection process only occurs twice per year.

4.1.6 Preparation (studying portuguese)

PREPARATION			
34	Did you study Portuguese before coming to study in Brazil?	Yes 70,59%	No 29,41%

The performances of the students can be described as:

- High performance in the subjects studied with a small degree of language barrier mainly when it comes to the pronunciation of the words.
- It seems like only a minority of these students experienced any degree of difficulty in the disciplines due to change of subject in the area of study.

DESEMPENHO				
35	How was your performance in the subjects/disciplines?	Good 100,00%	Normal 0,00%	Weak 0,00%
36	Did you fulfill the prerequisite to do the subjects/disciplines you chose?		Yes 70,59%	No 29,41%
37	Did you encounter any difficulties with Portuguese during the subjects/disciplines?		Yes 64,71%	No 35,29%
38	How was the theme chosen? Suggestion Continuity One's liking Bibliographical research Demand	29,41% 29,41% 23,53% 11,76% 5,88%		
39	How was the advisor chosen? Suggestion Curriculum vitae Continuity Indication of the department	52,94% 29,41% 11,76% 11,76%		

The dynamics related with the choosing of the research theme show the following:

- A majority of the students consider the following to be essential reasons in the choosing of the research theme: the fact of continuing in the same area initially chosen during the undergraduate course, the suggestions given by specialists in the theme of the demand that this theme could have in the market, one's liking of a specific area.
- The choice of an advisor was guided by recommendation from people who have knowledge of the area and mainly by the professor's curriculum; however a small minority decided to continue their undergraduate work or accepted the indication of one of the professors suggested to them by the department.

4.1.8 Decisions

DESEMPENHO			
40	What do you plan to do after you finish your post graduation? Work Return to your country Travel to another country Work with research/ teaching? Other, specify? I still have not decided what I will do	35,29% 23,53% 5,88% 5,88% 29,41%	Why? Money Family – Visa – Assist country in terms of research Work – Know places before deciding Professional boost

When the students were asked about their future plans, the following was uncovered:

- A majority of the students consider working in the work field due to economical matters, earn some money; the other part considers returning to their home country due to family, visa expiry or because they think of assisting their home country in terms of research development; a small part considers traveling to another country and work with research.
- An important fraction of the students has not decided what to do when they complete their studies.

4.1.9 Additional comments

The observations and additional comments that the students gave while answering the questionnaire were:

- The need for social activities so as to integrate the foreigners in the post graduation level.
- Increase the vacancies for accommodation for the post graduates.
- Probation or work opportunities (prohibited by the visa type) or other remunerated activity. They prefer not to

have the scholarship, but to have the opportunity to work since they acquire a great professional boost apart from the work experience. They should also inquire about sentimental relationships since this is a cultural shock to the foreigners.

4.2. Results and analyses of the questionnaires applied to the professors

THE PROFESSORS' QUESTIONNAIRES

THE PROFESSORS' QUESTIONNAIRES	
1 Were/are you a research advisor of foreign students? If yes, how many and from which countries?	
Cape Verde – Colombia – Cuba – Equador – Honduras – Paraguay - Peru	

When the professors were asked if they had ever been advisors to any foreign students, only 10% of the professors said yes, and that the students were mostly from Latin American countries and the Caribbean, and also from countries with the exchange program like Cape Verde.

2 What are the postive and negative characteristics of the foreign students that did your graduate disciplines?	
<i>Positive</i>	
Very good students	25%
Worked students	45%
<i>Negative</i>	
Difficulties with the language	20%
Poor academic performance	10%

3 What are the postive and negative characteristics of the foreign students in the production of the master thesis?	
<i>positive</i>	
They have more interest, good workers.	30%
Preoccupation with the date marks	30%
<i>negative</i>	
Less dedication to the research because they had financial problems	10%
Difficulties with the language	30%

4. What you can talk about:	
<i>Integration of the foreign students</i>	
Normal	100%

a. Peformance of the foreign students in individual and group works	
Dificullties to the the works	30%
No difference of the brazilian students	70%

b. Academic Level	
Very good	30%
Good	40%
Normal	20%
Weak	10%

c. Level of protuguese language

good	30%
Normal	40%
Bad	30%

d. Do you have any kind of foreign student identification?	
No	100%

e. Do you have more information to add to the questionnaire?	
Good experience	
The university ought to review the dates to approve the visa	
The process of admission will be more rigorous	
The students need more help when they arrive and when they are writing the thesis.	

5. CONCLUSION

In the study of the dynamics and graduate foreign students behavior of Escola Polit_nica da USP, we found the following characteristics in the different analyzed aspects:

- The student in general is a person with under of 35 years old, engineer, Latin American citizen that are doing a master degree;
- The students are doing a good relationship with the Brazilian student community although social, cultural and environmental conflicts;
- The financial resources are not sufficient to living, feeding, transport , health and entertainment expenditures;
- The financial restriction limits the relation with the Brazilian society;
- The criteria to choose the school and the graduate course are the good references and the people that you have any kind of contact;
- Escola Polit_nica offers a good infrastructure and a qualified teachers staff and good opportunities to learn portuguese, living, feeding and financial support but doesn't have a website or a manual to the foreign student like others country universities;
- The academic student performance is good and although the student language preparation after the trip to Brazil the language performance in write and speak have problems;
- The main group of the students want to return to their countries after the end of the course to work; or
- The students and the teachers want an increase of special activities to integrate the foreign students, an increase of living places and increase of financial resources;
- The students leave their countries to study in a recognized graduation universities to improve their lives and to develop new life experiences.

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