

ENGLISH IN THE LIVES OF FORMER UPRM ENGINEERING STUDENTS

By

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Abstract

This thesis is a descriptive analysis of one hundred graduates of the College of Engineering at the University of Puerto Rico at Mayagüez (UPRM) who work either in the United States (US) or Puerto Rico (PR). The data was collected by using a web version of a questionnaire designed for this purpose in both English and Spanish. First, the study includes the subjects' evaluations of the English courses taken at UPRM and the preparation that these courses gave them for the real world of work. Second, it examines the decision of these graduates to leave or to stay in PR for the purposes of work. Third, it describes the English use of the graduates in the domains of home and work and examines how necessary English is for their professional development. Fourth, it examines gender differences. Finally, it includes pedagogical implications for both the UPRM English Department and the UPRM College of Engineering.

Resumen

Este estudio presenta un análisis descriptivo acerca de cien egresados de la Facultad de Ingeniería del Recinto Universitario de Mayagüez (RUM) que trabajan tanto en los Estados Unidos (EU) como en Puerto Rico (PR). Los datos fueron recopilados utilizando una versión electrónica del cuestionario diseñado para estos fines tanto en inglés como en español. En primer lugar, el estudio incluye las evaluaciones que los egresados le dan a los cursos de inglés tomados en el RUM y la formación que tales cursos les brindaron para desempeñarse en el mundo del trabajo. En segundo lugar, examina la decisión que estos egresados puedan tener para decidir permanecer en PR o marcharse para fines de conseguir un empleo. Tercero, este estudio describe la manera como dichos egresados utilizan el inglés en el área del trabajo y en el hogar y examina cuán necesario es el idioma para su desarrollo profesional. En cuarto lugar, este estudio examina las diferencias entre géneros. Por último, se describen las consecuencias pedagógicas tanto para el Departamento de Inglés como para la Facultad de Ingeniería del RUM.

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Dedication

I would like to dedicate this thesis to someone who walked next to me during this journey. This person took courses with me, listened, and helped me whenever it was necessary. She cared about all the people around her without expecting anything in return. In other words, I am talking about my beloved friend **Clara N. Ramírez**. I miss you so much Clarita. I know that you are already reading these words. Consider this achievement as yours. Thank you for teaching me that through your devoted “Espíritu Santo” absolutely everything was possible. I only have to say you: “May you rest in Peace. I love you”.

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Chapter I: Introduction

According to the Office for Institutional Research and Planning (OIIP)¹, at the University of Puerto Rico at Mayagüez (UPRM), the campus has a population of 12,380 students distributed across four colleges: the College of Agriculture, the College of Arts and Sciences, the College of Business Administration, and the College of Engineering. The College of Engineering is the largest college at the UPRM accounting for 51.5% of the undergraduate student population with a total of 4,498 students. On a yearly basis, the UPRM accepts an average of 2,000 students to its different colleges and academic programs. Once these students graduate, the majority of the job positions they apply for in PR or in the US require a high degree of technical and professional knowledge as well as bilingualism. This last requirement points to the fact that English and bilingualism play an important role for former UPRM students in the work domain in both PR and the US.

In Puerto Rico, 20% of the population claims fluency in English (Clachar, 1998). This percent continues to increase because of the political ties that PR maintains with the US. Sánchez (1999) states that “the United States and Puerto Rico have a common market and that the Puerto Rican economy is closely connected with the American economy” (p. 6). Thus, English plays a significant role in PR. Blau and Dayton (1997) investigated the status of PR as an English-using society and noted that it has features of both an ESL society and an EFL society, but they concluded that it is more ESL-like than EFL-like. They point out that “the political status of Puerto Rico as a commonwealth of the US, as well as the United States citizenship of Puerto Ricans, expands the role of English in Puerto Rico” (p. 138). They also

¹ OIIP is an entity that works with quantitative data related to the campus population.

point out that in PR, “English is indispensable for the domains of tourism, higher education, business, and technology” (p. 138).

Given the role of English in PR, a command of English is often required for employment. In fact, being bilingual in PR is related to economic and employment ambitions. Román (1999) points out that students in English courses at the UPRM express their desire to learn English so that they will be successful in the workplace (p. 3). Similarly, Baker (1996) points out that “there are four reasons frequently given why the individual should learn a second language: cultural awareness, cognitive training, and affective goals and to get careers and employment” (p. 277-278). Scholars such as and Zentella (1997) note that the value given to English represents a tool for cultural capital. In spite of these interests, Spanish is the prevalent language of instruction in PR’s higher education institutions.

English plays a role in the curriculum of every academic program at the UPRM. In the case of the College of Engineering, students have to complete twelve credit hours of English depending on the sequence² in which they are placed based on the scores they get in the English as a Second Language Achievement Test (ESLAT). Table 1 provides data compiled by the OIIP and shows the English sequences that students admitted to the College of Engineering were placed in for the academic years 2003-2005³. As shown in the table, for all three years, over 40% of the engineering students are placed in the Intermediate English sequence when they are admitted to the university; roughly 20% of the students are placed in the Advanced English sequence; roughly 20% of the students are placed in the Basic English sequence, and roughly 10% of the students are placed in Pre-Basic English.

² A student might be admitted on the Pre-Basic, Basic, Intermediate or Advanced sequences.

³ http://ece.uprm.edu/~damaris/references/sol_1005-2.pdf

Table 1. English sequence of students admitted to the College of Engineering (2003-2005)

English Sequence	2003 (n=806)	2004 (n=730)	2005 (n=764)
Pre Basic	10%	12%	11%
Basic	20%	20%	22%
Intermediate	48%	43%	44%
Advanced ⁴	22%	25%	23%

Although Spanish is the primary medium of instruction at UPRM, “every student is required to have a working knowledge in English”⁵. In addition, most textbooks assigned at the UPRM are in English.

The College of Engineering at the UPRM is accredited by the American Board for Engineering and Technology (ABET). This agency is in charge of the accreditation process for the US, including PR. Accreditation by ABET is a voluntary process for the College of Engineering.⁶ According to ABET, engineering students should reach several goals before they graduate. For example, according to ABET assessment procedures, engineering students should graduate with an ability to communicate effectively (Darling & Dannels, 2003). In the case of Hispanic engineering students, such as Puerto Rican engineering students, effective communication includes communication in both English and Spanish. This goal highlights the importance and the presence that the English language has in the curriculum of the College of Engineering at UPRM.

⁴ Students who took the Advanced Placement exams and scored 4 or 5 take Advanced English (INGL 3211-3212).

⁵ <http://www.uprm.edu/catalog/UndergradCatalog2006-2007.pdf>

⁶ In PR, there are only two institutions of higher learning whose engineering programs are accredited by ABET: UPRM and the Polytechnic Institute of Puerto Rico.

Recruiters from industries in the US form part of the advisory board that participates in the assessment processes of institutions that undergo accreditation, and recruiters are more receptive to hiring students from accredited institutions. At the October, 2006 Job Fair⁷, there were recruiters from 92 international and local companies trying to recruit engineers. They came for several reasons. The first is that the College of Engineering is accredited. The second is that English plays a bigger role in PR than it plays in other countries of Latin America.

According to Mr. José Font, a recruiter from Boeing, who visits the UPRM every year to interview students for positions in his company, although former UPRM engineering students are, and have been, outstanding in technical and professional affairs and constitute an important sector of Boeing's workforce, they need to improve in terms of conversational English and technical writing to meet the professional demands of their work. In contrast with Mr. Font, the majority of Puerto Rican engineering students view themselves as bilingual or fully bilingual and able to communicate orally and in writing in both English and Spanish. In fact, they describe themselves as bilingual on their résumés. Even though, in general, they have a high opinion of their bilingual abilities, sometimes future Puerto Rican employees have the same perceptions as their employers. According to Sánchez (1999), with regard to particular skills, workers in PR do not feel as limited in reading English as they feel when speaking and writing English.

In addition to being concerned about proficiency across the skill areas of reading, writing, listening, and speaking, recruiters are concerned that engineering students lack the ability to engage in organizational communication in English. Organizational communication

⁷ The Job Fair is an activity organized by the UPRM Placement Office once a year where recruiters from Puerto Rico and the United States come to interview students who have nearly completed graduation requisites in order to consider offering them jobs.

involves how well people communicate within an organizational context, and recruiters are concerned about whether or not the UPRM prepares its engineering graduates to deal with organizational matters and conflicts that involve communicative interactions between peers and superiors. Darling and Dannels (2003) point out that "...although evidence suggests that communication skills are critical to engineering practices, other studies report that these skills are being inadequately developed in engineering courses and curricula nationwide" (p. 2). Darling and Dannels' point of view is supported by the case of students in engineering at the UPRM. These students are required to take only twelve credits in English depending on their proficiency level. Thus, they do not have to take courses which are compatible with organizational communication such as technical writing or conversational English. In fact, unless a student elects to take a course such as these as an elective, he or she might miss taking such a course altogether, thus, missing an invaluable opportunity to develop skills in colloquial English⁸.

English plays an important role in the workplace in PR. According to Sánchez (1999), "with so many American-owned businesses in Puerto Rico, there is a great need for workers who can understand, speak, read, and write English" (p.7). To support her point, Medina (1992) argued that "given that most of the manufacturing industries are non-Puerto Rican, especially United States-based, the function of English is a practical one to facilitate communication between the companies on the island and the home plants in the United States" (as cited in Sánchez, 1999, p. 41). According to Clachar (1998), "prestigious and high-paying professions in Puerto Rico require fluency in English, and most educated, middle-class Puerto

⁸ Colloquial language is informal language that is not rude, but would not be used in formal situations.

Ricans would like to be bilingual, and many are working toward this goal”(p.116).

Because I have seen the role that English plays in the workplace in PR and the political relationship between PR and the US, there is no doubt that the English language serves as a liaison between the American companies that are established in PR and the ones that are in the US. English also serves as a liaison between technology related positions and the majority of UPRM engineering students who aspire to these positions.

As an undergraduate academic advisor in the College of Engineering with a focus on Electrical and Computer Engineering, I work on a daily basis with engineering students who are concerned about their usage of English. Their concerns are several. For example, they worry about how good or bad they are in terms of spoken English and how they should communicate with superiors in a work domain. The same happens with technical writing. However, they do not seem to worry about grammatical correctness and choice of lexical items. It seems to me contradictory that a huge majority of them do not want to take elective courses in English to improve their English skills. On the contrary, they seem to be satisfied with taking only the required twelve credit hours in English. In fact, Sánchez (1999) found a similar contradiction, “although English seems to have high instrumental value in Puerto Rico, university students are not interested in improving their skills” (p. 14).

According to Darling and Dannels (2003), engineers, in general, regardless of whether English is their first or second language, have deficiencies in terms of communication and writing skills in the workplace. According to Sánchez (1999), referring to Puerto Rican professionals, including engineers in particular who have English as a second language, some people believe that the reason why many Puerto Ricans cannot communicate in English is rooted in the poor quality of English instruction on the island. This makes it necessary to

increase the emphasis given to English as second language courses in terms of the skill areas and the development of communication skills. One employer in PR, interviewed by Sánchez, argued that in Puerto Rican education communication has to be stressed in terms of its use and effectiveness for business and the professions.

Once graduation approaches, the majority of UPRM engineering students participate in recruiting activities such as the Job Fair with hopes of getting job offers. But which jobs appeal to the students depends on different students' expectations and values. For example, culturally, an engineering career is associated with obtaining high wages compared with other careers. Those high wages come from opportunities in the US rather than in PR, and some engineering students who look for high wages and are willing to leave PR to work for them. There are other engineering students whose primary concern is to be close to their families or to pursue their personal beliefs, such as religious beliefs would prefer to stay in PR.

In focusing on former engineering students, this thesis will contribute to the work being conducted by the English as a Second Language (ESL) sector in the English Department at the UPRM which has surveyed students to find out how they view their English courses, how they view their ability in English, and how the English Department might improve its curriculum. While the English Department is interested in students across all faculties at UPRM, this study will focus on former engineering students to find out what role English plays in their lives and what role English has played in their lives since graduation from UPRM.

Given that the OIIP at the UPRM lacks statistical and descriptive information on how many former engineering students decide to leave or stay in PR and the reasons for this decision, this study will also fill a gap in trying to determine the reasons why former UPRM engineering students decide to stay in PR and why some decide to leave PR and work in the

US. Finally, it will try to find out if English proficiency and the sequences students enter play a role in decisions to stay in PR or to leave the island. Thus, this study may have findings that will benefit both the College of Engineering and the English Department at UPRM.

Research Objectives

Given the fact that I am an academic advisor in the College of Engineering at UPRM and a graduate student in the English Department at the same time, I became interested in the former UPRM Engineering student population as a research topic. Thus, in order to fulfill the requirements for my MAEE degree in English education, I decided to conduct a study combining former UPRM Engineering student and the role that English plays in their lives.

The research objectives that guided this study were the following:

1. To find out what English preparation UPRM engineering graduates received from UPRM before they graduated.
2. To find out if English played a role in the decision of UPRM engineering graduates to accept employment in PR or the US.
3. To find out what role English plays in the lives of the engineering graduates, particularly in the domains of work and home. To find out if there are differences in the role that English plays in the lives of the engineering graduates who work in PR and the engineering graduates who work in the US.
4. To find out if there are gender differences in the role that English plays in the lives of male and female engineering graduates.

Chapter II: Literature Review

Historical Background, Missions and Goals of UPRM

The College of Agriculture at Mayagüez was created in 1911. At first it was referred to as The College of Agriculture and Mechanic Arts (CAAM). In 1966, the Legislative Assembly of Puerto Rico reorganized the University of as a system of autonomous campuses, each under the direction of a chancellor, and CAAM became the University of Puerto Rico, Mayagüez (UPRM). According to the 2006-2007 UPRM Online Undergraduate Catalogue, the UPRM is a “co-educational, bilingual, and non-sectarian school comprising the Colleges of Agricultural Sciences, Arts and Sciences, Business Administration, Engineering, and the Division of Continuing Education and Professional Studies” (p. 1).

According to the 1966 University of Puerto Rico Act, UPRM directs its efforts to the pursuit of two long-range goals. First, UPRM will have a role in “the development of educated, cultured citizens capable of critical thinking and professionally qualified in the fields of agricultural, social and natural sciences, engineering, humanities and business administration” (p. 2). Second, its alumni are expected to “contribute to the social, cultural, and economic development of Puerto Rico and international communities as well as to cooperate with their knowledge and skills by searching for solutions to the problems that affect the Puerto Rican society” (p. 2). Each department and institutional unit within UPRM should address its individual efforts toward reaching these long-range goals.

In 2005, the Chancellor created the Office for Continuous Improvement and Assessment (OMCA)⁹, which is the entity in charge of making sure the university complies with its goals

⁹ <http://www.uprm.edu/omca/index.php>

and also keeps track of the continuous assessment and improvement. OMCA's responsibilities include advising each academic unit within the UPRM in any process of professional accreditation as well as making sure each unit complies with assessment.

English Education at the UPRM

The English Department at the UPRM addresses the English language needs of all students who enter the UPRM. One of its goals is to teach communication skills in English including listening, speaking, reading, and writing at all levels from basic undergraduate to graduate students. Every student admitted to the UPRM is required to take twelve credit hours in English. In fact, English plays a role in the curriculum of every academic program at the UPRM. In addition, the 2006-2007 UPRM Online Undergraduate Catalogue states that "every student is required to have a working knowledge in English" (p. 59). Aside from offering an undergraduate and a graduate program, the English Department is also considered a service department. "The English Department directs its efforts towards the development of educated, responsible and cultured citizens and professionals in all areas as well as in fields related to English Studies, primarily those involved with the study of Linguistics and Literature"¹⁰.

A student who enters the UPRM is placed in one of four levels: Pre-Basic, Basic, Intermediate, or Advanced English. Placement is determined by the ESLAT scores and/or the Advanced Level Test administered by the CEEB. Students who score 469 or less are placed in Pre-Basic English which is "an intensive training in basic language for students requiring remedial work in English" (p. 146). It is a non credit course and upon passing this course, the student follows the Basic Sequence. Students who score between 470 and 569 are placed in

¹⁰ http://www.uprm.edu/english/mis_vis.html

the Basic English sequence. According to 2006-2007 UPRM Online Undergraduate Catalogue, the Basic English sequence “is designed to meet the student’s immediate needs, and to give him or her command of the fundamental structure of the English language. The oral approach is used and skills in reading and writing are developed” (p. 146). Students who score above 570 are placed in the Intermediate sequence. The 2006-2007 UPRM Online Undergraduate Catalogue states that the Intermediate sequence “consists of analysis of selected readings, and practice in writing compositions with attention given as needed to grammar and idiomatic expressions” (p. 147). Finally, the Advanced English sequence is for those students that took the Advanced Level Test offered by the CEEB and obtained a score of 4 or 5. These students receive an automatic six (6) credits that count toward their twelve (12) credit requirement. According to 2006-2007 UPRM Online Undergraduate Catalogue, students in the Advanced English sequence “develop reading, discussion, and writing skills through the experience, interpretation, and evaluation of short story, drama, poetry, and the essay” (p. 147).

History of English Education in the Puerto Rican Public School System

Puerto Rico was colonized by Spaniards in 1493. They brought to the island the Spanish language, but in 1898 Spain lost PR as a territory at the end of the Spanish-American War, and the US took possession of PR. English then became the language of instruction in PR. At that time, approximately 80% of the population was illiterate (Algren de Gutiérrez, 1987).

The history of the English language in PR’s public school system has been influenced by political matters and movements. Conflicting ideas about whether English or Spanish should be the language of instruction still exists today. In fact, Pousada (1999) argues that the “history of the English language in Puerto Rico is a decidedly peculiar one, characterized by incessant conflict and chaotic change” (p. 33). For more than a century, PR

has struggled to resolve the language issue and according to some scholars, the language issue has been closely linked to internal politics and associated political relationships with the US (Morales, 1999).

Since 1898, language policies regarding the instruction of English and Spanish changed as the Commissioner of Education changed. Under Commissioners Eaton-Clark from 1898 to 1900, English was the only language used as a language of instruction in all grades (Algren de Gutiérrez, 1987). In other words, the original intent of this policy was to teach only in English. From 1900 to 1902, under Commissioner Brumbaugh, Spanish was the language of instruction in the elementary grades. In high school, English was a subject. Puerto Rican government acknowledged two official languages in 1902. In 1905, largely because of increasing socioeconomic ties with the US, the Puerto Rican Supreme Court decreed that the English language was to be the sole medium for all legal and business transactions (Morales, 1999). Under Commissioner Faulkner-Dexter from 1903 to 1917, English was reestablished as a language of instruction in all grades, and Spanish was taught as a subject (Algren de Gutiérrez, 1987). According to Pousada (1999), this specific language policy was aggressive as teachers were forced to simplify the curriculum because of their own limitations in the English language. Morales (1999) pointed out that by 1913 parents and teachers forced the Department of Public Instruction to reintroduce Spanish as the language of instruction in the first grade due to the consistent low success rates in public schools.

Under Commissioner Miller-Huyke, between 1917 and 1934, Spanish and English alternated as subjects and languages of instruction. In grades one to four Spanish was the language of instruction. In grade five, there was a transitional stage in which half of the core subjects were taught in Spanish and the other half in English. Grades six through twelve used

English as the language of Instruction (Algren de Gutiérrez, 1987). In 1934, under the Commissioner of Education José Padín, the language policy changed again and Spanish became the language of instruction in the elementary grades and English was a subject in the high school grades. In 1937, Commissioner of Education José M. Gallardo was encouraged, by US President Franklin Delano Roosevelt, to make all Puerto Ricans bilingual (Pousada, 1999). Thus, Gallardo abolished Padín's language policy and instituted elementary education in both English and Spanish, Spanish being the primary language of instruction. Morales (1999) summarized Gallardo's language policy by stating that the use of Spanish as the language of instruction in schools was limited to the first and second grades; grades three to eight were taught in both Spanish and English; twelfth grade was taught in English only.

In 1948, Luis Muñoz Marín became the first elected governor of PR. Spanish was reinstated as the medium of instruction at all levels of the public school system (Pousada, 1999) and English was taught as a "preferred subject" (Algren de Gutiérrez, 1987). To this day, this language policy prevails in PR. Nevertheless, all the language policies have been grounded in politics rather than language planning.

As a result, the problem with the teaching of English in the public school system still exists and is directly related to politics and national identity. In PR, there are three main political parties. The Popular Democratic Party (PDP) supports the current status, which is the Commonwealth. The New Progressive Party (PNP) favors statehood for PR. Finally, the Puerto Rico Independence Party (PIP) is a pro-independence political movement. The predominance of Spanish or English has varied depending upon the inclination of the government in power (Morales, 1999). For example, in 1981 Sergio Peña Clos, a PDP legislator, passed a bill proposing a requirement that Puerto Rican private schools follow the

Island's public school policy (Algren de Gutiérrez, 1987). This created a conflict due to its unconstitutionality. Also, in 1984 the Secretary of Public Instruction, Awilda Aponte Roque, responding to the PDP's interests, made public her intentions of establishing an experimental teaching program in which English instruction would be postponed until the fourth grade, which did not work. Finally, associated with the US, English has long been an issue because language in PR is a symbol of national identity and a cultural dilemma for many sectors of the Puerto Rican population.

Culture and Identity

When people decide to migrate, culture and identity become a relevant issue. According to Damen (1987), "there are diverse definitions of culture depending on the disciplines. Sociologists define culture as the incorporation of individual traits such as attitudes, motivation, age, and sex, with the ways individuals and the society view such traits within specific environments. Damen also states that "linguists focus on the integration of language and culture, and sociolinguistics looks at this integration in order to better understand language" (as cited in Morales, 1999, p.31).

As a construct, identity also has many dimensions. According to Acosta-Belén, "identity may be defined as the way individuals define themselves within a cultural domain" (as cited in Morales, 1999, p. 22). Morris (1995) gives to the term identity a sense of collectivity by referring to it as collective identity. Morris posits that "collective identity involves establishing the distinction between group members and outsiders" (p. 8).

Certainly, the term identity has existed within Puerto Rican history since the 1900's. Politicians such as Luis Muñoz Rivera defined identity as patriotism and the intense and profound sentiment for the region (Algren de Gutiérrez, 1987). Scholars such as Clachar

(1997), Resnick (1993) and Algren de Gutiérrez (1987) agree that such a sentiment does not come from the relationship that PR has with the US. Rather, it is grounded on PR's roots in Spain. Resnick (1993) expresses it by stating that "the nationalism of the Puerto Rican people does not derive from the relationship with the United States, but from the Spanish roots that provide both the name and the basis of their language and culture" (p. 263).

During the 19th century, a new beginning of a national consciousness arose. According to Maldonado-Denis,

This was a decisive period in our formation as a people, as a nationality. Our literature, our music, our painting, in effect all of our cultural expressions, give testimony that in this century there crystallized in a definitive manner a culture that we can call Puerto Rican. (as cited in Resnick, 1993, p. 262).

These arguments relate to Tajfel's theory of social identity described in Clachar (1997), which states that "human beings categorize the social world and perceive themselves as members of various ethnic groups. This knowledge of themselves as group members is defined as their social identity (as cited in Clachar, 1997, p. 75).

Certainly, there is a clear relationship between culture, identity, and language. Baker (1996) points out that "a language indexes its culture and that a language and its attendant culture will have grown up together over a long period of history" (p. 64). Furthermore, Baker argues that a language symbolizes its culture. Fishman (1991) points out that language stands for the whole culture by representing the minds of speakers and the minds of outsiders. In the case of PR, Meyn (1983) points out that "even though English and Spanish have coexisted since 1898, Puerto Ricans still acknowledge Spain as the mother country which provides the source of the island's culture" (cited in Clachar, 1997, p. 70). This sustains the cultural tie

between Spanish language and Puerto Rican culture. Also Morris (1995) states that:

The Spanish language has more than symbolic importance in Puerto Rico. It is the fundamental tool used by most Puerto Ricans for most communication. It also serves as a rallying point for Puerto Rican identity (p. 162).

Definitely, language plays a significant role within culture and identity. It is an important dimension of social comparison and in group identity. Furthermore, as Morales (1999) posits, “language is a tool by which people in a speech community communicate with one another to transmit thoughts, beliefs, values, traditions, and history” (p. 23). Urciuoli (2006) notes that linguistic and cultural identities are never simple and have a complicated place in the processes of identity formation. They are generated in practice, take time to develop, and they grow in ways that index the conditions in which they grow. Those identities do not transfer instantly and unproblematically to different conditions and might be determined by racial or social class conditions. She posits that in the case of most Puerto Ricans, the Spanish language is the main source of identity. According to Clachar (1997), Spanish is used to remind Puerto Ricans of their cultural heritage, and it signals in group memberships under the conditions of a possible threat posed by the dominant out group language, English.

Just as language is a means of cohesion for group identity and social organization, it is also an important dimension of ethnic identity (Morales, 1999). Clachar (1997) points out that the strength or ethnic identification with the members of the in group or the out group is a contributing factor to the development of one’s ethnolinguistic identity. Therefore, in group members are likely to adopt a variety of strategies in order to assert their linguistic distinctiveness or might reject them depending on how they feel towards their group. For example, Urciuoli (2006) recreates situations where students at the college level in New York,

who come from Puerto Rican or Dominican families, speak Spanish at college emblematically and to distinguish themselves from middle-class or elite American whiteness, a strategy to assert their distinctiveness as part of the Latino ethnic group. On the other hand, there are other students who speak Spanish only at home to maintain their cultural roots, but feel embarrassed when speaking Spanish outside of their home. This is due to the fact that they fear being rejected by the middle-class or elite American whiteness. Scholars such as Zentella (1997) and Pousada (1996) coincide in stating that group identity is a non-negotiable symbol and that native language is a means of ensuring cultural identity and self-awareness.

The terms nationalism, nation, and national identity are constructs that cannot be excluded from culture and identity. According to Fishman, “nationalism refers to stages of political-geographical unification. As political-geographical nations expand, they may absorb smaller people who may or may not eventually form part of a larger sociocultural nationality” (as cited in Resnick, 1993, p. 260). According to Morris (1995), the concepts of nationalism and national identity concern human emotions and perceptions. Morris argues that nationalism describes an emotional attachment to a country and describes it as a doctrine that holds that the political organization of the world should be based on nations. She posits that there are two types of nationalism: the emotional attachment and the organized movements. Both are found in nations and states. In the case of PR, nationalism has its roots in the island’s history as a Spanish colony. Given the conditions of mistreatment, economical and social problems under Spanish during the colonial period, Puerto Rican nationalist movements arose in response to all of these situations. Today, nationalism of the Puerto Rican people does not derive from the relationship with the US, but from Spanish roots (Resnick, 1993). Duany (2002) notes that national identities are not completely artificial or abstracted from every day experience.

Rather, they are historically grounded in social relations, cultural practices, and shared conceptions of what constitutes a people, a country, and a community.

A nation is a self-defined community of people who share a sense of solidarity based on a common heritage and who claim political rights that may include self-determination (Morris, 1995). Morris clarifies that such a definition centers on a subjective, internal self-definition as a nation usually based on some combination of objective characteristics of history, language, and culture. Nevertheless, the claim to political self-determination is not necessarily tantamount to a desire for political independence. National identity refers to a sense of belonging to a nation that does or does not have its own territory and that does not necessarily have political autonomy. Given these definitions, Morris (1995) states that Puerto Rico is a nation.

Along with Puerto Rican history, politics has also been related to Puerto Rican identity. Throughout the 20th century, Puerto Ricans have debated their relationship with the US. Puerto Rican politics is dominated by the conflict over whether the island should become an independent country, integrate fully into the US through assimilation, or continue being a commonwealth (Morris, 1995). According to Morris, Puerto Ricans were subjected to political coercion during the 18th century. Also, as part of the “Americanization”, US models substituted for the ones given by the Spaniards. Algren de Gutiérrez (1987) agrees with Morris with regard to the influence that politics has had on the Puerto Rican sense of identity. For example, in the 1940’s, the leaders of the PPD party, which pursued autonomy, stated identity as one of its goals. According to its leaders, the Puerto Rican people had to act to achieve identity through the emulation of American values. On the other hand, the PIP and PNP parties have pursued the ideals of independence and statehood respectively. Examples of these were José de Diego and José Celso Barbosa respectively. With the institution of the

Commonwealth in 1952, PR was exposed to a different type of identity pressure. According to Morris (1995), this is due to the fact that the collective identity of Puerto Ricans has been influenced by the island's relationship with the US. Also, Puerto Ricans have been in a continuous debate on what their relationship with the US should be. Finally, Morris states that PR has been exposed to imported mass media coming from the US such as movies, TV programs, and music. According to Morris (1995), "these represent a threat to national identity by bringing ideas that erode authentic and traditional lifestyles, values, and identities" (p. 10). Aside from these, the relationship between PR and the US has brought into the Puerto Rican context the presence of both English and Spanish within its culture and society. Nowadays, the public school system is an environment where English is taught as a "preferred subject". On the other hand, there are a considerable number of American companies established all over the island where English is the primary language. These posit that bilingualism is part of Puerto Rican society.

Bilingualism

As a technical term, Baker (1996) defines bilingualism as the ability to communicate effectively in two languages. Even though such a general definition may lack exactitude and precision, a definition of bilingualism should take into account a speaker's linguistic abilities, the functions that the speaker is able to carry out in his/her two languages, and his/her attitudes toward the two languages (Pousada, 2000). As Zurer-Pearson (2007) points out, "more than half of the world's population is estimated to be bilingual, so learning and speaking more than one language is clearly within the bounds of the human language capacity" (p. 399).

Baker (1996) makes a distinction between individual and societal bilingualism. Individual bilingualism has to do with a speaker's ability in two languages. Baker points out

that to describe someone as a bilingual individual is ambiguous because even though a person might regularly speak two languages, his or her competence in one of them or the use to which he or she puts one of them may be limited. According to Myers-Scotton (2006), even though bilingualism is more common than one would think it is, speakers of two or more languages rarely are equally fluent in both. This is due to the fact that few bilinguals are equally exposed to both languages in their repertoire, and they do not use their two languages with the same frequency. Even though there is a large body of research on bilingualism, to determine who is or who is not a bilingual is not an easy task. Also, the individual takes part in the decision of being or not bilingual. Myers-Scotton (2006) points out that an issue in deciding who is or who is not a bilingual involves the person who is making the decision. Another important issue in determining who is or is not a bilingual person involves the assessment of the speaker's language proficiency. Nevertheless, it is a reality that few people who learn a second language after early childhood speak it very fluently.

In terms of the individual bilingualism, Myers-Scotton (2006) also points out that there is a difference between language acquisition and language learning. Language acquisition usually occurs when the individual acquires the language at home during the childhood. In fact, Cunningham-Andersson and Andersson (2004) posit that "children who grow up with two languages have a unique chance to acquire them both in a way that is not possible for those who meet their second language later in life" (p. 59). On the other hand, language learning usually happens later in life at school. Many bilinguals also learn their second language in informal work contexts such as factories or farm work.

Pousada (2000) states that the majority of the definitions given to the term have had to do with the linguistic competence of the speaker, the functions that he/she is able to carry out

as well as the attitudes of the speaker. For the purpose of her study, a competent bilingual is a subject who is a highly functional bilingual. She refers to functional bilinguals as speakers who have achieved sufficient ability in both languages to carry out most social activities and communicative functions without difficulty.

Pousada makes a distinction between four other different types or levels of bilingualism. She cites Diebold (1961) who states that the “incipient bilingual is beginning the process of sorting out the stimuli received in the second language and creating a mental schema for the comprehension and use of the new mental system” (as cited in Pousada, 2000, p. 104). Pousada states that a receptive bilingual is the one who lives in a society where more than two languages coexist. This type of bilingual is able to understand the language, but is not able to speak it. Examples of this are the children of immigrants who move to the US who are shifting to English. A balanced bilingual is an individual who has mastered both languages equally and is equally competent and fluent in both of them. In other words, as Cunningham-Andersson and Andersson (2004) posit, “balanced bilingualism means that both languages are equally strong” (p. 16). This type of bilingualism is often difficult to achieve if the individual is a small children. However, according to Cunningham-Andersson and Andersson (2004) it can be achieved with enough motivation on the part of the children themselves. Finally, there is ambilingualism or perfect bilingualism. According to Pousada (2000), this type of bilingual is the one who is capable of functioning equally well in both languages in all the situations and domains.

A bilingual individual might decide which language to use depending on the domains to which he or she is exposed to. According to Bell (1976), the domains are the “recurring situations in which role playing by the participants consists of the expression of appropriate

behavior, through the choice of the appropriate code from the linguistic repertoires of the individuals involved” (p. 102). As described by Fishman (1991), “the domains are conceptualized on a broader or on a narrower basis” (p. 44). Broadly speaking, Fishman (1991) posits that they “are conceptualized as all of the interactions that are rather unambiguously related to one or another of the major institutions of society” (p. 44). Examples of these domains are family, the work sphere, education, religion, entertainment, etc. In terms of the narrow base, Fishman (1991) states that “the contexts of language use are conceptualized as the relations that are most congruent with particular domains” (p. 44). Examples of this are the role relations of husband-wife or parent-child within the family domain.

Societal bilingualism describes the use of two languages within a society, commonly referred to as diglossia, which is the distribution of two languages across different domains. According to Myers-Scotton (2006), in some multilingual communities, the norm is for certain languages to be learned informally, with others almost always learned only through formal schooling as a school subject.

According to Bell (1976) bilingualism is the result of the use of more than one code by an individual or a society. He also posits that “bilingualism and diglossia can occur separately or together within a speech community” (p. 135).

Speech Community and Diglossia

Puerto Ricans who work in the US are bilinguals who belong to two speech communities. Gumperz (1982) states that “the notion of a speech community has long been recognized as problematic” (p. 85). Nevertheless, according to Hudson (1996), the term speech community is widely used in sociolinguistics to refer to a community based on

language. Lyons (1970) defines it as “all the people who use a given language or dialect” (as cited in Hudson, 1996, p. 24). Fishman (1972/1979) offers a broader definition by referring to a speech community as a community where its members use at least one linguistic variety along with mastering the rule for appropriate use. Gumperz (1968) defines speech community as a “social group which may be either monolingual or multilingual, held together by frequency of social interaction patterns and set off from the surrounding areas by weaknesses in the lines of communication” (as cited in Hudson, 1996, p. 25).

Diglossia, which derives from bilingualism, occurs within speech communities. As Fishman (1965) states, a part of bilingualism concerns when, where, and with whom people use their two languages (as cited in Baker, 1996, p. 11), suggesting that bilinguals use their two languages in different domains, typical of diglossia. As a construct, diglossia was first introduced by Ferguson in 1959 who defined it as

a relatively stable language situation in which, in addition to the primary dialects of language, there is a very divergent, highly codified superposed variety, the vehicle of a large and respected body of written literature, either of an earlier period or in another speech community, which is learned largely by formal education and is used for most written and formal spoken purposes but is not used by any sector of the community for ordinary conversation (cited in Hudson, 1996, p. 49-50).

In other words, according to Hudson, “diglossia is used to describe the situation where societies have two distinct varieties, sufficiently distinct for lay people to call them separate languages, of which one is used only on formal and public occasions while the other is used by everybody under normal, every day circumstances” (p. 49). These two varieties are normally called high and low. Both Fishman (1972/1979) and Bell (1976) explain that the high variety

is reserved for a formal, public use, often legally recognized as the Official Language of the state and marked by formal linguistic features that are more complex and more conservative. The low varieties are used for domains such as home which are more private. An example of a diglossic community is the case of Arabic-speaking communities where the language used at home is a local version of Arabic whereas a Standard Arabic version is used for more formal domains such as a sermon or a lecture at a university (Hudson, 1996).

Code-Switching

Bilinguals are in a unique position vis-à-vis code switching. Bell (1976) explains that language is a set of repertoires of codes rather than a homogeneous object. An individual plays many roles within the society depending on social situations and such roles include norms of behavior, some of which are norms of language (Bell, 1976). Hudson (1996) supports this by adding that “anyone who speaks more than one language chooses between them according to the circumstances” (p. 51). According to Bell (1976), “each code that the individual has is appropriate to a set of role relationships within the context of a set of domains, which constitute the individual’s repertoire” (p. 105). Given these, the individual becomes a chooser amongst codes, exhibiting code-switching behavior.

Code-switching is an inevitable consequence of bilingualism (Hudson, 1996). Dow (1991) refers to code-switching as “the selection of two or more linguistic varieties in the same conversation” (p. 96). One language can be identified as the Matrix Language (ML) or the main language of the utterances, with the other language (s) as the Embedded Language (EL) (Dow, 1991). Each speaker chooses a language which the other person can understand. That is, “the interlocutors may choose to switch codes in order to convey a meaning” (Esdahl, 2003, p. 78).

For most individuals, the first language learned is the mother tongue. In the majority of the cases, it is the most used language while the second language is secondary in terms of use (Bell, 1976). However, there are situations where the mother tongue loses its position as primary medium of communication, is limited to home and friendship and is displaced in other domains by the dominant language of the host community. In the case of multilingual communities, the different languages are always used in different circumstances, and the choice is always controlled by social rules (Hudson, 1996). On the other hand, Bell (1976) makes the distinction in terms of code-switching at the monolingual level where the individual can change between roles, and that implies linguistic change. In other words, the phenomenon of code-switching amongst monolinguals is seen as stylistic variation (Bell, 1976).

Independently of the language or the community, the choice of language by bilinguals may in specific situations be determined by the sense speakers have about what is appropriate (Esdahl, 2003). These factors “may lead to a code-switch, a so-called situational code-switch” (Esdahl, 2003, p. 78). Both Bell (1976) and Hudson (1996) describe the situational code-switching by positing that when the situations of the speaker change, then the codes also change. As an example of this, Hudson (1996) exposes the case of two family members who are talking, and the situation turns to talking to the neighbors instead of continuing talking only to each other. Among Puerto Ricans, Pousada (2000) reports that in her study, Puerto Rican participants showed that even though they used Spanish at home and with neighbors, they tended to code-switch between Spanish and English most of the time.

Factors Promoting Bilingualism

Even though the possibility of learning two languages is within the bounds of the human language capacity, it cannot be taken for granted as not all people in potentially bilingual

environments become bilingual (Zurer-Pearson 2007). On the other hand, there are several factors that promote bilingualism at the societal as well as at the individual level.

Zurer-Pearson (2007) posits that from all of the factors that parents or communities might have control over, quantity of input is the largest one. A greater amount of input leads to greater proficiency in the second language. However, the age at which the individual is first exposed to a language will affect proficiency. According to Zurer-Pearson, the attitudes of parents and relatives also add value to the language and can accelerate its use and acquisition.

Myers-Scotton (2006) posits that “when speakers add another language to their repertoires, they almost always do so for one reason - because that language will be useful to them in their community, or in another community that they want to join” (p.38). Aside from the reasons that an individual might have to learn another language, Baker (1996) notes that “bilingualism often results in the context of two main conditions: close proximity and displacement” (p. 45).

According to Myers-Scotton (2006), close proximity refers to the ordinary conditions of life within an ethnic group that regularly puts speakers of the ethnic group in close proximity to speakers of another language. These conditions may include having a parent who is not from one’s ethnic group, marrying someone who is not from one’s ethnic group, engaging in an occupation that involves contacts with speakers who are members of ethnic groups outside of one’s own ethnic group, and being a member of a minority group within a bilingual nation. Myers-Scotton posits that “members of minority groups often become bilingual in a dominant national language for both instrumental and psychological reasons” (p. 46). Zurer-Pearson (2007) also provides a close proximity example by positing that in the case of children growing up within a majority language, they are exposed to the majority language through commerce,

education, and the mass media. The more input they receive in the majority language, the more proficient they will be in it. Finally, Cunningham-Andersson and Andersson (2004) state an example related to intercultural marriages. “Some adults who become involved with two languages are in the position that they have met and fallen in love with a person who has a different first language” (p. 2). Thus, when they get married they provide a bilingual environment for their children.

Displacement may also lead to bilingualism. Myers-Scotton (2006) refers to it as “either physical movement or a change of psychological outlook which can promote the need or desire to learn another language” (p.53). Displacement may be brought about by voluntary or forced migration, war, and colonialism. One possible outcome of displacement is bilingualism in both the mother tongue and the language of the host nation as is the case of the Hispanic immigrants in the US. Another outcome of displacement is the recognition on the part of the displaced of the socio-economic value of learning a second language, that is, its instrumental value.

As previously stated, an important fact in developing bilingualism is the instrumental value that having a command of English and a minority language gives to the speaker. Cunningham-Andersson and Andersson (2004) explain that “some parents see their children’s prospective bilingualism as an asset for the future, almost as a qualification which will be useful to the children in their careers” (p. 17). In addition, Worthy and Rodríguez (2006) found that Latino immigrant parents believed that the English proficiency and bilingualism of their children were keys to social and economic advancement. In fact, Cunningham-Andersson and Andersson (2004) explain that in an effort to give the child an advantageous start in life some parents take steps to expose their child to a second language by placing the child in an international school or an immersion language program or simply by having one or both of the

parents speak a language which is not their first language.

Another factor that promotes bilingualism is the prestige and pride that having a command of a second language gives to the speaker. For example, Clachar (1997) points out that English “enjoys a great deal of prestige among Puerto Ricans, particularly in the domains of business, technology, science, medicine, and pharmacy” (p. 122). Cunningham-Andersson and Andersson (2004) point out that “some children find that their abilities in a second language give them a sense of pride” (p. 61). This is due to the fact that “English is a particularly favoured language in many countries and young people in many parts of the world learn English and admire English-speaking musicians and actors” (p. 61). Thus, the children might be motivated to speak it well because of a kind of admiration from peers. In fact, in the case of immigrants Zurer-Pearson (2007) also found that when children are exposed to conversations where everyone is bilingual, there is little chance that interactions occur in the minority language. Also, Zurer-Pearson posits that children are naturally attracted by the majority language.

There are researchers who have shown interest in the factors that promote bilingualism among Puerto Ricans. Scholars such as Clachar (1997, 1998) and Sánchez (1999) coincide by stating that in the case of Puerto Ricans, the English language does have an instrumental value. Clachar (1997) found that Puerto Ricans disagree that Spanish is crucial in order to obtain higher-status jobs and give to the English language a higher instrumental value.

Pousada (2000) reported that Puerto Ricans who considered themselves to be bilingual linked their bilingualism to private school education they received in Catholic schools or private bilingual schools in PR, to living in the US, and to travel opportunities. Pousada also reported that Puerto Ricans having parents who were born in the US was a determinant in the

process of becoming bilinguals.

It is undisputed that English has become the world's lingua franca, the language that is used by people who do not share the same first language. Thus, it is not surprising that Puerto Ricans recognize the value of English. According to Clachar (1998), "Puerto Ricans value it as the language of real political power, the language of the most powerful and influential country in the world, the country of which they are citizens" (p.104). Puerto Ricans also recognize that due to globalization many companies use English as a lingua franca in their communicative interaction with clients, employee-boss, and peer-to peer as well as in technical writing. Schweers and Vélez (1992) report a similar finding when they say, "it is unquestionable that English has been accorded a great deal of prestige by Puerto Ricans, particularly among the socioeconomic and political elite who have been aware of the fact that to strengthen and maintain ties with Americans, they have to be bilingual" (as cited in Clachar, 1998, p. 103). In addition, Torruellas (1990) points out that "English language has become a symbolic class marker as well as the ideal instrument in strategies of distinction among the Puerto Rican elite" (as cited in Clachar, 1998, p.112). Also, Clachar (1997) states that "English language has represented prestige and status among the most affluent of the Puerto Rican society" (p. 72). She adds that those who are well accommodated are the ones able to send their children to the private schools on the island where there are English immersion programs.

Clachar (1998) also explains that prestigious and high-paying professions require fluency in English and that university students need English to read their textbooks. She makes the point that most educated, middle-class Puerto Ricans would like to be bilingual and many are working toward this goal. Finally, Clachar explains in further detail the implications of the presence of English in PR in relation to the political situation of the island. Spanish and

English have coexisted with the coming of the English language in PR. Currently, there are members of the Puerto Rican population who recognize that Spanish has a cultural value and that constitutes a sign of identity. On the other hand, there are members of the Puerto Rican population who belong to an elite and who resist the presence of English in PR; they consider the English language as an imposition. However, there are other sectors whose perceptions of the presence of English have to do with social and economic standing and development. Finally, no matter the level of the bilingualism an individual might have, there are several factors that promote second language acquisition, and displacement seems to be an important example of such factors, especially when displacement has to do with physical movement.

Historical Origins of Puerto Rican Migration to the United States

Because many of the subjects of this study have chosen to migrate to the US, it is relevant to take a look at the different socio-political situations throughout history that have contributed to understand the Puerto Rican migration to the mainland. Geographically, PR is an island that belongs to the Greater Antilles located in the Caribbean. The Caribbean region has been a strategic geographical location. Grosfoguel (1999) points out that “by late nineteenth century, the United States of America had special economic and political interests in the Caribbean region” (p. 236). This had to do with the commercial routes to South America and to the strategic military location for the defense of the US mainland against a European invasion.

Grosfoguel also posits that during the Great Depression and the Second World War, Puerto Ricans and black southerners become the main source of cheap labor for the Northeast industrial complex. In fact, Zayas and Palleja (1988) posit that “Puerto Ricans on the mainland United States depended largely on the strength of the Northeast manufacturing and

service sectors” (p. 260). Maldonado (1979) posits that these Puerto Ricans were recruited to work in the United States to work in agriculture and industries in the Northeast (as cited in Grosfoguel, 1999, p. 237).

Historically, according to Vázquez-Calzada (1979), “the pre-1950’s Puerto Rican migration was composed of skilled and educated urban workers because they were the only ones who could afford the transportation expenses” (as cited in Grosfoguel, 1999, p. 238). After 1950, this migration pattern changed due to the fact that the air fares to the mainland were significantly reduced (Zayas & Palleja, 1988). From 1950 to 1980 the majority of Puerto Ricans migrating to the mainland settled in communities out of New York City. According to Grosfoguel (1999), Puerto Ricans have been subjected to discrimination in the US. Public opinion of Puerto Ricans became extremely negative and their life-style conditions such as housing and medical services were poor.

Zayas and Palleja (1988) and Grosfoguel, (1999) agree that more than 50 per cent of Puerto Ricans in New York were incorporated as low-wage labor in unstable employment conditions in the manufacturing sector. Besides, after the de-industrialization of the Northeast occurred, thousands of manufacturing jobs were lost by Puerto Ricans, aggravating their economic situation in the mainland. In sum, according to Grosfoguel (1999), between 1950 and 1980 Puerto Rican migrants came from unskilled working class backgrounds with a negative socio-political mode of incorporation to the US mainland, just as other minority groups on the mainland. Migration from the island to the mainland today is quite different as many migrants are like the subjects of this study, educated professionals fueling a brain drain from PR.

Puerto Ricans as Hispanics and Immigrants in the US

In the US, “the word ethnic has historically referred to cultural differences among “white” European groups such as Italian, Irish or German” (Grosfoguel, 1999, p. 243). More recently, however, as Grosfoguel explains:

...the racial categories have been used to refer to people of colour such as black, Asian, Hispanic extraction. Since 1960, ethnic in the US has become a code word for race referring to the racialised groups excluded from the community. American is the national identity used to refer to white people (p. 244).

In 2006 the National Research Council held a panel on Hispanics in the US which discussed Tienda and Mitchell’s (2006) work on Hispanics. According to Tienda and Mitchell, “Hispanic, as a term, gained popular currency after being used in the 1980 Census short form and in all subsequent Census Bureau surveys and censuses. The term has been interchanged on occasions with the term “Latino”. Hispanics catalogue themselves as an ethnic group” (p. 37).

However, it is important to highlight that the Hispanic population in the continental United States is not unitary, but is composed of numerous Spanish –speaking ethnic groups whose cultural origins are rich and diverse (Vega, 1990). This population “constitutes the largest ethnic minority group in the continental United States” (p. 1016). According to Tienda and Mitchell (2006), by 2004 there were more than 40 million Hispanic residents in the US. They share a language, origins on two continents, and, since the mid-19th century, an immigration history. Together, eight countries- Mexico, El Salvador, Guatemala, Cuba, the Dominican Republic, Colombia, Perú, and Ecuador- plus Puerto Rico account for some 90 percent of all Hispanics in the US (Tienda & Mitchell, 2006). However, the largest group is Mexican followed by Puerto Ricans. In addition, researchers such as Foulkes and Bruce

(2000) and Vega (1990) state that the Hispanic population is increasing at a much faster rate than the non-Hispanic population, and its impact is evident in US culture, economics, and politics. In terms of geographical location, Hispanics are mostly in California, Texas, New York, and Florida (Vega, 1990).

In terms of Puerto Ricans in the US, 40 per cent are located in New York; 12 per cent are located in New Jersey, and 9 per cent are in Florida (Foulkes and Bruce, 2000). However, there has been an increase among Puerto Ricans migrating from the Northeast area to other Northeastern states and to Florida. According to Foulkes and Bruce (2000), “the Puerto Rican influx into Florida reflected on the attractiveness of Florida’s climate and cultural diversity, and most likely reflects the strong Caribbean orientation of South Florida” (p. 139).

Tienda and Mitchell (2006) point out that the majority of Hispanics in the US is young and work in unskilled or low skilled and low wage jobs. Furthermore, Hispanics have a high high-school drop out rate, and, as a consequence, a lower college enrollment rate and a low level of English language proficiency. The best paid jobs require, to some extent, college or some type of higher education. Nowadays, job positions require English proficiency; consequently, the US government is obliged to invest in schools and in bilingual education. Also, the US government is obliged to motivate potential high-school drop outs to continue college education in order to attain better economic status. As Vega (1990) notes, the proportion of Hispanic families below the poverty level has increased slightly, reflecting substandard levels of educational attainment and family income.

Although Puerto Ricans are Hispanics, their US citizenship together with PR’s political status gives them the freedom to travel and to settle in the US mainland. Zayas and Palleja (1988) recognize two migration patterns among Puerto Ricans. The first one is the circular

migration, which refers to the movements of Puerto Ricans to the continental US, specifically to the major cities of the northeast that began in the 1950's due to the high unemployment rate in PR. The second type of migration is the returning migration. It occurs when employment opportunities decrease on the mainland and Puerto Ricans decide to go back to PR.

With respect to circular migration, by 2000 some 3.5 million Puerto Ricans resided on the mainland, making them the nation's second-largest Hispanic group (Tienda & Mitchell, 2006). According to the US Commission for Employment Policy (1982), "Puerto Ricans on the mainland United States have depended largely on the strength of the Northeast manufacturing and service sectors" (as cited in Zayas & Palleja, 1988, p. 260). By 2000 there were still twice as many Puerto Ricans living in New York (more than 850,000) as in San Juan. Roughly half of all Puerto Ricans live on the mainland, the other half on the island. The implications that these migration patterns have or have had for Puerto Ricans are a valuable tool for the purpose of this study.

Cultural and Social Implications as a Result of the Immigration

The cultural and social implications that result from immigration are relevant to those subjects in this study who have decided to accept a job offer in the mainland. According to Zayas and Palleja (1988), circular migration among Puerto Ricans has engendered changes in the family's lifestyle from traditional, island values toward contemporary American cultural values. In fact, Muschkin and Myers (1989) report that "recent migrants from Puerto Rico have an overrepresentation of disrupted families" (as cited in Vega, 1990, p. 1018). There are also intergenerational changes in ethnic identity (Zayas & Palleja, 1988). For example, Rogler and Ortiz (1980) found in their study that:

...the first-generation Puerto Rican immigrant parents hold older island values and norms more strongly than do their children. On the contrary, adult children who have been exposed to extended periods of residency on the mainland are less likely to speak Spanish, to report Spanish fluency, and to listen to Spanish-language radio and television (as cited in Zayas & Palleja, 1988, p. 260).

Nevertheless, Puerto Ricans show a marked tendency to maintain their cultural identity. For example Grosfoguel (1999) posits that even though Puerto Ricans in the US are racialised subjects, they resist using a hyphenated identity such is the case of Mexican-Americans. Rather, they prefer to be called Puerto Ricans. Another example of how Puerto Ricans manifest this tendency is through language maintenance. Tajfel (1982) points out that “since language is an important dimension of social comparison and in group identity, its members are likely to adopt some strategies in order to assert their linguistic distinctiveness (as cited in Clachar, 1997, p. 111). Examples of these strategies include accented speech styles, switching to in group language, or, simply, not achieving native-like proficiency in a second language (p. 111).

On many occasions, the discrimination that Puerto Ricans receive in the US reinforces a feeling of belonging to the island; “such a sense of belonging is promoted and reinforced through family and social networks between the island and the metropolis” (Grosfoguel, 1999, p. 245). Interestingly, these Puerto Ricans who live or were born in the US are discriminated against there as well as on the island. Even Puerto Ricans who belong to second, third or fourth generation Puerto Ricans on the mainland are also discriminated against on the island whenever they visit it. Their cultural hybridity is not tolerated by the nationalist intellectuals on the island or by Puerto Rican middle classes due to the fact that it is seen as threat to the

Spanish and African heritage. These factors raise the question of who is or who is not a Puerto Rican which is totally grounded in nationalism.

Grosfoguel (1999) explains that “Puerto Rican as a form of identity means different things for Puerto Ricans born and raised either on the island or in the United States” (p. 246). In addition, Grosfoguel (1999) posits that the reality is that many middle class Spanish-speaking Puerto Ricans on the island are more assimilated to American ‘white’ cultural practices through media. Puerto Ricans who are between the US and the island are constantly struggling to maintain an identity grounded in the Puerto Rican national identity produced in the island. “They articulate their identity in the transnational space between the metropolis and the island through ethnic and national claims simultaneously” (p. 246). However, as Grosfoguel describes, the reality is that the migration experience of these Puerto Ricans makes them mix and acquire a multiplicity of practices from different cultures, redeploying cultural practices of the country of origin in new and transformed ways. The Puerto Rican identity in the US has diverse meanings in different contexts (Grosfoguel, 1999). In fact, Grosfoguel et al. (1997) introduce the term ethno-nation to refer to a “process rather than to a concept or a fixed reality with emphasis on both sides depending on the context” (as cited in Grosfoguel, 1999, p. 246). In sum, “each individual reproduces the ambiguities of transnationalism which emerge from the ambiguous status of colonial people like Puerto Ricans” (p. 246-247).

Another implication from migration patterns that Puerto Ricans can experience as Hispanics is the cultural maintenance through “familism”. Generally speaking, “the belief that Hispanics are more family-oriented than Anglos has been a consistent theme in the social sciences” (Vega, 1990, p. 1018). For decades, researchers have observed distinctive traits among Hispanics. For example, they have larger kinship networks and engage in high rates of

visiting and exchange with their native countries. Also, compared to Americans they place a higher value on the family due to the affective and emotional needs that it injects in their daily lives. For Hispanics, family is a source of emotions rather than having an instrumental value. According to Vega (1990) Hispanics migrate towards their relatives rather than migrate far from them.

Vega specifies that the reasons why family members prefer contact with each other can have multiple and simultaneous rationales which might be difficult to discover in a single study. According to Rogler and Cooney (1984) posit that “the Puerto Rican cultural value of familism has been described as a traditional modality that emphasizes the obligation and duties of family members to one another (as cited in Zayas & Palreja, 1988, p. 260). Zayas and Palreja (1988) explain that “as a core value of Puerto Rican families on the United States mainland, familism has endured the changes in cultural values brought about by repeated migrations between the United States and Puerto Rico” (p. 260). The reality is that once on the mainland, there are some threats to cultural identity. However, “despite the changes the Puerto Rican family on the United States has undergone, it continues to retain many aspects of its ethnic identity and cultural values” (p. 260).

Studies on English Usage in the Work Domain

Since this study had to do with English usage in the work domain, it is pertinent to look into previous literature in this area. Blau, Galanti and Sherwin (1989) conducted a study designed to determine the reactions of monolingual and bilingual employment interviewers to local lexical and syntactic errors in the business and technical writing of non-native speakers of English. At the time there was no published research on the writing of non-native speakers in the workplace; the studies that had been done were related to native speakers rather than to

non-native speakers. Their results indicated that, overall, interviewers judged syntactic errors more negatively than lexical errors. They found that “the presence of small, irritating syntactic errors in writing matters in the world of work” (p. 143), suggesting that teachers should give special importance to correcting such errors. Interestingly, there was no significant difference between the judgments of monolingual or bilingual interviewers.

Eda (1994) conducted research with two groups in Japan. The first group included both students and teachers from different universities in Japan. The second group included employees at different workplaces in Japan. Eda asked subjects in the first group about their perceptions of their future uses of English, with a focus on the skills they would need in the workplace. She asked the second group, subjects who were already in the workplace about their uses of English. Eda then did comparisons between the two groups and concluded that the curriculum should be more communicative or should put more emphasis on communications skills and should focus on teaching English as an international language rather than in terms of translation or grammar. This contrasts with Blau et al. (1989) whose recommendations focused primarily on grammar and syntax. Whereas the Japanese curriculum at the time of Eda’s study emphasized grammar and translation, in PR there may be less concern about grammatical accuracy. Thus, the contrast reflects the differences between the Japanese and the Puerto Rican contexts.

Román (1999) wanted to find out how much English was used in manufacturing plants in PR to find out how many employers request bilingual applicants in job advertisements. Primarily, she used two instruments: newspaper analysis and questionnaires on English usage administered to employees at Puerto Rican manufacturing companies. She divided it into two main newspapers: “El Nuevo Día” and “The San Juan Star” to see how frequently bilingual

requirements appeared. The majority of the job categories advertised in the newspapers was for positions in Media and Communication and Office and Management and few employers asked for bilingual employees in PR.

Román also found that English is rarely used in manufacturing companies and that the less formal the domain the less English is used. English is never used among people holding low level jobs while those in high level jobs inflated their ability to use English. In terms of the relationship that English proficiency has with getting promotions within the companies, she found that high proficiency played a decisive role. However, in both companies she looked at, she found from high-level jobs to low-level jobs, the majority of the subjects indicated that they would be promoted if they increased their English language proficiency (p. 92-93). Thus, the development of English proficiency is relevant as a means of professional growth. The subjects considered the English language in terms of the cultural and social capital that could be achieved by becoming proficient in English.

Román's study is particularly important for this study because she established comparisons between English proficiency and the work domain. However, the study was conducted in 1999, and I believe that the results might be quite different now in 2007, especially in terms of the bilingual skills required for job positions advertised in the newspapers. Also, her study was conducted mainly with manager, office and media job positions rather than with engineering or technology positions.

Finally, Sánchez (1999) conducted a descriptive study of the use and importance of written English communication in selected business settings in PR. In order to collect the data, she distributed a questionnaire to employers and one to the employees; she also analyzed writing logs of the comments made by the participants during interviews. Her findings

revealed that “workers with different educational levels and salaries, at all organizational levels and in all job classifications, use written English” (p. 194). Also, Sánchez found that respondents having higher salaries and educational levels use English for writing to a greater degree than those with lower salaries and less education. Another finding revealed that the vast majority of blue collar workers use only or mostly Spanish for writing at work, whereas workers at other organizational levels tend to use substantially more English for writing. Since her study was conducted in PR, many organizations’ internal communication tends to be in Spanish.

In terms of the settings where Sánchez’s participants used English, her findings revealed that “the vast majority of federal agencies in PR use only or mostly English for writing” (p. 195). In fact, federal government respondents reported that for them, to write in English is obligatory. In contrast, local government employees use only or mostly Spanish for writing. In the private sector, more written English is utilized in manufacturing and services than in other sectors. Sánchez’s study is particularly important because it dealt specifically with how much written English subjects used at work. However, as in the case of Román’s study, this study was also conducted in 1999. Thus, results might be quite different now in 2007.

Even though other studies on English use in the workplace might exist, I did not find any specific study about English as used by former UPRM engineering students in their workplaces in PR and the US. However, based on Tienda and Mitchell’s (2006) definition of Hispanics, former UPRM engineering students fit into the Hispanic group; the majority of them consider themselves to be bilingual or fully bilingual and go to the US for jobs in industry and technology. However, I did not find any specific study or previous work about former UPRM engineering students who join the US workforce nor a description of it or how they project and

perceive themselves as immigrants and whether or not they fight to maintain their cultural identity in the area where they live and work. In addition, I did not find data on the specific reasons that make former engineering students go to the US or on whether or not they intend to return to PR.

Research Questions

In order to fill these gaps and to make a contribution to the information that the UPRM has on its former engineering students, this study addressed the following research questions:

1. What English language preparation did the UPRM engineering graduates receive from the UPRM before they graduated?
2. Did the English language play a role in engineering graduates' decision to accept employment in Puerto Rico (PR) or in the continental United States (US)? Specifically, did the participants' English language skills contribute to their decision to accept a job offer in PR or in the US?
3. Does English currently play a role in the lives of the engineering graduates, particularly in the domains of 1) work, including professional growth and advancement, and 2) home? Are there differences in the role that English plays in the lives of the engineering graduates who work in PR and the engineering graduates who work in the US?
4. Are there gender differences in the role that English plays in the lives of male and female engineering graduates?

Chapter III: Methodology

This chapter describes the methodology for data collection and data analysis. In the section on data collection, I discuss the researcher, the instrument, the participants, and Institutional Research Board (IRB) authorization. In the section of data analysis I discuss how I analyzed the data.

Data Collection

The Researcher

I was the principal researcher of this study and data collector. I became interested in this study not only because I was a graduate student enrolled in the MAEE program in the Department of English, but also because I have been an academic advisor in the Electrical and Computer Engineering Department at UPRM since 2001. Having this position has given me the opportunity to become familiar with the academic concerns of engineering students, particularly their concerns about their command of the English language and their resistance toward taking English courses in addition to those which are required by their curricula. The fact that I am an academic advisor at UPRM helped me to contact former engineering students once I decided to focus on English in the lives of graduates of the College of Engineering from the UPRM.

The Instrument

The instrument was a web-based questionnaire which I constructed with the guidance of my graduate committee. Before responding to the questionnaire, participants were asked to read and sign the Informed Consent Form. There were two versions of this form, one in English (see Appendix A) and one in Spanish (see Appendix B).

There were two versions of the questionnaire, one in English (see Appendix C) and one in Spanish (see Appendix D). The questionnaire had 106 items which were organized into four parts. Part I asked for socio-demographic information. Part II asked for information about UPRM English preparation for the workplace. Part III asked for information about English in work and home domains, and Part IV consisted of two open ended questions which asked for information about leaving PR for work and working in PR.

As Dörnyei (2003) points out, “an integral part of questionnaire construction is field testing, that is, piloting the questionnaire at various stages of its development on a sample of people who are similar to the target sample the instrument has been designed for” (p. 63). To pilot the questionnaire, I picked four former UPRM engineering students who graduated between 1997 and 2007 from the Departments of Computer and Electrical Engineering. These former students completed the questionnaire. Once they finished it, they gave me suggestions in terms of its layout and questions. I also got a sense of the approximate amount of time that participants might need to complete the questionnaire.

I posted the Spanish and English versions of the completed questionnaire, including the Informed Consent Form, on the web-site of the Electrical and Computer Engineering Department at UPRM so participants could access it through the web-site and choose the language they wanted to use to complete it and so that it was available through an official UPRM site.¹¹

¹¹ <http://www.ece.uprm.edu/~damaris/>

The Participants

The participants for this study were 100 former UPRM engineering students. To reach these participants, I accessed a database provided by the UPRM Alumni Office. The database contained contact information for 3,437 former UPRM engineering students who had graduated from the College of Engineering from the years 2000-2006 from the following engineering departments: Agricultural, Chemical, Civil, Computer, Electrical, Industrial, and Mechanical. To gain permission to use the database, I signed an agreement with the Alumni Office stating that the information from the database was going to be used only for academic and research purposes (see Appendix E).

I sent an email Invitation Letter in Spanish to the 3,437 former students in which I explained the goals and objectives of my study and invited them to participate in my study (see Appendix F). Apparently, some of the former students from the database discussed my study with other former engineering students with whom they worked. These students expressed an interest in participating in the study so that I was able to expand the study to include former students whose graduation years spanned the years from 1985 – 2006.

A total of 230 former engineering students responded to my email invitation letter and expressed their interest in participating in my study. I sent emails to these former students which included: 1) a username and a password for each one of them to use to gain access to the questionnaire to make sure that no one responded to the questionnaire twice, 2) a uniform resource locator (URL) which corresponded to the English version of the questionnaire¹², 3) a

¹² <http://ece.uprm.edu/~damaris/public/survey.php?name=roleOfEnglish>

URL which corresponded to the Spanish version of the questionnaire¹³, and 4) an English and a Spanish version of an Informed Consent Form (Appendices A and B). One hundred former students, 43% of the 230 former students, returned the questionnaire. They form the convenience sample on which this study is based.

IRB Authorization

The Institutional Committee for the Protection of Human Being Research (CPSHI)¹⁴ is in charge of IRB at UPRM. Before collecting the data, I fulfilled all the requirements established by the CPSHI in order to get the authorization to start the data collection. The data was collected from June – August, 2007.

Data Analysis

To analyze the questionnaire data, I tallied the results of closed question items. I grouped the tallied results by gender and by where the participants worked, PR or the US. I grouped the responses of by the participants to the open-ended questions. I interpreted the data in light of the stated research questions and objectives. The next chapter discusses the results of the analysis.

¹³ http://ece.uprm.edu/~damaris/public/survey.php?name=roleOfEnglish_Spanish_Version

¹⁴ <http://www.uprm.edu/cpshi/>

Chapter IV: Results and Discussion

Socio-Demographic Characteristics of the Participants and their Parents

One hundred former UPRM engineering students responded to the questionnaire. Of the total, 60% of the participants were male; 38% were female, and 2% did not report gender. Their ages ranged from 22 years old to 47 years old, but both the average and the median age was 28. As shown in table 2, of the total, 89% of the participants were born in Puerto Rico (PR) while 94% of the participants were raised in PR and reported that Spanish was their first language; 4% reported that English was their first language, and 2% did not report their first language. Sixty-four percent of the participants reported that they were married. Of this 64%, 77% (n=49) were married to Puerto Ricans.

Table 2. Where participants were born and raised by gender

Born and raised		Gender			Total
		Male	Female	No gender response	
Born	Puerto Rico	54	35	0	89
	United States	3	3	0	6
	Other	3	0	0	3
	No response	0	0	2	2
Total		60	38	2	100
Raised	Puerto Rico	58	36	0	94
	United States	0	0	0	0
	Other	2	2	0	4
	No response	0	0	2	2
Total		60	38	2	100

As shown in table 3, over 90% of the participants, both males and females, attended elementary school (92%), intermediate school (96%), and high school (96%) in PR.

Table 3. Where participants received their pre-college education by gender

Place of pre-college education		Gender			Total
		Male	Female	No gender response	
Elementary School	Puerto Rico	55	36	1	92
	United States	2	1	0	3
	Other	3	1	0	4
	No response	0	0	1	1
Total		60	38	2	100
Intermediate School	Puerto Rico	58	37	1	96
	United States	0	0	0	0
	Other	2	0	0	2
	No response	0	1	1	2
Total		60	38	2	100
High School	Puerto Rico	58	37	1	96
	United States	0	0	0	0
	Other	2	0	0	2
	No response	0	1	1	2
Total		60	38	2	100

As shown in table 4, roughly half of the participants attended public schools whereas half of the participants attended private schools for elementary, intermediate, and high school. Of the half who reported that they had attended private schools, roughly half reported that they attended private bilingual schools while the other half reported that they attended private non-bilingual schools through elementary school, intermediate school, and high school. Roughly the same percents of males and females attended private bilingual schools. A higher percent of males than females attended public schools for elementary, intermediate, and high school whereas a higher percent of females than males attended private non-bilingual schools for elementary, intermediate, and high school.

Table 4. Participant’s public and private school education for elementary, intermediate and high school by gender

School level	Gender	Private Bilingual School	Private Non-Bilingual School	Public School	No response	Total
Elementary	Male	13 (22%)	12(20%)	35(58%)	0	60
	Female	8(21%)	12(32%)	18(47%)	0	38
	No gender response	0	0	1	1	2
Total		21	24	54	1	100
Intermediate	Male	14(23%)	12(20%)	34(57%)	0	60
	Female	7(18%)	17(45%)	13(34%)	1	38
	No gender response	0	0	1	1	2
Total		21	29	48	2	100
High School	Male	13(22%)	10(17%)	37(62%)	0	60
	Female	9(24%)	10(26%)	19(47%)	1	38
	No gender response	0	0	1	1	2
Total		22	20	56	2	100
Grand total		64(21%)	73(24%)	158(53%)	5(2%)	300

As shown in table 5, the majority of the participants reported that their mothers (83%) and their fathers (85%) were born in PR. Slightly over a third reported that their mothers (36%) and their fathers (41%) had lived in the US. Ninety-five percent of the participants reported that Spanish was the first language of both their parents. A higher percent of the participants reported that their fathers (69%) spoke English than reported that their mothers (59%) spoke English. Almost all (93%) the parents, both mothers and fathers, had graduated from high school, and almost two thirds (64%) of the parents had graduated from college. A slightly higher percent of the participants reported that their mothers (67%) had graduated from college than reported that their fathers (60%) had graduated from college.

Table 5. Socio-demographic information about the participants' parents

Socio-demographic	Mother	Father	Total	
	N=100	N=100	N=200	%
Born in Puerto Rico	83	85	168	84%
Has lived in continental United States	36	41	77	39%
Spanish is the first language	96	95	191	96%
Speaks English	59	69	128	64%
Graduated high school	93	92	185	93%
Graduated from college	67	60	127	64%
Total	434	442	876	100%

At the time data was collected, 43% of the participants lived in PR while 57% lived in the US. Of the participants who lived in PR, 67% lived in municipalities in the northeast and northwest parts of the island. Of the participants who lived in the US, 85% lived in states located in the northeast (33%), southeast (26%), and mid-west (26%) of the US. Of the participants who lived in the US, 9% (n=5) reported that they had lived there less than a year; 32% (n=18) reported that they had lived there from 1 to 3 years; 40% (n=23) reported that they had lived there from 4 to 6 years; 14% (n=8) reported that they had lived there more than 7 years, and 5% (n=3) did not respond.

As shown in table 6, all but one of the participants, an unemployed male living in PR, reported that they were employed at the time when they responded to the questionnaire. Forty-two percent of the participants worked in PR; 57% worked in the US. One female who lived in PR and reported that she worked electronically for an employer in the US was counted as

working in PR. The unemployed participant who answered many of the questions was also counted as working in PR. Item #28 asked the participants the name of the company they worked for; 78% of the participants worked in private industry; 16% worked in government; 2% worked in academia, 1% was an independent contractor, 2% did not respond, and 1% of the participants was unemployed. Item #29 asked the participants for their job position. Fifty-nine participants held a position that included the word *engineer*; of the other 41, nine were managers; six were analysts; four were supervisors; three were team leaders, and three were specialists. There were two of each of the following: planners, inspectors, and scientists. There was one of each of the following: a consultant, an examiner, a director, a coordinator, an agent, a designer, an associate, and a teaching assistant. One did not respond, and one was unemployed.

Table 6. Place of work and residence of participants by gender

Place of work	Male	Female	No gender response	Total
Puerto Rico	27	15	1	43
United States	33	23	1	57
Total	60	38	2	100

Item #23 asked the participants for the year when they graduated; item #22 asked them from which engineering department they received their BS degree, and item #24 asked them if they had obtained a higher degree. The year the participants graduated with their BS degrees from UPRM ranged from 1985 to 2006, with 2001 the average year of graduation and 2002 the median year of graduation. As shown in table 7, 26% of the participants received their BS degree from the Department of Mechanical Engineering, followed by the Departments of Industrial Engineering (20%), Computer Engineering (19%), Civil Engineering (18%), Chemical Engineering (8%), and Electrical Engineering (7%). There were no participants who

received their BS degree from the Department of Agricultural Engineering¹⁵. A higher percent of males than females obtained their BS from the Departments of Mechanical and Computer Engineering; a higher percent of females than males obtained their BS from the Departments of Industrial and Civil Engineering. Roughly a third (29/100) of the participants reported that they have obtained an MS degree. These participants included one who did not report gender. Otherwise, a higher percent of females (32% = 12/38) than males (27% = 16/60) reported that they have obtained a MS degree.

Table 7. Engineering departments from which the participants received their BS degrees by gender

Engineering Department	Gender						Total	
	Male		Female		No gender response		N	%
	N	%	N	%	N	%		
Mechanical	18	30%	7	18%	1	50%	26	26%
Industrial	9	15%	11	29%	0	0%	20	20%
Computer	13	22%	6	16%	0	0%	19	19%
Civil	9	15%	9	23%	0	0%	18	18%
Chemical	4	7%	4	11%	0	0%	8	8%
Electrical	6	10%	1	3%	0	0%	7	7%
Agricultural	0	0%	0	0%	0	0%	0	0%
Did not answer	1	1%	0	0%	1	50%	2	2%
Total	60	100%	38	100%	2	100%	100	100%

¹⁵ There were no respondents for the Department of Agricultural Engineering because this department does not belong to the College of Engineering at UPRM; it belongs to the College of Agricultural Sciences at UPRM.

Results for Research Question #1

Research question #1 read as follows: What English language preparation did the UPRM engineering graduates receive from the UPRM before they graduated? To address this question, I examined items #44 - #64 on the questionnaire.

Item #45 asked the participants to indicate what their first English course as a freshman at the UPRM had been. According to the responses, 10% entered UPRM and were placed in Pre-Basic English (INGL066), 36% were placed in Basic English (INGL3101), 31% were placed in Intermediate English (INGL3103), and 21% were placed in Advanced English (INGL 3211). Two percent of the participants did not reply to the question. Overall, almost half (46%) of the participants were placed in the lower two English proficiency courses (Pre-Basic and Basic English) and half (52%) were placed in the higher two English proficiency courses (Intermediate and Advanced English).

Item #44 asked the participants if they agreed with the assertion that the UPRM is a bilingual school. Seventy-five percent of the participants agreed that the UPRM is a bilingual school, but 25% of the participants disagreed. Disagreement did not seem to be determined by where the participants lived as the participants who disagreed included 28% (12/43) of the participants who lived in PR and 23% (13/57) of the participants who lived in the US. A higher percent of males (28% (17/60)) than females (16% (6/38)) disagreed that the UPRM is a bilingual school. The lower the proficiency level, the higher the percent of disagreement that the UPRM is a bilingual school. Fifty percent of the students who were placed in Pre-Basic English when they entered the UPRM disagreed that the UPRM is a bilingual school compared to 25% who were placed in Basic English, 25% in Intermediate English, and 15% in Advanced English.

Except for students in Advanced English, all students who enter the UPRM are required to take at least two years of English as part of their academic program, regardless of their major. After they complete the two year English requirement, students have the option of taking more English courses as electives. Items #46 - #49 asked the participants if they had taken only the English courses required by their academic program (#46), if they had taken any of three English courses, Technical Writing, Public Speaking, and Conversational English (#47), why they had not taken any other English courses as elective courses (#48), and which courses they would have liked to have had the opportunity to take during their college years (#49).

In response to item #46, 84% of the participants reported that they had taken only the English courses they needed to fulfill the requirement for their program. Only 16% of the participants had taken English courses outside of their program. In response to item #47, 26% of the participants reported that they had taken Technical Writing; 8% reported that they had taken Conversational English, and 2% reported that they had taken Public Speaking while 62% of the participants reported that they had taken none of the three courses: Technical Writing, Conversational English, or Public Speaking.

In item #48, the participants who reported that they had taken none of the three courses in item #47 were invited to write in the reason why they didn't take other English courses as elective courses. The reasons why 62% of the participants did not take other English courses, such as Technical Writing, Conversational English, and Public Speaking, as elective courses fell into several groups of reasons¹⁶.

The first group of reasons (n=5) was that participants did not think they needed to take any more English. The participants wrote things such as: 1) "I was already fluent in English" 2)

“I felt confident about my English skills” 3) “I didn’t take any courses because I did not feel that these electives would help me succeed as my English skills were already strong” 4) I wanted to take other languages since I have a good knowledge of English” and 5) “Porque aunque no con fluidez, entiendo bastante bien el inglés.”

The second group of reasons (n=4) was that participants felt they got enough exposure to English through its use as a medium of instruction in other courses in the UPRM. The participants wrote things such as: 1) “...Algunos profesores de matematicas e ingenieria daban su clase en ingles, por lo que paralelamente se practicaba el ingles” 2) “...I also thought that having engineering courses in English (or English based, I should say) was sufficient” 3) “...I also was more interested in film classes which in most cases were provided by english professors.” 4) “En este estudio se ignora un factor muy importante. No se como sera ahora en el departamento de Ingnieria Mecanica, pero hace 10 anos la mayoria de las clases que yo tome de ingenieria fueron en ingles y con profesores que hablaban mayormente ingles. Yo considero que esto fue lo que me ayudo a convertirme en bilingüe (ya que en la escuela publica la ensenanza del ingles es muy pobre). Cursos de ingles en el RUM solo tome 4. De todos estos el unico que realmente me ayudo en la pronunciacion y fluidez fue una clase de Fonetica que tome en mi segundo ano.”

The third group of reasons (n=7) was that the participants had taken English courses other than the three, Technical Writing, Conversational English, and Public Speaking, mentioned on the questionnaire. Three participants took literature courses; two took film courses, and two took linguistics courses. One of the participants who took a film course wrote, “Tomé el curso: Temas en el cine, porque me interesaba mucho en el tema y me pareció un curso excelente.” One

¹⁶ Open ended responses by participants are reported exactly as written on the questionnaire.

of the participants who took a linguistics course wrote “como electiva tambien tome un curso de Fonetica en ingles. Este fue mucho mas util que el de Ingles conversacional (que fue una perdida de tiempo).”

The fourth group of reasons (n=17) had to do with the participants' interest in English courses. Some students (n=4) were just not interested in English courses and wrote things such as “El ofrecimiento de cursos adicionales de ingles no llamo mi atencion (no los encuentre interesantes).” Other students (n=13) were just more interested in other courses than they were in English courses. The participants who were just more interested in other courses wrote things such as: 1) “Por que habian otros cursos mas interesantes para mi,” 2) “No tomé adicionales como electiva libre porque prefería tomar otros cursos como psicología...” 3) “Por que me interesaba más Economía y los tomé todos en Economía y una clase ADEM” 4) “Tenia un enfoque en desarrollo Personal sobre Profesional al la hora de escoger cursos electivos. Preferí la Psicología, Filosofía, Biología, etc.” 5) “pense que era suficiente los 2 años basicos mas queria tomar otros cursos con mis electivas libres” 6) “Porque no eran necesarios y preferia tomar otros cursos que yo pense me hiban a ayudar mas or me interesaban mas.”

The fifth group of reasons (n=7) had to do with a lack of orientation about the English courses. The participants wrote things such as: 1) “falta de orientacio; si hubiera sabido lo mucho que se usa el conversacional y el redaccion los hubiera tomado” 2) “Ignorant” 3) “never thought of taking them as electives” 4) “no conocia de ellos” 5) “no pense al momento” 6) “no estaba bien informada, y no tenia el interes ni el tiempo en ese momento.”

The sixth group of reasons (n=6) was that the participants did not realize the importance of English when they were students. The participants wrote things such as: 1) “At that time I did not realize how important is the language to my career. I was more worried on getting an A than

improve my english. I really regret that decision I would have taken more english courses” 2) “I didn’t think they were going to be crucial into my degree” 3) “Not interested. Didn’t know that I was going to need them later. Didn’t realize their importance at that moment” and 4) “Inconciente de la importancia del ingles. A pesar de q quieren que la institución sea un bilingue por tener todos los libros en ingles y profesores anglo parlantes, la realidad es q un estudiante puede graduarse con altos honores sin hacer mucho uso de este durante sus años de estudio, por lo q aprender ingles en el Colegio en cierta manera pierde importancia.”

The seventh group of reasons (n=8) was that taking additional English courses, other than the required courses, was not a requirement or a priority for the participants. They wrote things such as: 1) “It was not required” 2) “It wasn’t a priority for me. I took graduate courses in my area of expertise within Civil instead” 3) “It wasn’t my priority at the time and they weren’t required” and 4) “At the time it wasn’t one of my priorities.”

The eighth group of reasons (n=4) was that the participants did not like the English courses at the UPRM. The participants said things such as: 1) “Me disgustaron mucho los cursos de ingles que tome, por lo tanto no me llamaron atencion” 2) “Luego de tomar el curso titulado Inglés de Honor, decidí que la enseñanza de inglés en el Recinto de Mayaguez carecia, al menos en aquel momento, de utilidad práctica. Por tanto, invertí mi tiempo y dinero en cursos más pragmáticos” 3) “No me convencia la forma de enseñanza del idioma” 4) “Perdida de confianza; luego de haber tomado los 4 cursos requeridos y no ver un gran mejoría, perdi la confianza en q cursos adicionales fueran de verdadera ayuda...ya que entendía q para aprender inglés era preferible irme a USA y no con la educación dada en el Colegio.”

The ninth group of reasons (n=4) is that participants had difficulties fitting English electives into their schedules. They wrote things such as: 1) “no time, I took my electives in

social studies” 2) “I thought about taking the Technical Writing course, but I had already taken all necessary free electives” 3) “the semesters that I was interested in taking them, I could not fit them into my schedule” 4) “entre las clases de ingenieria y las sociohumanisticas practicamente tomaban todo el tiempo disponible.

The tenth group of reasons (n=3) had to do with how the English electives take up time and how, particularly if one is afraid of English, one runs the risk of bringing down a grade point average if one does poorly. The participants wrote things such as: 1) “tenia que dedicarle mucho tiempo” 2) “como sentia miedo al ingles no quise tomar cursos que me pudieran afectar mi promedio” 3) “No lo veia necesario. El estudiante tiene bastante carga academica y decide no complicarse mas las cosas.” Finally, one reason had to do with attitudes toward English; another reason had to do with perceived attitudes of the Department of English toward engineering students. One student wrote that s/he just did not like the English language: “no me gusta el idioma ingles.” Another student wrote that the English Department is prejudiced against engineering students: “...there is a general sense that the english dept faculty is bias against engineering students.”

In response to item #49 which asked the participants which courses they would have liked to have taken during their college years if they had had the opportunity, 59% percent reported that they would have liked to have taken Business Communication; 45% Conversational English; 40% Technical Writing, and 27% Public Speaking.

Item #50 asked the participants if they had participated in an exchange program or a Plan Coop program in the US while they were students at the UPRM and if so where the program was. Thirty-five percent of the students, half male (n=18) and half female (n=17), indicated that they had participated in such a program while they were students at the UPRM. Of these 35

students, 63% (n=22) entered the UPRM at either the Intermediate English (n=13) or the Advanced English (n=9) proficiency level. Eighty-nine percent (n=31) of the students participated in a program which was in the US, and 80% (n=28) of the students were working in the US when they participated in this study. Item#51 asked the students why they had been motivated to participate in the program. Of the 35 students, 74% (26/35) indicated that they had participated in order to get experience before graduation. A much lower 28% (10/35) indicated that they had participated to improve their English skills while 23% (7/35) indicated that they had participated to earn some money. Twenty percent (7/35) indicated that they had participated for all three reasons: experience, improvement of English skills, and money.

Item #52 asked the participants if they thought that the English courses at the UPRM had helped them in their process of becoming bilingual. Forty percent of the participants indicated that they thought that the English courses at the UPRM had helped them in the process of becoming bilingual while 60% of the students indicated that they did not think that the UPRM English courses had helped them in the process of becoming bilingual, despite the fact that 75% of the participants agreed that the UPRM is a bilingual school. The students who indicated that they thought the English courses at the UPRM had helped them in their process of becoming bilingual included only one (10% (1/10) of the students who entered the UPRM at the Pre-Basic level and 29% (6/21) of the students who entered the UPRM at the Advanced level. It also included 47% (17/36) of the students who entered the UPRM at the Basic level and 52% (16/31) of the students who entered the UPRM at the Intermediate level. Thus, the students who indicated that they thought the English courses at the UPRM had helped them in their process of becoming bilingual were students from the two middle proficiency groups, Basic and Intermediate, not students from either the lowest proficiency, Pre-Basic, or highest proficiency,

Advanced, groups.

Items #53 - #58 asked the participants to rate, or grade, the preparation for the world of work that they thought the English courses at the UPRM had offered to them as an engineering major in the following six areas: reading, listening, speaking, vocabulary, grammar, and writing skills. Given a five-point rating scale ranging from (A) excellent to (B) good to (C) satisfactory to (D) barely passing to (F) failing, a relatively low percent of the respondents graded the areas as either (D) or (F). Most of the respondents graded the areas as (A), (B), or (C). The rating of (A) for excellent was the mode for preparation in reading skills (38%). The rating of (B) for good was the mode for preparation in vocabulary (48%), writing (48%), grammar (47%), listening skills (37%), and speaking skills (37%). The highest percent (17%) of (D) for barely passing and (F) for failing was given to preparation in speaking skills. The rating of (B) was the mode (41%) for the six skills taken together, followed by (C) (26%), followed by (A) (19%), followed by (D) (7%), followed by (F) (3%).

Items #59-#64 asked the participants to report how much the English courses at UPRM had helped them to improve in the following six areas: conversational English, their understanding when participating at a professional conference, understanding of academic texts, ability to write essays and reports, ability to speak formally in English, ability to speak casually in English. Given a four-point rating scale ranging from 'a lot' to 'enough' to 'just a little bit' to 'not at all', the rating of 'a lot' was not the mode for how much the English courses at the UPRM had helped the participants to improve in any of the areas. The rating of 'enough' was the mode for preparation in ability to write essays and reports (39%), understanding of academic texts (38%), and understanding when participating at a professional conference (29%). The rating of 'just a little bit' was the mode for conversational English

(48%), ability to speak formally in English (38%), and ability to speak casually in English (28%). The rating of 'just a little bit' was the mode (30%) for the six areas taken together, followed by 'enough' (27%), 'not at all' (17%), and 'a lot' (13%).

In summary, overall, the participants rated the preparation they received from the UPRM English courses as 'good'; in addition, most of them considered the UPRM to be a bilingual institution. In terms of the courses that they took when they were studying at UPRM, the majority of them took only the courses that were required for their academic program. They also indicated that they would have liked to have taken courses related to Business Communication, Conversational English, Technical Writing and Public Speaking.

Results for Research Question # 2

Research question # 2 read as follows: Did the English language play a role in engineering graduates' decision to accept employment in Puerto Rico (PR) or in the continental United States (US)? Specifically, did the participants' English language skills contribute to their decision to accept a job offer in PR or in the US?

To address research question #2, I examined several items on the questionnaire. The first set of items that I examined included items #98-#104. Item #98 asked the participants if their current job position was in PR or the US. Fifty-seven participants indicated that they worked in the US while 42 participants indicated that they worked in PR, and one participant who lived in PR indicated that s/he was unemployed. I counted the unemployed participant with the 42 participants, for a total of 43 participants, who worked in PR.

Items #102, #103, and #104 were directed at participants who indicated in item #98 that they worked in the US. The three items asked the participants to use a four-point scale to express their degree of agreement or disagreement with three assertions. Item #102 asserted that the participants' decision to accept a job in the US had to do with personal reasons such as family, religion, political, and personal beliefs. Item #103 asserted that the participants' decision to accept a job in the US had to do with their good English language skills. Item #104 asserted that the participants' decision to accept a job in the US had to do mostly with economic reasons and better wages.

As shown on table 8, 86% of the participants either agreed (32%) or strongly agreed (54%) that their decision to accept a job in the US had to do mostly with economic reasons and better wages. Sixty percent of the participants either disagreed (14%) or strongly disagreed (46%) that their decision to accept a job in the US had to do with personal reasons while 63%

of the participants either disagreed (30%) or strongly disagreed (33%) that their decision to accept a job in the US had to do with their good English language skills

Table 8. Reasons why participants who work in the US decided to accept a job in the US

	Good English skills		Personal		Economic (high wages)		Total	
	N	%	N	%	N	%	N	%
Strongly disagree	19	33%	26	46%	3	5%	48	28%
Disagree	17	30%	8	14%	4	7%	29	17%
Agree	13	23%	9	16%	18	32%	40	23%
Strongly agree	4	7%	11	19%	31	54%	46	27%
No response	4	7%	3	5%	1	2%	8	5%
Total	57	100%	57	100%	57	100%	171	100%

Items #99, #100, and #101 were directed at participants who indicated in item #98 that they work in PR. The three items asked the participants to use a four-point scale to express their degree of agreement or disagreement with three assertions. Item #99 asserted that the participants' decision to accept a job in PR had to do with personal reasons such as family, religion, political, and personal beliefs. Item #100 asserted that the participants' decision to accept a job in PR had to do with their weak English language skills. Item #101 asserted that the participants' decision to accept a job in PR had to do with the fact that they did not receive job offers from US companies.

As shown on table 9, 88% of the participants either agreed (52%) or strongly agreed (37%) that their decision to accept a job in PR had to do with personal reasons. Seventy-seven percent of the participants either disagreed (26%) or strongly disagreed (51%) that their decision to accept a job in PR had to do with the fact that they did not receive job offers from

US companies while 83% of the participants either disagreed (16%) or strongly disagreed (67%) that their decision to accept a job in PR had to do with their weak English language skills.

Table 9. Reasons why participants who work in PR decided to accept a job in PR

	Weak English skills		Personal		Economic (no job offers)		Total	
	N	%	N	%	N	%	N	%
Strongly disagree	29	67%	1	2%	22	51%	52	40%
Disagree	7	16%	1	2%	11	26%	19	15%
Agree	3	7%	22	51%	6	13%	31	24%
Strongly agree	2	5%	16	37%	2	5%	20	16%
No response	2	5%	3	7%	2	5%	7	5%
Total	43	100%	43	100%	43	100%	129	100%

Tables 8 and 9 together show that for the participants who work in the US, their decision to accept a job in the US had to do mostly with economic reasons and better wages and not with personal reasons or good English language skills. For the participants who work in PR, their decision to accept a job in PR had to do mostly with personal reasons and not with weak English language skills or with a lack of job offers from US companies.

Thirty percent of those who work in the US agreed or strongly agreed that their decision to accept a job in the US had to do with their good English language skills. In contrast, only 9% of those who work in PR agreed or strongly agreed that their decision to accept a job in PR had to do with their weak English language skills. Thus, the English language, and English language skills, might have played a stronger role in the decision of those who accepted a job in the US than in the decision of those who accepted a job in PR. However, in comparison

with economic reasons for those who work in the US and personal reasons for those who work in PR, English did not seem to play a strong role in the decision of where the participants decided to accept a job and work.

Item #105 was an open-ended question which invited participants to write in their responses. For item #105, participants were invited to “describe other reasons for leaving PR for work.” In other words, the participants were asked to write in and explain why they worked in the US and not in PR. The write-in answers to item #105 complement items #102, #103, and #104. The write-in answers fell into several groups.

The first group of reasons (n=19) why participants had left or would leave PR for work had to do with the participants being motivated to get a better job experience related to their field of study, to get professional advancement, and to get employment security. Participants wrote things such as: 1) “por que queria tener una mejor experiencia de trabajo” 2) “At this time I'm working in PR, but considering leave PR to obtain a better position or a different experience in US. The job openings in PR are less and less everytime” 3) “Looking for opportunities to grow, both professional and economical” 4) “mejores oportunidades de crecimiento profesional, seguridad de empleo” 5) “Career Growth” 6) “better opportunities for advancement” 7) “Cuando me gradué me fui para EEUU por la escasez de trabajos en el área de ingeniería en computadoras en PR; los trabajos requieren demasiados horas de trabajo (overtime); son pocos remunerados; el tipo de trabajo en EEUU produce más satisfacción profesional. Aquí [US] tengo la oportunidad de trabajar en “Research and Development” con nuevos productos y tecnologías para una compañía grande mientras que en PR lo más probable estaría haciendo ‘Validation Testing’ para una farmacéutica o ‘Network Administration’ (con suerte) y me estaría ganando menos de la mitad del sueldo. Después de haber vivido aquí por 7 años aprendí que la calidad de

vida en EEUU es superior. Yo vivo en _____, NY y no me tengo que preocupar por la criminalidad, politiquería, tráfico, etc. Y la educación en la mayoría de las escuelas públicas es excelente. Mi familia me hace mucha falta pero no creo que vuelva para PR en muchos años (los seguiré visitando do or tres veces al año)” 8) “Trabajo en aeroespacial.Relocalizacion paga.”

The second group of reasons (n=31) had to do with 1) the participants getting better job offers and benefits in the US than in PR and 2) economic considerations. Participants wrote things such as: 1) “Best job offer at the time and better benefits, including better working hours and work-life balance” 2) “My internships were always in the US. My job offers were in the US. Better benefits and salaries. Challenging jobs!” 3) “Found better job opportunities”4)”Better wages” 5) “Salary Opportunities” 6) “Ingresos” 7) “Mejores sueldos” 8) “More money” 9) “Much better pay, PR can't compete the offer in PR I had was half the base pay only of the _____ offer” 10) “payment” 11) “Would leave PR for work: if it offers better wages and salaries” 12) “When I left, it was because I thought that I had more opportunities to grow my career here [US] and make more money” 13) “ The primary reason why I leave PR was because of the job position they offer me plus the career they offer was something different, new and something I have never pay attention to it till that day at the interview” 14) “poca oportunidad de empleo para ingenieros en PR. Mucho graduado y pocas plazas” 15) “mayor numero de oportunidades de trabajo. Mejores oportunidades de ganar experiencias para poder volver a PR” 16) “mejores oportunidades de trabajo.”

The third group of reasons (n=11) had to do with the lack of job opportunities and offers in PR and the lack of job offers in PR related to a specialization. Participants wrote things such as 1) “Tambien por que fue mas facil conseguir ofertas de trabajo en EU que en PR”2) “The job openings in PR are less and less every time” 3) “If I don't find another job in PR, I will

considered the US” 4) “No conseguí trabajo en PR” 5) “Poca oportunidad de empleo para ingenieros en PR. Mucho graduado y pocas plazas” 6) “PR doesn't offer any positions in the engineering where the employee can design/test/fabricate” 7) “Todas mis ofertas de trabajo fueron de EU” 8) “ofertas de empleos no eran buenas, ofrecían muy pocos beneficios” 10) “Technical position not available in Puerto Rico” 9) “lack of opportunities for career advancement, low wages” 10) “El tipo y área de trabajo, como por ejemplo, investigación” .

The fourth group of reasons (n=8) had to do with the participants' academic goals and the opportunities to pursue higher degrees. Participants wrote things such as 1) “Diversidad de tipos de compañías” 2) “Acceso a más universidades para hacer estudios graduados” 3) “para tratar algo diferente y ver sitios nuevos” 2) “ability to go to graduate school” 3) “Left PR to pursue a MS degree” 4) “Además de oportunidades de continuar estudios post graduados” 5) “Originalmente me mudé a los EU a hacer un doctorado” 5) “To complete my Master Degree in Business Administration in a recognize school in the US” 6) “Wanted to learn from other people, from different countries, cultures, languages, and ideas. To get an advance degree. I now have an MS and soon a PhD in Civil Engineering” 7) “More opportunities of professional development” 8) “The opportunity to change into a whole new environment, opportunity to meet entirely new people, work in a field that is non-existent in PR. There are a lot more developmental opportunities offered in the states, in terms of getting your masters paid by your agency and the number of universities that offer diverse programs in engineering”

The fifth group of reasons (n=16), had to do with the participants' opinion that in the United States the quality of life is better than the quality of life in Puerto Rico. Participants wrote things such as: 1) “quality of life” 2) “educación hijos, calidad de vida” 3) “Después de haber vivido aquí por 7 años aprendí que la calidad de vida en EEUU es superior” 3) “Life seems

to be more quiet and relax, better wages, government seems to be more organized and capable, less crime per living area” 4) “less crime per living area” 5) “Quality of services” 6) “la educación en la mayoría de las escuelas públicas es excelente” 7) “[in PR] Very poor quality of life, crime, government corruption (both major political parties want to control every aspect of public and private life), lack of opportunities for career advancement, low wages” 8) “work opportunities and quality of live for me an my family” 9) “too much burocracy and politics to get a job. Better opportunities in US continental.”

The sixth group of reasons (n=12) had to do with the participants’ worries about Puerto Rico’s, problems, for example, its socio-economic problems. Participants wrote things such as: 1) “Servicios Publicos” 2) “Situacion economica en la isla, ofertas de empleos no eran buenas, ofrecian muy pocos beneficios. En mi area de interes, los patronos buscan personal con muchos mas años de experiencia y son pocos las oportunidades para los recién egraseados, a no ser que sea trabajando en el `field”” 3) “The quality of life in PR is increasingly declining” 4) “Very poor quality of life, crime, quality of live for me and my family” 5) “La economia de PR esta en decadencia” 6) “Run away for the disaster that has become the island” 7) “Not mentioning that the socio-economical situation in the island is not stable any more” 8) “como la situacion en PR no estaba muy buena decidi quedarme por aca” 9) “goverment corruption (both major political parties want to control every aspect of public and private life)” 10) “Yo he tenido la oportunidad de trabajar en PR y el ambiente de trabajo no ofrece buenas oportunidades para crecer a nivel profesional. La economia de PR esta en decadencia. En mi opinion el nivel de educacion y profesionalismo cada vez es mas bajo. Desde el punto de vista cultural, PR se esta convirtiendo en una isla con alta criminalidad y y baja calidad de vida.” 11) “Puerto Rico economic status”.

The seventh group of reasons (n=7) had to do with participants' interest in practicing their English language skills. Participants wrote things such as 1) "....La decisión de trabajar en Puerto Rico fue una mayormente profesional. En Estados Unidos tendría la oportunidad de utilizar y desarrollar mis habilidades tecnicas, y a la misma vez, desarrollar las destrezas de comunicacion en la lenguaje ingles. Segun el tiempo ha pasado, muchas others factores sociologicos han influido en permanecer trabajando en EU continental: educacion hijos, calidad de vida, oportunidad de crecimiento, paz espiritual. Lamento mucho que nuestro sistema de instruccion publica, especialmente en los grados elementales, e incluyendo universidades, no le hayan dado la importancia debida a promulgar la enseñanza de un metodo de comunicacion tan importante como lo es el ingles. Aun me encanta el arroz con pollo, la alcapurria y los bacalaitos" 2) "Aprender a hablar ingles es mas facil cuando se practica diariamente y es necesario para sobrevivir, esta fue mi mayor razon para venir a trabajar en EU. Tambien por que queria tener una mejor experiencia de trabajo y luego regresar a PR despues de 5 años recibiendo un mayor salario, lo cual no hize por que sigo en EU. Tambien por que fue mas facil conseguir ofertas de trabajo en EU que en PR" 3) "Improve my English and have a different exposure to growth professionally" 4) "el hecho de saber inglés me ayudó en tomar la decisión mas fácilmente" 5) "Principal razon fue mejorar el ingles" 6) "Since work opportunities are probably about the same in the US and Puerto Rico, my decision to move to the US was not only because I wanted to move faster on my career but also because I wanted to improve my English skills. I think also influenced that I got an offer from a recognized multinational company" 7) "la razón primordial fue porque quería trata algo nuevo y diferente y el hecho de saber inglés me ayudó en tomar la decisión mas facilmente – también en aquel momento no estaba casada ni tenia hijos. Ahora que tengo hijos prefiero quedarme en EU hasta que terminen

escuela superior porque aunque extrañe increíblemente a mi familia y a PR, lamentablemente la situación en PR no es ideal para criar a una familia”

The eighth group of reasons (n=11) had to do with the with participants’ desire to experience change and the sense of adventure that working in the United States might give them. Participants wrote things such as 1) “Para tartar algo diferente y ver sitios nuevos” 2) “Change my Status Quo and expand my horizons” 3) “un cambio de ambiente, aventura” 3) Para conocer y aprender mas alla. Conocer nuevas personas, costumbres y abrirse nuevas oportunidades” 4) “To experience a new culture. To expand my horizons, both professionally and personally. To ensure career growth. There are more opportunities in US for Hispanic Professionals. To get profficient in English. Is a career advantage if I returned to work in PR. To complete my Master Degree in Business Administration in a recognize school in the US” 5) “Tener experiencia fuera del pais” 6) “Experiencia en el exterior” 7) “Carreer Growth Adventure Salary Opportunities.”

Finally, the ninth group of reasons (n=5) had to do with personal reasons such as family and marriage. Participants wrote things such as: 1)”Family”2) “Marriage”3) “yo renuncie a mi trabajo en PR y me mude a ____ luego de que me case, porque mi esposo (entonces novio) vivia aqui” 4) “La razon que mas peso tuvo, fue tener a mi familia en los EU” 5) “La razon que mas peso tuvo, fue tener a mi familia en los EU” 5) “Would leave PR for work: if it offers better wages and salaries and if the work is in the states were I have relatives.”

Item #106 was an open-ended question which invited participants to write in their responses. For item #106, participants were invited to “describe other reasons you might have decided to work in PR.” In other words, the participants were asked to write in and explain why they worked in PR and not in the United States. The write-in answers to item #106

complement items #99, #100, and #101, and fell into several groups of reasons.

The first group of reasons (n=25) had to do with the participants' closeness and proximity to family, friends, and relatives. Participants wrote things such as: 1) "Extrictamente Familiares" 2) "I'm from Puerto Rico, my family and friends still there" 3) "Only reason would have been to be closer to my relatives" 4) "Cercanía con familiares y seres queridos" 5) "mostly family" 6) "Oportunidad de crecimiento, estar cerca de la familia" 6) "familia" 7) "only family and friends" 8) "to be close to my immediate family" 9) "familiares" 10) "me hubiese quedado por la familia" 10) "to be close to family and friends" 11) "the question is not very clear. If the question is what reasons may I have had to stay in PR, then my answer would be my family and friends, and of course the people and environment in PR which are unique" 12) "mostly family" 13) "It is mostly family reason" 14) "family and friends" 15) "close to family known the island for many years and cost of life (compared to where I'm living) 16) "Actually, the reasons of leaving PR and/or staying are pretty much the same (work opportunities and quality of life for me and my family). Nevertheless, if I had two identical work related opportunities, I'll choose to stay in PR" 17) "Good opportunity and family".

The second group of reasons (n=12) had to do with participants' love for the island. Participants wrote things such as: 1) "I lived on military bases most of my life with frequent moves. This is the longest period if spent in one place. Plus, I love this Island" 2) "I love been here in the Island" 3) "patria" 4) "On the other hand, before leaving I thought I would never leave paradise. I love PR" 5) "I love the island (weather, nature, food, holidays)" 6) "queria volver a mi pais." 7) My family, lifestyles, customs, I love my island 8) "family y patria" 9) "familia, negocio personal, cultura, playas, comida y evitar el clima frio de EU" 10) "Because a custom to live here" 11) "Porque ya uno tiene unas bases sociales como individuo en su pais.

Y si aparece un buen trabajo en nuestra propio ambiente, es seguro que lo tomamos” 12)
“Because a custom to live here [PR]”

The third group of reasons (n=2) had to do with the participants’ dislike for the United States. One source of dislike had to do with the lifestyle in the United States and a commitment to Puerto Rico: 1) “Yo he vivido en los EEUU y no estoy de acuerdo con los valores de esa sociedad...la realidad es muy diferente de como ellos se proyectan ante el Mundo. Siento la responsabilidad de quedarme en PR y aportar al desarrollo del pais con mi trabajo”. The other source of dislike had to do with language and the desire to use Spanish: 2) ” Me siento mejor con el idioma espanol, el estilo de vida de eu no me gusta para nada.”

The fourth group of reasons (n=11) had to do with participants’ desire of getting better job offers in PR that would give them professional advancement that would make them feel comfortable. Participants wrote things such as: 1) “ Managers position in a competent company” 2) “ Me quede pq conseguí un trabajo relacionado a lo q estudié” 3) “ Mejores oportunidades de empleo y estilo de vida (menos criminalidad, mejores servicios...” 4)“oportunidad de crecimiento rapidas” 5) “si aparece un buen trabajo en nuestro propio ambiente, es seguro que lo tomamos” 6) “ Conseguí oferta de inmediato aqui. (Caso raro en estos momentos)” 7) “Si hubiera conseguido un buen trabajo en PR, con seguridad de empleo y buen sueldo, me hubiera quedado” 8) “Si hubiese tenido una oferta de un trabajo que me guste” 9) “The reason why I decided to stay in PR was because I received a great job offer in a very interesting area. _____ Aerospace Services is the first Aerospace company in PR and it was represented a challenge for me to stay in PR and work in this new field. It has met all my expectations” 10) “Una buena oferta de trabajo en PR” 11) “The company offered a good salary initially and a good location in Puerto Rico”.

The fifth group of reasons (n=11) had to do with economic reasons such as getting a job offer in PR with a good salary. Participants wrote things such as: 1) “Better salary” 2) “Un salario exageradamente grande” 3) “Mejor salario y oportunidades de crecimiento” 4) “Si consiguiera un trabajo con un salario razonable” 5) “The company offered a good salary initially and a good location in Puerto Rico” 6) “ costo de vida” 7) Oportunidades de crecimiento rapidas” 8) “Mejor salario y oportunidades de crecimiento” 9) “Ingresos estabilidad Politica Estabilidad Social/ Publica Serviscios Publicos Costo de vida” 10) “Better salary, less taxes/raises, etc.” 11) “Si hubiera conseguido un buen trabajo en PR, con seguridad de empleo y buen sueldo, me hubiera quedada”.

The sixth group of reasons (n=3) had to do with educational opportunities. Participants wrote things such as: 1) “I currently work from home so I can live anywhere but decided to be in PR since it is cheaper and to spend some time with my family, also to continue education, since it is cheaper here, but will ultimately move back to the continental US” 2) “si hubiese conseguido un trabajo que me hubiese permitido hacer una maestria a la misma vez que trabajar” 3) “I may go back some day. But there are only a few places where I would like to work, UPRM being one of them. I think many of students leave PR to adquire more skills (e.g. grad school) and to experience a different world. We then find great employment opportunities, experience a great quality of life and is hard to go back”

The seventh group of reasons (n=6) did not have to do with reasons for staying in PR but had to do with emphasis for why the participants are not coming back to PR. Participants wrote things such as: 1) “Will no go back” 2) “I’m not coming back” 3) “After working in US I do not know if I want to go back to PR... plus my company do not have a district over there (there is no oilfield related industry in PR)” 4) “No reason [to stay in PR]. I plan to live in USA Main land

for the rest of my life. There are no opportunities for young professionals in Puerto Rico. They do not give you a job in you are not part of the "Partido Popular Democratico" or PPD” 5) “None. I don't think I would work in Puerto Rico again. My experiences working in Puerto Rico were not the best ones. I believe that PR is a great place to visit and go for vacation but unfortunately I don't see myself living there” 6) “Quality of life needs to improve. Puerto Rico needs to develop a `knowledge economy' in order to attract more talent to the island” .

Finally, some participants wrote long statements in which they gave multiple reasons which illustrate the conflict of deciding to leave or stay in PR: The first participant wrote: “Familia, patria y religión...Inclusive casi toda mi familia se ha ido a la Florida, pero yo me quedo. En realidad, nunca intente solicitar en EU, aunque tuve compañeros de Univ. que sí se fueron y me invitaron a irme con ellos, pero nunca solicite empleo. Mi lema es que mientras aquí gane lo suficiente para vivir y mantener mi familia (inclusive sin ejercer mi profesión...), aquí me quedo...si llegase el momento en que me este muriendo de hambre y me tocase emigrar, entonces lo intentaría, pero nunca ha sido mi prioridad profesional. El inglés me consta que lo domino, pero necesito la práctica, por lo que sé que si me tuviese que ir a vivir a EU, podría salir hacia adelante con la base que tengo, de la escuela y Univ. Publica de mi país...;-)A mucho orgullo!! Exito con la encuesta muy buena...Al ingles del RUM pondría el ingles conversacional obligado en los curriculos, para que el estudiante pierda ese miedo a hablar el idioma...porque aqui (PR) somos bilingues lo que nos mata es el miedo (a hablarlo y que me critiquen), el cual se pierde con la practica...” The second participant wrote “after graduation I left because I wanted to make more money and grow my career. Now I would comeback if I can find a job that I love there, I don't put so much emphasis on the money or grow anymore but I do put all the emphasis in working in a job that I love and that makes me jump out of bed every

morning”. Finally, the third participant wrote: “All things being equal I would have stayed. Now that I’m in US I notice the difference in pay, safety, crime, and attitudes. PR has deteriorated in those areas. PR has most of the bad big city characteristics in many ways. On the other hand, before leaving I thought I would never leave paradise. I love PR. I love the family, the good people, the beach weather (although a little hot), and the food.”

In general, the examination of items #99 - #106 points away from a relationship between English language skills and the decision to accept a job in the US or in PR and points toward other reasons why the participants accepted employment in the US or in PR. Work opportunity and earning power were main factors in the participants’ decision to work in the US whereas family was a main factor in the participants’ decision to work in PR. Item #45 asked the participants what their first English courses as freshmen at UPRM were. Different from the examination of items #99-#106, the examination of item #45, and the proficiency level of the first course and the location where a participant currently works points toward a relationship between English language skills and the decision to accept a job in the US or in PR.

As shown on table 10, which includes all but two participants who did not respond, 60% of the participants who work in PR were placed in either the remedial Pre-Basic English course (INGL066) or the Basic English course (INGL3101) in their freshman year when they entered the UPRM, compared to 37% of the participants who work in the United States. In contrast, 63% of the participants who work in the US were placed in either Intermediate English (INGL3103) or Advanced English (INGL3011) in their freshman year when they entered the UPRM, compared to 40% of the participants who work in PR. In other words, more than half of the participants who work in PR entered UPRM and were placed in the lowest English proficiency level courses whereas more than half the participants who work in the US entered

UPRM and were placed in the intermediate and highest English proficiency level courses.

Table 10. The English course into which participants in PR and the US were placed when they entered the UPRM

English Sequence	PR		US		Total
Pre-Basic English	7	17%	3	5%	10%
Basic English	18	43%	18	32%	36%
Intermediate English	8	19%	23	41%	31%
Advanced English	9	21%	12	22%	21%
Total	42	100%	56	100%	98%

Similarly, as shown in table 11, which includes all but two participants who did not respond, 70% of the participants in this study who were placed in the remedial Pre-Basic English course on entering college ended up working in PR whereas 74% of the students who were placed in Intermediate English and 57% of the students who were placed in Advanced English on entering college ended up working in the US. Half of the students who were placed in Basic English ended up working in PR while half ended up working in the US.

Table 11. The distribution of participants in the US and PR across the proficiency levels of four English courses

	Pre-Basic English		Basic English		Intermediate English		Advanced English		Total
US	3	30%	18	50%	23	74%	12	57%	56
PR	7	70%	18	50%	8	26%	9	43%	42
Total	10	100%	36	100%	31	100%	21	100%	98

As shown in table 12, which includes all but one unemployed male from PR, there is a possible relationship between the male gender of the participant, the proficiency level of the English course into which a participant placed upon entering the UPRM, and whether a participant worked in PR or the US. As shown in table 12, 61% of the males who worked in PR placed in low English proficiency courses upon entering the UPRM, as compared to 27% who worked in the US. Seventy-three percent of the males who worked in the US placed in intermediate and advanced English proficiency courses upon entering the UPRM, as compared to 34% who work in PR.

Table 12. The distribution of male participants who work in the US and PR across the proficiency levels of four English courses

	PR		US		Total	
Pre-Basic English	5	19%	2	6%	7	12%
Basic English	11	42%	7	21%	18	30%
Intermediate English	4	15%	17	52%	21	36%
Advanced English	5	19%	7	21%	12	20%
No response	1	4%	0	1%	1	2%
Total	26	100%	33	100%	59	100%

By contrast, as shown in table 13, there does not seem to be a relationship between the female gender of the participant, the proficiency level of the English course into which a participant was placed upon entering the UPRM, and whether a participant worked in PR or the US. As shown in table 13, the same percents of females who worked in PR and the US placed in basic, intermediate, and advanced level English proficiency courses upon entering the UPRM.

Table 13. The distribution of female participants who work in the US and PR across the proficiency levels of four courses

	PR		US		Total	
Pre-Basic English	0	0%	1	4%	1	3%
Basic English	7	47%	11	48%	18	47%
Intermediate English	4	27%	6	26%	10	26%
Advanced English	4	27%	4	17%	8	21%
No response	0	0%	1	4%	1	3%
Total	15	100%	23	100%	38	100%

In summary, although the participants' responses in to items #99- #104 did not point toward a relationship between English language proficiency and the decision to work in the US or in PR, the level of English proficiency course into which participants, particularly male participants, placed when they entered the UPRM does seem to point toward a relationship between English language proficiency and the decision to work in the US or PR.

As shown, the examination of items #99 - #104 points away from a relationship between English language skills and the decision to accept a job in the US or in PR while the examination of item #45 and the proficiency level of the English course into which a participant was placed when s/he entered the UPRM and the place where a participant worked does point toward a relationship between English language skills and the decision to accept a job in the US or in PR. Similarly, the examination of a third set of items, items #69-72, also points toward a relationship between English language skills and the decision to accept a job in the US or in PR.

Items #69-72 asked the participants to use a 5-point scale ranging from excellent (A) to good (B) to satisfactory (C), to barely passing (D), to failing (F), to rate, or to self-evaluate, their current ability in English across four skill areas: 1) item #69 - ability to read in English, 2) item #70 – ability to write in English, 3) item #71 – ability to speak in English, and 4) Item #72 – ability to understand spoken English. Taking all the participants as a whole, as shown in table 14, the evaluation of `A` for excellent was the mode for ability to read in English (66%) and for ability to understand spoken English (49%). The evaluation of `B` for good was the mode for ability to speak in English (46%) and ability to write in English (45%). The evaluation of `A` for excellent was the mode for the four skill areas taken together (46%), followed by `B` for good (38%), followed by `C` for satisfactory (9%), followed by `D` for barely (1%).

Table 14. Self evaluation of four English skill areas by all participants (n=100)

	Read English	Understand Spoken English	Write English	Speak English	Total	
					N	%
Excellent	66%	49%	39%	30%	184	46%
Good	28%	33%	45%	46%	152	38%
Satisfactory	1%	9%	10%	15%	35	9%
Barely	0%	1%	1%	2%	4	1%
No response	5%	8%	5%	7%	25	6%
Total	100%	100%	100%	100%	400	100%

Table 15 shows the self evaluation of the four English skill areas by the participants who worked in the US. As shown in table 15, the evaluation of `A` for excellent was the mode for ability to read in English (70%) and for ability to understand spoken English (63%). The

evaluation of `B` for good was the mode for ability to write in English (44%) and ability to speak in English (51%). The evaluation of `A` for excellent was the mode for the four skill areas taken together (53%), followed by `B` for good (37%), followed by `C` for satisfactory (5%). No participant gave him/herself a `barely passing` or `failing` self evaluation in any of the skill areas.

Table 15. Self evaluation of four English skill areas by participants who worked in the US

	Read English		Understand Spoken English		Write English		Speak English		Total	
	N	%	N	%	N	%	N	%	N	%
Excellent	40	70%	36	63%	24	42%	21	37%	121	53%
Good	14	25%	17	30%	25	44%	29	51%	85	37%
Satisfactory	0	0%	1	2%	5	9%	4	7%	10	5%
Barely passing	0	0%	0	0%	0	0%	0	0%	0	0%
No response	3	5%	3	5%	3	5%	3	5%	12	5%
Total	57	100%	57	100%	57	100%	57	100%	228	100%

Table 16 shows the self evaluation of the four English skill areas by the participants who worked in PR. As shown in table 16, the evaluation of `A` for excellent was the mode for ability to read in English (60%) The evaluation of `B` for good was the mode for the ability to understand spoken English (40%), ability to speak in English (44%) and ability to write in English (46%). The evaluation of `B` for good was the mode for the four skill areas taken together (40%), followed by `A` for excellent (37%), followed by `C` for satisfactory (15%), followed by `D` for barely passing (3%).

Table 16. Self evaluation of four English skill areas by participants who worked in PR

	Read English		Understand spoken English		Write English		Speak English		Total	
	N	%	N	%	N	%	N	%	N	%
Excellent	26	60%	14	33%	15	35%	9	20%	64	37%
Good	14	33%	17	40%	20	46%	19	44%	70	40%
Satisfactory	1	2%	8	18%	5	12%	11	26%	25	15%
Barely	0	0%	1	2%	1	2%	2	5%	4	3%
No response	2	5%	3	7%	2	5%	2	5%	9	5%
Total	43	100%	43	100%	43	100%	43	100%	172	100%

Tables 15 and 16 together show that that for both groups of participants the evaluation of ‘A’ for excellent was the mode for the skill of reading, but that the mode was higher for participants in the US (70%) than for those in PR (60%). Twenty-six percent of the participants in PR evaluated their ability to speak English as ‘C’ for satisfactory compared to 7% of the participants in the US. Thus, the group of participants in PR gave both their reading and speaking skills a lower evaluation than the participants in the US.

To sum up, although the participants’ responses in Items #99- #106 did not point toward a relationship between English language proficiency and the decision to work in the US or PR, the self evaluation of English skills across four skill areas does seem to point toward a possible relationship between English language proficiency and the decision to work in the US or PR.

Finally, the responses to Items #65 - #68 also seem to point to a possible relationship between English language proficiency and the decision to work in the US or in PR. Item #65 asked the participants which language, English or Spanish, was used during their first job interview, and Item #67 asked the participants if bilingual skills were required for their first job

position. Fifty-three percent of the participants (n=23) who worked in PR reported that English was used during their first job interview. A much higher 81% of the participants (n=46) who worked in the US reported that English was used during their first job interview. Seventy-nine percent of the participants (n=34) who worked in PR reported that bilingual skills were required for their first job position whereas a much lower 60% of the participants (n=34) who worked in the US reported that bilingual skills were required for their first job position.

Item #66 asked the participants which language, English or Spanish, was used for the interview at their current job, and Item #68 asked the participants if bilingual skills are required for their current job position. Only 28% of the participants (n=12) who lived in PR reported that English was used for the interview at their current job. In contrast, 100% of the participants who lived in the US reported that English was used for the interview at their current job. Eighty-four percent of the participants (n=36) who worked in PR reported that bilingual skills were required for their current job whereas a much lower 60% of the participants (n=34) who worked in the US reported that bilingual skills were required for their current job.

In summary, overall, the majority of the former UPRM engineering students who work in the US made the decision to work in the US primarily for economical reasons and/or better wages whereas the ones who work in PR made the decision to work in PR for personal reasons such as family or being close to their relatives and friends. The participants who work in the US showed higher proficiency in English compared to those who live and work in PR. In terms of how the participants rated their English skills, overall, participants rated their English skills as either “excellent” or “good”. Finally, English played a stronger role in the decision of those who accepted a job in the US than for those who accepted a job in PR.

Results for Research Question # 3

Research question #3 read as follows: Does English currently play a role in the lives of the engineering graduates, particularly in the domains of 1) work, including professional growth and advancement, and 2) home? In the section that follows, I will examine the domain of work first and that of home second.

The Domain of Work

Items #73 - #80 asked the participants to use a five-point scale ranging from “English only” to “mostly English” to “English and Spanish with the same frequency” to “mostly Spanish” to “Spanish only” to describe their use of English at work for eight different activities. One activity involved the skill of reading and two activities, writing and using instant messaging with peers, involved the skill of writing. The other five activities involved the skill of speaking. One, making oral reports to an audience, involved public speaking; one, making or receiving phone calls at work, involved communication that was not face-to-face. The final three involved face-to-face communication when talking to a variety of interlocutors: boss, client, and peers.

To analyze the data, I collapsed “English only” with “mostly English” and “Spanish only” with “mostly Spanish” so that the following tables show four choices: “English only/mostly English,” “English and Spanish with the same frequency,” “Spanish only/mostly Spanish,” and not applicable (N/A) together with non response (NR). As shown in Table 17, overall, the mode, 65% of the responses, indicated that the eight activities are carried out in “only/mostly English”; 14% indicated that the eight activities are carried out in “English and Spanish at the same frequency,” and 17% indicated that the eight activities are carried out in “only/mostly Spanish.”

Table 17. Language used at work by all participants for eight activities

Language Activity	Only/mostly English		English and Spanish at same frequency		Only/mostly Spanish		N/A or No Response		Total	
	N	%	N	%	N	%	N=100	%	N=100	%
Reading	80	80%	16	16%	2	2%	2	2%	100	100%
Making oral reports	79	79%	7	7%	10	10%	4	4%	100	100%
Writing	78	78%	10	10%	9	9%	3	3%	100	100%
Making phone Calls	65	65%	17	17%	16	16%	2	2%	100	100%
Talking to your boss	64	64%	3	3%	30	30%	3	3%	100	100%
Talking to a client	62	62%	17	17%	18	18%	3	3%	100	100%
Talking to your peers	49	49%	20	20%	29	29%	2	2%	100	100%
Instant Messaging	40	40%	19	19%	22	22%	19	19%	100	100%
Total	517	65%	109	14%	136	17%	38	4%	800	100%

As shown in table 18, overall, for the participants who worked in the US, 95% of the responses indicated that the eight activities at work are carried out “only/mostly in English” (88%) or in ‘English and Spanish at the same frequency’ (7%). As shown by the bolded percents, the mode for all eight of the activities is English, and there is only one activity, instant messaging with peers, that any of the participants (7%) indicated is carried out “only/mostly in Spanish.” The other seven activities are carried out either “only/mostly in

English” or in “English and Spanish at the same frequency.” The activities that 100% of the participants reported are carried out “only/mostly in English” include: writing, making phone calls, making oral reports, and talking to the boss. The activities that a higher percent of the participants reported are carried out “only/mostly in English” and a much lower percent of the participants reported are carried out in “English and Spanish with the same frequency” include: reading, talking to a client, talking to peers, and instant messaging with peers. In summary, for the majority of the participants who worked in the US, English is the mode and the language at work for the eight activities.

Table 18. Language used at work for eight activities by participants who work in the US (n=57)

Language Activity	Only/mostly English		English and Spanish at same frequency		Only/mostly Spanish		N/A or No Response		Total	
	N	%	N	%	N	%	N	%	N	%
Making phone calls	56	98%	0	0%	0	0%	1	2%	57	100%
Writing	55	96%	1	2%	0	0%	1	2%	57	100%
Talking to your boss	55	96%	0	0%	0	0%	2	4%	57	100%
Making oral reports	55	96%	0	0%	0	0%	2	4%	57	100%
Reading	52	91%	4	7%	0	0%	1	2%	57	100%
Talking to a client	47	82%	9	16%	0	0%	1	2%	57	100%
Talking to your peers	47	82%	9	16%	0	0%	1	2%	57	100%
Instant Messaging	36	63%	8	14%	4	7%	9	16%	57	100%
Total	403	88%	31	7%	4	1%	18	4%	456	100%

As shown in table 19, overall, for the participants who worked in PR 38% of the responses, the mode, indicated that the eight activities at work are carried out “only/mostly in Spanish.” The other 56% of the responses indicated that the eight activities at work are carried out “only/mostly in English” (33%) or in “English and Spanish with the same frequency” (23%). There is only one activity, reading, that 93% of the participants indicated is not carried “only/mostly” in Spanish and, instead, is carried out “only/mostly in English” (65%) or in “English and Spanish at the same frequency” (28%). The activities that a higher percent of the participants reported are carried out “only/mostly in English” and a lower percent of the participants reported are carried out in “English and Spanish with the same frequency” and “only/mostly in Spanish” include: making oral reports and writing. The activities that a higher percent of the participants reported are carried out “only/mostly in Spanish” and a lower percent of the participants reported are carried out in “English and Spanish at the same frequency” and in “only/mostly English” include: talking to the boss, talking to peers, and instant messaging to peers. The activities that are carried out equally in “only/mostly English,” “English and Spanish at the same frequency,” and “only/mostly Spanish” include: talking to a client and making phone calls. In summary, as shown by the bolded percents, the modes, for the participants who worked in PR, English is the language at work for reading, writing, and making oral reports; Spanish is the language at work for talking to the boss, talking to peers, talking to a client, and instant messaging to peers, and both English and Spanish are the languages at work for making phone calls.

Table 19. Language used at work for eight activities by participants who work in PR (n=43)

Language Activity	Only/mostly English		English and Spanish at same frequency		Only/mostly Spanish		N/A or No Response		Total	
	N	%	N	%	N	%	N	%	N	%
Reading	28	65%	12	28%	2	5%	1	2%	43	100%
Making oral reports	24	56%	7	16%	10	23%	2	5%	43	100%
Writing	23	53%	9	21%	9	21%	2	5%	43	100%
Making phone calls	9	21%	17	40%	16	37%	1	2%	43	100%
Talking to a client	15	34%	8	19%	18	42%	2	5%	43	100%
Instant Messaging	4	9%	11	26%	18	42%	10	23%	43	100%
Talking to your Peers	2	5%	11	26%	29	67%	1	2%	43	100%
Talking to your boss	9	21%	3	7%	30	70%	1	2%	43	100%
Total	114	33%	78	23%	132	38%	20	6%	344	100%

Item #96 asked the participants how often they switch between English and Spanish at work. As shown in table 20, 68% of the participants who worked in the US reported that they either `never` (23%) or `rarely` (35%), the mode, switch between English and Spanish at work. The lack of switching between English and Spanish at work is consistent with table 18 which showed that 88% of the participants in the US use only or mostly English for eight activities at work. In table 20, the participants reported that they do not switch between English and Spanish at work because English is the language of work.

In contrast to the participants who worked in the US, 81% of the participants who worked in PR reported that they either `sometimes' (30%) or `frequently' (51%), the mode, switch between English and Spanish at work. As shown in table 20, for those who worked in PR, both English and Spanish are languages of work. It, thus, is no surprise that the participants from PR reported that they sometimes or frequently switched between the two languages at work.

Table 20. How often participants who work in PR and the US switch between English and Spanish at work

	PR		US		Total	
Never	3	7%	13	23%	16	16%
Rarely	3	7%	20	35%	23	23%
Sometimes	13	30%	14	25%	27	27%
Frequently	22	51%	9	15%	31	31%
No response	2	5%	1	2%	3	3%
Total	43	100%	57	100%	100	100%

Items #81, #82, and #83 asked the participants to use a four-point scale ranging from 1 to 4 with 1 indicating “not necessary at all” and 4 indicating “extremely necessary” to evaluate how necessary it is to be able to speak English at work (#81), how necessary the English language is to advance professionally (#82), and how necessary English is to obtain better job performance evaluations (#83).

As shown in table 21, overall, 93% of the participants reported that it was either “very necessary” (13%) or “extremely necessary” (80%) to be able to speak English at work. There were differences between the participants who worked in the US and those who worked in PR. As shown in the table, 100% of the participants who worked in the US reported that it was

“extremely necessary,” the mode, to be able to speak English at work. By contrast, a lower 85% of the participants who worked in PR reported that it was either “very necessary” (31%) or “extremely necessary” (54%), the mode, to be able to speak English at work.

Table 21. How necessary it is to be able to speak English at work for participants who work in PR and the US

	PR		US		Total
Not necessary 1	2	5%	0	0%	2%
Somewhat necessary 2	4	10%	0	0%	4%
Very necessary 3	13	31%	0	0%	13%
Extremely necessary 4	23	54%	57	100%	80%
No response	1	0%	0	0%	1%
Total	43	100%	57	100%	100%

As shown in table 22, overall, 95% of the participants reported that the English language was either “very necessary” (9%) or “extremely necessary” (86%) to advance professionally. There were differences between the participants who worked in the US and those who worked in PR. As shown in the table, 96% of the participants who worked in the US reported that English was either “very necessary” (2%) or “extremely necessary” (96%) to advance professionally whereas a lower 91% of the participants who worked in PR reported that English was either “very necessary” (19%) or “extremely necessary” (73%) to advance professionally. The main contrast was between the mode for the participants who worked in the US who reported that English was “extremely necessary” to advance professionally (96%) and the mode for the participants who worked in PR who reported that English was “extremely necessary” to advance professionally (72%).

Table 22. How necessary English is to advance professionally for participants who work in PR and the US

	PR		US		Total
Not necessary 1	2	5%	1	2%	3%
A little bit necessary 2	1	2%	0	0%	1%
Very necessary 3	8	19%	1	2%	9%
Extremely necessary 4	31	72%	55	96%	86%
No response	1	2%	0	0%	1%
Total	43	100%	57	100%	100%

As shown in table 23, overall, 92% of the participants reported that English was either “very necessary” (19%) or “extremely necessary” (73%) to obtain better job performance evaluations. There were differences between the participants who worked in the US and those who worked in PR. As shown in the table, 98% of the participants who worked in the US reported that English was either “very necessary” (9%) or “extremely necessary” (89%) to obtain better job performance evaluations whereas a lower 84% of the participants who worked in PR reported that English was either “very necessary” (33%) or “extremely necessary” (51%) to obtain better job performance evaluations. The main contrast was between the mode for the participants who work in the US who reported that English was “extremely necessary” to obtain better job performance evaluations (89%) and the mode for the participants who work in PR who reported that English was “extremely necessary” to obtain better job performance evaluations (51%).

Table 23. How necessary English is to obtain better job performance evaluations for participants who work in PR and the US

	PR		US		Total
Not necessary 1	2	5%	0	0%	2%
A little bit necessary 2	4	9%	1	2%	5%
Very necessary 3	14	33%	5	9%	19%
Extremely necessary 4	22	51%	51	89%	73%
No response	1	2%	0	0%	1%
Total	43	100%	57	100%	100%

Finally, participants who filled out the questionnaire were given the choice of filling it out in either English or Spanish. Overall, 49% of the participants filled the questionnaire out in Spanish whereas 51% of the participants filled it out in English. This choice did not seem to be determined by the location of the participant’s place of work. Half the participants who worked in PR filled out the questionnaire in Spanish (n=22); the other half filled it out in English (n=21). A little more than half (n=30 53%) of the participants who worked in the US filled out the questionnaire in English; slightly less than half (n=27 48%) filled out the questionnaire in Spanish.

The Domain of Home

Item # 21 asked the participants to indicate the language of their family at home. Taking all the participants together, 84% reported that Spanish is the language of their family at home; 13% reported both Spanish and English; 2% reported English, and 1% did not respond. Taking the participants who worked in PR, 91% reported that Spanish is the language of their family at home; 7% reported both Spanish and English; and 2% did not response. No one who worked in PR reported that English is the language of their family at home. Taking the participants

who worked in the US, 78% reported that Spanish is the language of their family at home while 18% reported that both Spanish and English are the languages of the family at home, and 4% reported that English is the language of the family at home.

Items #86-#95 asked the participants to use a five-point scale ranging from “English only” to “mostly English” to “English and Spanish with the same frequency” to “mostly Spanish” to “Spanish only” to describe their use of English at home for ten different activities. Three activities involved entertainment and the media: listening to music, watching TV, and using subtitles for a movie. One activity involved the skill of reading and two activities, writing at home and receiving correspondence at home, involved the skill of writing.. The other four activities involved the skill of speaking: talking to people who live with you, using the telephone at home, receiving a relative at home, and receiving a visitor at home. To analyze the data, I collapsed “English only” with “mostly English” and “Spanish only” with “mostly Spanish” so that the following tables show four choices: “English only/mostly English,” “English and Spanish with the same frequency,” “Spanish only/mostly Spanish,” and not applicable (N/A) together with non response (NR). As shown in table 24, overall, 40%, the mode, of the responses given by the participants indicated that the ten activities are carried out in “only/mostly Spanish.” ; 31% of the responses indicated that the ten activities are carried out in “only/mostly English”; 27% indicated that the ten activities are carried out in “English and Spanish at the same frequency,” As shown by the bolded percents, English is the mode for three activities: watching TV, correspondence received at home, and subtitles for a movie. English and Spanish at the same frequency is the mode for two activities: reading and receiving a visitor at home. Spanish is the mode for five activities: writing, receiving a visitor, using the telephone at home, talking to people who live with you, and receiving a relative at home.

Table 24. Language used by all participants at home for ten activities

Language Activity	Only/mostly English		English and Spanish at same frequency		Only/mostly Spanish		N/A or No Response		Total	
	N	%	N	%	N	%	N	%	N	%
Watching TV	64	64%	32	32%	4	4%	0	0%	100	100%
Correspondence you receive at home	61	61%	29	29%	10	10%	0	0%	100	100%
Subtitles for a movie	47	47%	17	17%	16	16%	20	20%	100	100%
Reading at home	39	39%	41	41%	20	20%	0	0%	100	100%
Listening to music	21	21%	48	48%	31	31%	0	0%	100	100%
Writing	33	33%	27	27%	40	40%	0	0%	100	100%
Receiving a visitor at home	19	19%	24	24%	57	57%	0	0%	100	100%
Using the phone at home	8	8%	31	31%	61	61%	0	0%	100	100%
Talking to people who live with you	12	12%	13	13%	72	72%	3	3%	100	100%
Receiving a relative at home	0	0%	10	10%	90	90%	0	0%	100	100%
Total	304	31%	272	27%	401	40%	23	2%	1000	100%

As shown in table 25, overall, for the participants who work in the US, 68% of the responses indicated that the ten activities at home are carried out “only/mostly in English” (41%) or in “English and Spanish with the same frequency” (27%). There is only one activity, receiving a relative, that none of the participants carry out in “only/mostly English” ; instead,

this activity is carried out by 100% of the participants either in “only/mostly Spanish” (86%) or in “English and Spanish at the same frequency” (14%). The activities that a higher percent of the participants reported are carried out in “only/mostly English” and “English and Spanish at the same frequency” and a much lower percent reported are carried out in “only/mostly Spanish” include: receiving correspondence at home, watching TV, reading, using subtitles for a movie, and writing. The activities that a higher percent of the participants reported are carried out in “only/mostly Spanish” and “English and Spanish at the same frequency” and a much lower percent reported are carried out in “only/mostly English” include: making phone calls, talking to people who live with them, and listening to music. Finally, receiving a visitor is an activity that is carried out equally in “only/mostly English,” “English and Spanish at the same frequency,” and “only/mostly Spanish.” In summary, as shown by the bolded percents, for the participants who work in the US, English is the mode at home for receiving correspondence, watching TV, reading, using subtitles for a movie, and writing at home. Spanish is the mode at home for receiving a relative and talking with people who live with you. English and Spanish at the same frequency is the mode for using the telephone at home, receiving a visitor at home, and listening to music. English is also the mode for all ten activities together.

Table 25. Language used for ten activities at home by participants living in the US (n=57)

Language Activity	Only/mostly English		English and Spanish at same frequency		Only/mostly Spanish		N/A or No Response		Total	
	N	%	N	%	N	%	N	%	N	%
Correspondence you receive at home	49	86%	7	12%	1	2%	0	0%	57	100%
Watching TV	42	74%	14	24%	1	2%	0	0%	57	100%
Reading at home	32	56%	19	33%	6	11%	0	0%	57	100%
Subtitles for a movie	31	54%	8	14%	1	2%	17	30%	57	100%
Writing at home	26	45%	17	30%	14	25%	0	0%	57	100%
Listening to music	13	23%	27	47%	17	30%	0	0%	57	100%
Using telephone at home	8	14%	25	44%	24	42%	0	0%	57	100%
Receiving a visitor at home	19	33%	21	37%	17	30%	0	0%	57	100%
Talking to people who live with you	12	21%	8	14%	34	60%	3	5%	57	100%
Receiving a relative at home	0	0%	8	14%	49	86%	0	0%	57	100%
Total	232	41%	154	27%	164	28%	20	4%	570	100%

As shown in table 26, overall, for the participants who work in PR, 82% of the responses indicated that the ten activities at home are carried out in “only/mostly Spanish” (55%) or in “English and Spanish at the same frequency” (27%). There is only one activity, watching TV, which is carried out by 93% of the participants in “only/mostly English” (51%) or in “English and Spanish at the same frequency” (42%). There are four activities, making phone calls, talking to people who live with them, receiving a visitor, and receiving a relative, that none of

the participants carry out in “only/mostly English”; instead, these activities are carried out by 100% of the participants either in “only/mostly Spanish” (86% - 95%) or in “English and Spanish at the same frequency” (5%-14%). There are five activities that a higher percent of the participants reported are carried out in “only/mostly Spanish” and “English and Spanish at the same frequency” and a lower percent of the participants reported are carried out “only/mostly in English.” These five activities include: using subtitles for a movie, receiving correspondence at home, listening to music, reading, and writing. In summary, as shown by the bolded percents, for the participants who work in PR, at home, English is the mode for watching TV and for using subtitles for a movie. English and Spanish at the same frequency is the mode for correspondence you receive at home, reading at home, and listening to music. Spanish is the mode for writing at home, using the telephone at home, talking to people who live with you, receiving a visitor at home, and receiving a relative at home. Spanish is also the mode (55%) for all ten activities taken together.

Table 26. Language used for ten activities at home by participants living in PR (n=43)

Language Activity	Only/mostly English		English and Spanish at same frequency		Only/mostly Spanish		N/A or No Response		Total	
	N	%	N	%	N	%	N	%	N	%
Watching TV	22	51%	18	42%	3	7%	0	0%	43	100%
Subtitles for a movie	16	37%	9	21%	15	35%	3	7%	43	100%
Correspondence you receive at home	12	28%	22	51%	9	21%	0	0%	43	100%
Reading at home	7	16%	22	51%	14	33%	0	0%	43	100%
Listening to music	8	18%	21	49%	14	33%	0	0%	43	100%
Writing at home	7	16%	10	23%	26	61%	0	0%	43	100%
Using the telephone at home	0	0%	6	14%	37	86%	0	0%	43	100%
Talking to people who live with you.	0	0%	5	12%	38	88%	0	0%	43	100%
Receiving a visitor at home	1	2%	3	7%	39	91%	0	0%	43	100%
Receiving a relative at home	0	0%	2	5%	41	95%	0	0%	43	100%
Total	73	17%	118	27%	236	55%	3	1%	430	100%

Item #97 asked the participants how often they switch between English and Spanish at home. As shown in table 27, 66% of the participants who worked in PR reported that they either `never` (26%) or `rarely` (40%) switch between English and Spanish at home. The lack of switching between English and Spanish at home is consistent with table 26 which showed that 54% of the participants in PR use only or mostly Spanish for ten activities at home and that

28% use English and Spanish at the same frequency, primarily for activities which involve watching, listening to, or reading media. In other words, in table 27, the participants reported that they do not switch between English and Spanish at home because Spanish is the language of the home except for activities that involve media.

As shown in table 27, in contrast to the participants who live in PR, 47% of the participants who work in the US reported that they either `sometimes' (19%) or `frequently' (28%) switch between English and Spanish at home. This is consistent with table 25 which showed that roughly one third of the participants reported that they used only/mostly Spanish at home; a little more than a third reported that they used both English and Spanish at home, and a little less than a third reported that they used only/mostly Spanish at home.

Table 27. How often participants who work in PR and the US switch between English and Spanish at home

	PR		US		Total	
Never	11	26%	9	16%	20	20%
Rarely	17	40%	20	35%	37	37%
Sometimes	7	16%	11	19%	18	18%
Frequently	7	16%	16	28%	23	23%
No response	1	2%	1	2%	2	2%
Total	43	100%	57	100%	100	100%

Items # 84 and # 85 asked the participants to evaluate how necessary it is to speak Spanish to be Puerto Rican (#84) and how necessary it is to be born in Puerto Rican to be Puerto Rican (#85) using a four-point scale ranging from 1 to 4 with 1 indicating “not necessary at all” and 4 indicating “extremely necessary.”

As shown in table 28, overall, 70% of the participants reported that it was either “very necessary” (21%) or “extremely necessary” (49%) to speak Spanish to be Puerto Rican. There were differences between the participants who worked in the US and those who worked in PR. As shown in the table, 84% of the participants who worked in the US reported that it was either “very necessary” (26%) or “extremely necessary” (58%) to speak Spanish to be Puerto Rican. By contrast, only 51% of the participants who work in PR reported that it was either “very necessary” (14%) or “extremely necessary” (37%) to speak Spanish to be Puerto Rican.

Table 28. How necessary it is to speak Spanish to be Puerto Rican for participants who work in PR and the US

	PR		US		Total
Not necessary 1	8	19%	7	12%	15%
A little bit necessary 2	13	30%	2	4%	15%
Very necessary 3	6	14%	15	26%	21%
Extremely necessary 4	16	37%	33	58%	49%
Total	43	100%	57	100%	100%

As shown in table 29, overall, 61% of the participants reported that it was either “very necessary” (19%) or “extremely necessary” (42%) to be born in PR to be Puerto Rican. There were differences between the participants who worked in the US and those who worked in PR. As shown in the table, 63% of the participants who worked in the US reported that it was “very necessary” (26%) or “extremely necessary” (37%) to be born in PR to be Puerto Rican. By contrast, only 58% percent of the participants who work in PR reported that it was “very necessary” (9%) or “extremely necessary” (49%) to be born in PR to be Puerto Rican.

Table 29. How necessary it is to be born in PR to be Puerto Rican for participants who work in PR and the US

	PR		US		Total
Not necessary 1	11	26%	12	21%	23%
A little bit necessary 2	7	16%	9	16%	16%
Very necessary 3	4	9%	15	26%	19%
Extremely necessary 4	21	49%	21	37%	42%
Total	43	100%	57	100%	100%

Taking tables 28 and 29 together, we see that, overall, a higher percent of the participants reported that it was “very necessary” or “extremely necessary” to speak Spanish to be Puerto Rican (70%) than reported that it was “very necessary” or “extremely necessary” to be born in PR to be Puerto Rican (61%). There were differences between the participants who worked in the US and those who worked in PR. For those who worked in the US, a higher percent reported that it was “very necessary” or “extremely necessary” to speak Spanish than reported that it was “very necessary” or “extremely necessary” to be born in PR to be Puerto Rican. By contrast, for those who worked in PR, a higher percent reported that it was “very necessary” or “extremely necessary” to be born in PR than reported that it was “very necessary” or “extremely necessary” to speak Spanish to be Puerto Rican.

To summarize, for those working in the US, speaking Spanish was more necessary than being born in PR to be considered a Puerto Rican. For those working in PR, being born in PR was more necessary than speaking Spanish to be Puerto Rican. Overall, roughly one third of the participants did not think that it was either “very necessary” or “extremely necessary” either to speak Spanish or to be born in Puerto Rican to be considered a Puerto Rican. For the

other two thirds of the participants, both speaking Spanish and being born in PR were more necessary to be Puerto Rican for those working in the US than for those working in PR.

Results for Research Question #4

Research question # 4 read as follows: Are there differences in the role that English plays in the lives of the engineering graduates who work in PR and the engineering graduates who work in the US? Are there gender differences in the role that English plays in the lives of male and female engineering graduates?

Place of Work: Puerto Rico and the United States

To establish comparisons, I separated the results of the respondents that worked in US from the ones that worked in PR. Some similarities were observed among the two groups in terms of the activities that they do at home. First, as shown on tables 25 and 26 both respondents that worked in the US (60% (n=34/57)) and those that lived and worked in PR (88% (n=38/43)) reported using “mostly Spanish” or “Spanish only” to talk to the people that live with them. However, respondents that lived and worked in PR reported a higher percent (88%) compared to respondents in the US (60%). Second, both groups reported that they used “mostly Spanish” or “Spanish only” when receiving a relative at home. Respondents in the US reported 86% (49/57) and respondents from PR reported 95% (41/43). However, respondents that lived and worked in PR reported a higher percent (95%) compared to respondents in the US (86%). Third, both groups reported using either “mostly English” or “English only” to watch TV. Respondents in the US reported 74% (42/57) and respondents from PR reported 51% (22/43). In this case, respondents that worked and lived in the US reported a higher percent (74%) compared to the ones that lived and worked in PR (51%). Fourth, both groups reported using either “mostly Spanish” or “English and Spanish at the same frequency” when listening to music. Respondents in the US reported 77% (44/57) and respondents from PR reported 82% (35/43).

Also, some differences were observed among the group that worked in the US and the group that worked in PR. First, as shown on table 25, the majority of the respondents that worked in the US reported using either “mostly Spanish” or “Spanish only” (42% (n=24/57)) and “English and Spanish at the same frequency” (44% (n=25/57)) for making phone calls at home. On the other hand, as shown on table 26, the majority of the respondents from PR reported using either “mostly Spanish” or “Spanish only” (86% (n=37/43)) for making phone calls. Second, the majority of the respondents from the US reported using “mostly English” or “English only” (56% (n=32/57)) for reading at home whereas respondents from PR reported using “English and Spanish at the same frequency” (51% (n=22/43)). Third, the majority of the respondents from the US reported using “English and Spanish at the same frequency” (37 % (n=21/57)) when receiving a visitor at home. On the other hand, the majority of the respondents from PR reported using either “mostly Spanish” or “Spanish only” when receiving a visitor at home (91% (n=39/43)). Fourth, the majority of the respondents from the US reported using either “mostly English” or “English only” when receiving correspondence at home (86% (n=49/57)). The majority of the respondents from PR reported using either “mostly English” (28% (n=12/43)) or “English and Spanish at the same frequency” when receiving correspondence at home (51% (n=22/43)). Finally, the majority of the respondents from the US reported using either “mostly English” (45% (n=26/57)) or “English and Spanish at the same frequency” (30% (n=17/57)) when writing at home. On the other hand, respondents from PR reported that they used “mostly Spanish” or “Spanish only” for writing at home (61% (n=26/43)).

In the work domain, English does play a more important role in the lives of former UPRM engineering students that work in the US than for those that work in PR. Respondents that work in the US reported using mostly English or English only for all the work situations

(items #73 - #80). Respondents that work in PR reported using mostly English or English only for reading, writing, and making oral reports at work.

Gender: English at Work

Overall, as shown on tables 30 and 31, both females and males use either “mostly English” or “English only” for all eight activities at work. However, as shown on table 30, females reported higher percentages than males for the activities of reading, writing and talking to a client at work. For reading, 89% (34/38) reported that use “mostly English” or “English only” whereas males reported 76% (46/60). For writing, 86% (33/38) reported that use “mostly English” or “English only” whereas males reported 75% (45/60). Finally, when talking to a client, females reported 79% (30/38) whereas males reported 67% (40/60). Finally, as shown on table 31, for the activity of talking to their peers males reported a higher percent compared to females. Fifty-two percent of the males (31/60) reported using either “mostly English” or “English whereas females reported a 45% (17/38).

Table 30. Language used at work by female participants for eight activities (n=38)

Language Activity	Only/mostly English		English and Spanish at same frequency		Only/mostly Spanish		N/A or No Response		Total	
	N	%	N	%	N	%	N	%	N	%
Reading	34	89%	2	5%	1	3%	1	3%	38	100%
Writing	33	86%	3	8%	1	3%	1	3%	38	100%
Making oral reports	30	79%	3	8%	3	8%	2	5%	38	100%
Talking to a client	28	74%	2	5%	7	18%	1	3%	38	100%
Making phone calls	25	66%	7	18%	5	13%	1	3%	38	100%
Talking to your boss	25	66%	1	3%	11	29%	1	3%	38	100%
Talking to your Peers	18	47%	8	21%	11	29%	1	3%	38	100%
Instant Messaging	17	45%	5	13%	9	24%	7	18%	38	100%
Total	210	69%	31	10%	48	16%	15	5%	304	100%

Table 31. Language used at work by male participants for eight activities (n=60)

Language Activity	Only/mostly English		English and Spanish at same frequency		Only/mostly Spanish		N/A or No Response		Total	
	N	%	N	%	N	%	N	%	N	%
Reading	46	76%	11	18%	2	5%	1	4%	60	100%
Making oral reports	47	78%	4	7%	7	11%	2	5%	60	100%
Writing	45	75%	7	12%	7	11%	1	2%	60	100%
Talking to a client	40	67%	6	10%	11	18%	3	5%	60	100%
Making phone Calls	39	65%	9	15%	11	18%	1	2%	60	100%
Talking to your boss	39	65%	2	3%	18	30%	1	2%	60	100%
Talking to your Peers	31	52%	11	18%	17	28%	1	2%	60	100%
Instant Messaging	25	42%	12	20%	11	18%	12	20%	60	100%
Total	312	65%	62	13%	84	17%	22	5%	480	100%

Table 32 shows often participants switch between Spanish and English at work. As shown in the table, a higher percent of females (86%) than males (79%) who work in PR reported that the 'sometimes' or 'frequently' switched between Spanish and English at work. A much higher percent of males (51%) than females (26%) who work in the US reported that they 'sometimes' or 'frequently' switch between Spanish and English at work.

Table 32. How often participants in PR and the US switch between Spanish and English at work by gender

	PR				US				Total	
	Females	%	Males	%	Females	%	Males	%	Total	%
Never	1	7%	2	7%	7	30%	5	15%	15	15%
Rarely	1	7%	2	7%	9	40%	11	34%	23	23%
Sometimes	3	20%	10	38%	4	17%	10	30%	27	28%
Frequently	10	66%	11	41%	2	9%	7	21%	30	31%
No response	0	0%	2	7%	1	4%	0	0%	3	3%
Total	15	100%	27	100%	23	100%	33	100%	98	100%

Gender: English at Home

As shown on tables 33 and 34, both females and males use either “mostly English” or “English only” for the correspondence they receive at home, for subtitles when watching TV and for watching TV at home. However, as shown on table 33, females reported higher percentages than males for all those three activities. For watching TV, 66% of the females (25/38) reported that use “mostly English” or “English only” whereas males reported 63% (38/60). For the correspondence they receive at home, 66% of the females (25/38) reported that use “mostly English” or “English only” whereas males reported 58% (35/60). Finally, for the subtitles, 58% of the females (22/38) reported that used “mostly English” or “English only” whereas males reported a 40% (24/60).

For the activities of receiving a relative, a visitor, talking to the people that live with them, and using the telephone at home, both females and males reported that used either “mostly Spanish” or “Spanish only”. However, there are differences in the percents for females and males. When receiving a visitor, females reported 87% (33/38) whereas males reported 58%

(35/60). When talking to the people that live with them, females reported 73% (28/38) whereas males reported 72% (43/60). Finally, when using the telephone at home, females reported 63% (18/38) whereas males reported 60% (36/60). Finally, when receiving a relative at home, males reported a higher percent than females. Males reported a 92% (55/60) whereas females reported 87% (33/38).

For the activities of reading and writing, there are differences between genders. Forty-seven percent of the females (18/38) reported that use “English and Spanish at the same frequency” whereas males reported using either “mostly English” or “English only” (40% (n=42/60)). For the activity of writing, females reported using either “mostly Spanish” or “Spanish only” when writing at home (47% (n=18/38)). On the other hand, males reported using “English and Spanish at the same frequency” (55% (n=39/60)). Finally, for listening to music, both females and males reported using “English and Spanish at the same frequency”. However, as shown on tables 33 and 34, a higher percent of females reported using “English and Spanish at the same frequency” (45% (n=17/38) whereas males reported 50% (30/60).

Table 33. Language used at home for ten activities by female participants (n=38)

Language Activity	Only/mostly English		English and Spanish at same frequency		Only/mostly Spanish		N/A or No Response		Total	
	N	%	N	%	N	%	N	%	N	%
Watching TV	25	66%	13	34%	0	0%	0	0%	38	100%
Correspondence you receive at home	25	66%	10	26%	3	8%	0	0%	38	100%
Subtitles for a movie	22	58%	5	13%	2	5%	9	24%	38	100%
Reading at home	14	37%	18	47%	6	16%	0	0%	38	100%
Listening to music	10	26%	17	45%	11	29%	0	0%	38	100%
Writing	12	32%	8	21%	18	47%	0	0%	38	100%
Using the phone at home	2	5%	12	32%	24	63%	0	0%	38	100%
Talking to people who live with you	4	11%	5	13%	28	73%	1	3%	38	100%
Receiving a visitor at home	0	0%	5	13%	33	87%	0	0%	38	100%
Receiving a relative at home	0	0%	5	13%	33	87%	0	0%	38	100%
Total	114	30%	98	26%	158	41%	10	3%	380	100%

Table 34. Language used at home for ten activities by male participants (n=60)

Language Activity	Only/mostly English		English and Spanish at same frequency		Only/mostly Spanish		N/A or No Response		Total	
	N	%	N	%	N	%	N	%	N	%
Watching TV	38	63%	19	32%	3	5%	0	0%	60	100%
Correspondence you receive at home	35	58%	18	30%	7	12%	0	0%	60	100%
Subtitles for a movie	24	40%	12	20%	13	22%	11	18%	60	100%
Reading at home	24	40%	23	38%	13	22%	0	0%	60	100%
Writing	21	35%	19	32%	20	33%	0	0%	60	100%
Listening to music	11	18%	30	50%	19	32%	0	0%	60	100%
Receiving a visitor at home	10	17%	15	25%	35	58%	0	0%	60	100%
Using the phone at home	6	10%	18	30%	36	60%	0	0%	60	100%
Talking to people who live with you	8	13%	7	12%	43	72%	2	3%	60	100%
Receiving a relative at home	0	0%	5	8%	55	92%	0	0%	60	100%
Total	177	30%	166	28%	244	40%	13	2%	600	100%

Table 35 shows often participants switch between Spanish and English at home. As shown in the table, a similar percent of females (33%) and males (34%) who work in PR reported that they ‘sometimes’ or ‘frequently’ switched between Spanish and English at home.

A higher percent of females (52%) than males (42%) who work in the US reported that they ‘sometimes’ or ‘frequently’ switch between Spanish and English at home.

Table 35. How often participants in PR and the US switch between Spanish and English at home by gender

	PR				US				Total	
	Females	%	Males	%	Females	%	Males	%	Total	%
Never	1	7%	9	33%	4	17%	5	16%	19	19%
Rarely	9	60%	8	30%	6	27%	14	42%	37	28%
Sometimes	2	13%	5	19%	4	17%	7	21%	18	18%
Frequently	3	20%	4	15%	8	35%	7	21%	22	23%
No response	0	0%	1	3%	1	4%	0	0%	2	2%
Total	15	100%	27	100%	23	100%	33	100%	98	100%

Gender: Cultural Identity

Table 36 shows how necessary it is to speak Spanish to be Puerto Rican for participants who work in PR and the US. As shown in the table, a higher percent of females in both PR and the US than males in PR and the US reported that it was ‘extremely necessary’ or ‘very necessary’ to speak Spanish to be Puerto Rican. In PR, 60% of the females but 48% of males the reported that it was ‘extremely necessary’ or ‘very necessary’; in the US 96% of the females but 79% of the males reported that it was ‘extremely necessary’ or ‘very necessary’ to speak Spanish to be Puerto Rican.

Table 36. How necessary it is to speak Spanish to be Puerto Rican for participants who work in PR and the US by gender

	PR				US				Total	
	Females	%	Males	%	Females	%	Males	%	Total	%
Not necessary 1	3	20%	4	15%	0	0	6	18%	13	13%
A little bit necessary 2	3	20%	10	37%	1	4%	1	3%	15	15%
Very necessary 3	2	13%	4	15%	7	31%	8	24%	21	22%
Extremely necessary 4	7	47%	9	33%	15	65%	18	55%	49	50%
Total	15	100%	27	100%	23	100%	33	100%	98	100%

Table 37 shows how necessary it is to be born in PR to be Puerto Rican. As shown in the table, a higher percent of males (62%) than females (53%) who work in PR reported that it was ‘very necessary’ or ‘extremely necessary’ to be born in PR to be Puerto Rican while a much higher percent of females (78%) than males (55%) who work in the US reported that it was ‘very necessary’ or ‘extremely necessary’ to be born in PR to be Puerto Rican.

Table 37. How necessary it is to be born in PR to be Puerto Rican for participants who work in PR and the US by gender

	PR				US				Total	
	Females	%	Males	%	Females	%	Males	%	Total	%
Not necessary 1	5	34%	5	19%	2	9%	9	27%	21	13%
A little bit necessary 2	2	13%	5	19%	3	13%	6	18%	16	15%
Very necessary 3	2	13%	2	7%	9	39%	6	18%	19	22%
Extremely necessary 4	6	40%	15	55%	9	39%	12	37%	42	50%
Total	15	100%	27	100%	23	100%	33	100%	98	100%

To summarize, participants who worked and lived in the US used ‘mostly English’ or ‘English only’ for the activities at work. Given this, participants in the US ‘never’ or ‘rarely’ switch between languages at work. In the case of PR, English and Spanish are the languages at the work domain; thus, respondents in PR reported that they switch between languages either ‘sometimes’ or ‘frequently’ in the work domain. For the home domain, participants in the US used English and Spanish and switched between the two languages at home. In the case of the participants in PR, Spanish is the language used at home except for the activities involving media. Finally, overall, English is considered as either ‘very necessary’ or ‘extremely necessary’ at work, to advance professionally and to get better job performance evaluations. Finally, there were gender differences, particularly with respect to cultural identity.

Discussion of the Results

According to Sánchez (1999), “with so many American-owned businesses in Puerto Rico, there is a great need for workers who can understand, speak, read, and write English” (p.7). Thus, English does play a role in the work domain. The questionnaire used for this thesis demonstrates that the same is true for the job positions that former UPRM engineering students occupy. The percents from the participants’ responses supports that engineers that work in both the US and PR must be able to speak, understand, read, and write English at work independently of the work location.

Also, Sánchez found that “the vast majority of federal agencies in Puerto Rico use only or mostly English for writing” (p. 195). In fact, federal government respondents reported that for them, to write in English is obligatory. In this thesis, respondents that work in the US reported that the majority of the activities at work including writing are carried out only/mostly in English.

In contrast, Sánchez found that local government employees use only or mostly Spanish for writing and that for the private sector, more written English is utilized. Similar to Sánchez’s results, the results for this thesis show that more than half of the former UPRM engineering students that work in PR write using either English only or mostly English. In fact, the vast majority of them work for the private sector.

Scholars such as Clachar (1997), (1998) and Sánchez (1999) coincide by stating that in the case of Puerto Ricans, the English language does have an instrumental value. In addition, Román (1999) found that high English proficiency played a decisive role in getting promotions within the companies. However, Román found that “from high-level jobs to low-level jobs, the majority of the subjects indicated that they would be promoted if they increased their English

language proficiency” (p. 92-93). In this thesis, participants across all the English sequences and who work either in the US or PR support the fact that English does have an instrumental value because it is considered necessary to advance in the profession and to obtain better job performance evaluations. Also, English is the language most commonly used for job interviews and the bilingual skills are required for the majority of the job positions that former UPRM engineering students occupy in PR.

In terms of English skills, Sánchez (1999) posits that workers in PR do not feel as limited in reading English as they feel when speaking and writing English. In this thesis, results obtained from respondents are similar to Sánchez’ results. Respondents rate themselves as excellent in reading. However, the majority of them rated themselves as good in speaking and writing.

Darling and Dannels (2003) point out that “although evidence suggests that communication skills are critical to engineering practices, other studies report that these skills are being inadequately developed in engineering courses and curricula nationwide” (p. 2). Similarly, results in this thesis reveal that more than half of the respondents would like to have had the opportunity to take Business Communication courses.

The 2006-2007 UPRM Online Undergraduate Catalogue states that the UPRM is a “co-educational, bilingual, and non-sectarian school” (p. 1). Overall, the majority of the respondents that participated in this thesis agreed with the fact that UPRM is a bilingual institution.

Even though English has been the main focus of this thesis, a special importance has been given to the role that Spanish has to the former UPRM engineering students. Morris (1995) posits that “the Spanish language has more than symbolic importance in Puerto Rico

and that it is the fundamental tool used by most Puerto Ricans for most communication” (p. 162). Also, Bell (1976) points out that for most individuals, the first language learned is the mother tongue and in the majority of the cases, it is the most used language. Results obtained from the participants demonstrate that Spanish is the most used language at home and that it is the first language of the vast majority of the respondents. In the case of the work domain, results indicate that participants used either English or English and Spanish at the same frequency.

Morris (1995) posits that Spanish serves as a rallying point for Puerto Rican identity. To support this, Urcioli (2006) posits that in the case of most Puerto Ricans, the Spanish language is the main source of identity. Overall, contrary to what Morris and Urcioli pointed out, results from this thesis show that less than the half of the participants consider that it is necessary to speak Spanish to be considered Puerto Rican. Thus, the results do not necessarily sustain that language represents a source of identity for participants.

Grosfoguel (1999) explains that “Puerto Rican as a form of identity means different things for Puerto Ricans born and raised either on the island or in the US” (p. 246). He also explains the sense of belonging is promoted and reinforced through family and social networks between the island and the metropolis” (p. 245). Also, Vega (1990) points out that “the belief that Hispanics are more family-oriented than Anglos has been a consistent theme in the social sciences” (Vega, 1990, p. 1018). Furthermore, Vega (1990) posits that another implication from migration patterns that Puerto Ricans can experience as Hispanics is the cultural maintenance through “familism”. In the case of this thesis, responses support both Grosfoguel’s and Vega’s arguments. For example, when asked to report whether it is necessary to be born in PR to be Puerto Rican, roughly 40% agreed that it is necessary to be

born in PR to be considered Puerto Rican. In addition, results showed that the majority of the participants that accepted a job offer/employment in PR did it for personal reasons, including family. In the case of the participants that work and live in the US, the majority of them reported that they strongly disagreed or disagreed that they accepted a job offer in the US for personal or family reasons but indicated economic reasons. In fact, responses given to the open ended questions by those who work in the US revealed that the main reasons to leave the island were economic. However, they constantly emphasize that they miss the island's culture as well as their relatives.

Hudson (1996) notes that code-switching is an inevitable consequence of bilingualism. Among Puerto Ricans, Pousada (2000) reports that on her study, Puerto Rican participants showed that even though they used Spanish at home and with neighbors, they tended to code-switch between Spanish and English most of the time. However, results for this thesis reveal the opposite. The participants reported that they do not switch between English and Spanish at home because Spanish is the language of the home except for activities that involve media.

Hudson (1996) explains that there are situations where the mother tongue loses its position as primary medium of communication, is limited to home and friendship and is displaced in other domains by the dominant language of the host community. This study supports Hudson's argument in that respondents that work in the US reported that the majority of the activities at work including writing are carried out only/mostly in English specifically instead of using Spanish whereas at home they used mostly Spanish or Spanish only with relatives.

Chapter V: Conclusions

The objectives that guided this thesis were to find out what English preparation the UPRM engineering graduates received from UPRM before they graduated, to find out if English played a role in the decision of the UPRM engineering graduates to accept employment in PR or the US, to find out if English plays a role in the lives of the engineering graduates, particularly in the domains of work and home, and to find out if there are differences in the role that English plays in the lives of the engineering graduates who work in PR and the engineering graduates who work in the US.

In general, across the four English sequences and the respondents from both PR and the US, the majority of the respondents consider UPRM a bilingual school. In terms of the preparation for the world of work that they received from the courses taken at UPRM, respondents reported that they had received a good preparation and that the courses were good. In addition, the majority of the respondents rated their English skills as ‘excellent’.

In the case of the participants that accepted a job offer in the US, respondents did not agree that their decision had to do with their good English skills but reported that it had to do with economical reasons and better wages. In the case of the participants that accepted a job offer in PR, the respondents disagreed that their decision had to do with their weak English skills. Instead, it had to do mostly with personal reasons and to “familism”. However, 30% of respondents that work in the US reported that they agree that their decision to accept a job in the US had to do with their good English language skills. In contrast, only 12% of those who work in PR agreed or strongly agreed that their decision to accept a job in PR had to do with their weak English language skills. Thus, English played a stronger role in the decision of those who accepted a job in the US than in the decision of those who accepted a job in PR.

Overall, respondents that work in the US reflected a higher proficiency than the ones who work in PR. In terms of a gender effect, males in the US are more proficient in English than the ones in PR. However, this was not the case for the females. Respondents who work in the US use more English at work for all the activities. On the other hand, for respondents that work in PR, English is the language at work only for some activities. Participants from the US did not switch between English and Spanish at work as participants who work in PR do. This has to do with the fact that for respondents that work in PR both English and Spanish are the languages at work.

Overall, for former UPRM engineering students, English is extremely necessary at work, to advance professionally, and to obtain better job performance evaluations. This demonstrates the instrumental value of English in PR. Primarily, Spanish is the language used at home by respondents that work in PR. Thus, they do not switch between English and Spanish as respondents who work and live in the US do. On the other hand, both English and Spanish are the languages used at home by respondents that live and work in the US; thus, they switch among languages to a greater extent.

Pedagogical Implications

This study revealed that the majority of the former UPRM engineering students only took the English courses that were required on their academic program. Except for those students who enter at the Intermediate English sequence, UPRM engineering students do not necessarily have to take other English courses as electives or as part of their program that might be helpful once they graduate as, for example, Technical Writing, Conversational English and or Public Speaking. Also, according to the ABET criteria, upon graduation, engineering graduates should be able to communicate effectively in both English and Spanish. In fact, as

Darling and Dannels (2003) point out, “although evidence suggests that communication skills are critical to engineering practices, other studies report that these skills are being inadequately developed in engineering courses and curricula nationwide” (p. 2). Thus, the College of Engineering should take into consideration the engineering curricula in order to strengthen the English preparation that UPRM engineering students receive in order to provide them with a better academic preparation for the world of work. In other words, English courses such as Technical Writing, Public Speaking and Conversational English should be included as part of all engineering academic programs

A representative percent of the respondents reported that they would have liked to take Business Communication, followed by Conversational English and Public Speaking because they consider them to be helpful for the workplace environment. At the UPRM there is not a course about Business Communication or about Organizational Communication in English addressed to UPRM engineering students. Then, the Engineering faculty should study and develop strategies in conjunction with the UPRM English department in order to design courses in Speech Communication areas (Business Comm., Organizational Comm. & Group Dynamics) specially tailored for current UPRM engineering students.

Also, programs should develop strategies in order to motivate the engineering students to include English courses as part of their electives. Even though, in general, former UPRM engineering students rated their current abilities across the four English skills as excellent, the lowest percent was for the ability of speaking in English. So, Engineering Faculty professors should reinforce the use of English in their courses by asking current engineering students to use more English for oral reports and presentations. Finally, they should encourage current engineering students to participate in study abroad and/or internship programs.

Limitations of the Study

The main limitation that I found during this study is that the only data collection used was a questionnaire administered through the web. Thus, all the data gathered was limited to that data collection method. Using the questionnaire raises the question of several limitations.

The first limitation had to do with the legitimacy of the study. According to Dornyei (2006), “if we claim to represent an organization that is esteemed highly by the respondents, the positive reputation is likely to be projected onto the survey” (p. 85). Even though the questionnaire specified UPRM as institutional sponsorship and respondents were invited by e-mail to participate individually, some possible respondents neglected to participate because they had doubts about its legitimacy. Other possible respondents neglected to participate because they did not consider the study confidential, besides it contained an informed consent form.

The second limitation for the study has to do with the time required to fill out the questionnaire. As Dornyei (2006) argues, “the amount of time respondents are usually willing to spend working on a questionnaire is rather short, which again limits the depth of the investigation” (p. 10). The questionnaire used for this study contained both open and closed ended questions for a total of 106 items and took approximately 15 minutes to be completed. Thus, some possible participants might have declined to participate due to its length. The third limitation had to do with the fact that not all respondents filled out the questionnaire in full or reported gender.

Finally, social desirability bias constituted a limitation for this study. As Dornyei (2006) posits, “people do not always provide true answers about themselves; that is, the results represent what the respondents report to feel or believe, rather than what they actually feel or

believe” (p. 12). In the case of this study, the vast majority of the respondents reported having excellent English skills across the all four levels. However, when asked to report whether UPRM courses they took helped them to become bilingual, the majority of them responded that they did not help them to become bilingual. Thus, the social desirability bias shown by respondents represents a limitation for this study.

Directions for Future Research

English is a fascinating topic in any research conducted in PR due to the history that the English language has had on the island. Thus, here are several possible directions for future research related to this specific study that would be able to broaden it. The first direction for future research is to select and include as participants a group of employers in the US and in PR. Their responses in terms of how they evaluate former UPRM engineering students’ language use and proficiency at work would provide even more interesting data and enable researchers to establish comparisons among responses provided by employers and former engineering students respectively.

Second, another direction for research is to use ethnography. That is, to visit the real-world scenarios of the workplaces where former UPRM engineering students are. Also, it would be interesting to interview both workers and employers and to keep a log of the activities and tasks that required English usage. These would be helpful in order to get a broader picture of the role that English plays in the lives of former UPRM engineering students. Through these, researchers might be able to get a more ample picture about how English impacts the lives of former UPRM engineering students.

Third, this study is limited to former UPRM engineering students. Thus, a possible direction for research might be to expand the study by including former engineering students

from other universities in the US and in the case of PR, from the Polytechnic University as well as its engineering faculty. Fourth, it would be interesting to identify case studies from all the English sequences and to keep track of them from when they enter college until they graduate and begin to work; case study research would provide researchers another research direction.

Reference List

- Algren De Gutiérrez, E. (1987). *The Movement against Teaching English in School of Puerto Rico*. University of America Press, London, 1987.
- Baker, C. (1996). *Foundations of Bilingual Education and Bilingualism*. (2nd ed.) Clevedon: Multilingual Matters.
- Bell, R.T. (1976). *Sociolinguistics: Goals, Approaches and Problems*. London: Batsford.
- Blau, E. & Dayton, E. (1997). Puerto Rico as an English-Using Society. In R.M. Hammond & M.G. McDonald (eds.), *Linguistic Studies in honor of Bohdan Saciuk*, (pp. 137-148). West Lafayette, IN: Learning Systems, Inc., (Custom Publishing Division: Foreign Language Series).
- Blau, E., Galanti, F. & Sherwin, R. (1989). Employment Interviewer's Judgments of Business and Technical Writing of Nonnative Speakers of English. *The Technical Writing Teacher*, 16(2), 136-146.
- Clachar, A. (1997a). Ethnolinguistic Identity and Spanish Proficiency in a Paradoxical Situation: The Case of Puerto Rican Return Migrants. *Journal of Multilingual and Multicultural Development*, 18(2), 107-124.
- Clachar, A. (1997b). Resistance to the English language in Puerto Rico: Toward a theory of Language and intergroup distinctiveness. *Linguistics and Education*, 18(2), 107-124.
- Clachar, A. (1998). Differential Effects of Linguistic Imperialism on Second Language Learning: Americanization in Puerto Rico versus Russification in Estonia. *International Journal of Bilingual Education and Bilingualism*, 9, 69-98.
- Cunningham-Andersson, U. & Andersson, S. (2004). *Growing up with two languages: A practical guide*. New York: Routledge.
- Darling, A.L., & Dannels, D.P. (2003). Practicing Engineers Talk about the Importance of Talk. *Communication Education*, 52(1), 1-16.
- Dornyei, Z. (2003). *Questionnaires in Second Language Research: Construction, Administration and Processing*. Mahwah, NJ: Lawrence Erlbaum.
- Dow, J.R. (ed.) (1991). *Language and Ethnicity (Focusschrift in Honor of Joshua A. Fishman on the Occasion of his 65th Birthday, Volume II)*. Amsterdam, Philadelphia: John Benjamins Publishing Company.
- Duany, J. (2005). The Rough Edges of Puerto Rican Identities, *Latin American Research Review*, 40(3), 177-190.

- Esdahl, T. (2003). Language Choice as a Power Resource in Bilingual Adolescents' Conversations in the Danish Folkeskole. *Journal of Multilingual and Multicultural Development*, 24, 76-89.
- Eda, S. (1994). *English Language Education in Japan and the Use of English by Japanese in the World of Englishes Framework*. Unpublished master's thesis, University of Puerto Rico, Mayagüez.
- Fishman, J. (1979). *La Sociología del Lenguaje*. (R. Sarmiento & Moreno, J.C., Trans.) Madrid. Original Work, Publisher 1972).
- Fishman, J. (1991). *Reversing Language Shift: Theoretical and Empirical Foundations of Assistance to Threatened Languages*. Clevedon: Multilingual Matters.
- Foulkes, M. & Bruce, K. (2000). Migration Propensities, Patterns, and the Role of Human Capital: Comparing Mexican, Cuban, and Puerto Rican Interstate Migration, 1985-1990. *Professional Geographer*, 52(1), p. 133-145.
- Gumperz, J. (1982). *Language and Social Identity*. United States: Cambridge University Press.
- Grosfoguel, R. (1999). Puerto Ricans in the USA: a Comparative Approach. *Journal of Ethnic and Migration Studies*, 25(2), p. 233-249.
- Hudson, R.A. (1996). *Sociolinguistics*. (2nd ed.) Cambridge: Cambridge University Press.
- Morales, B. (1999). *The Teaching of Culture in the Puerto Rican University English Language Classrooms*. Unpublished doctoral dissertation, University of Texas at Austin.
- Morris, N. (1995). *Puerto Rico: Culture, Politics, and Identity*. United States: Praeger Publishers.
- Myers-Scotton, C. (2006). *Multiple Voices: An Introduction to Bilingualism*. Malden: Blackwell Publishing.
- Pousada, A. (1999). The Singularly Strange Story of the English Language in Puerto Rico. *Milenio*. 3, 33-60.
- Pousada, A. (2000). The Competent Bilingual in Puerto Rico. *International Journal of the Sociology of Language*, 142, 103-118.
- Resnick, M.C. (1993). ESL and Language Planning in Puerto Rican Education. *TESOL Quarterly*, 27(2), 259-273.
- Román, R. (1999). *English Use in Manufacturing Plants in Puerto Rico*. Unpublished master's thesis, University of Puerto Rico, Mayagüez.

- Sánchez, L. (1999). *The Use and Importance of Written English in the Workplace in Puerto Rico*. UMI Dissertation Services. (UMI No. 9935659)
- Soto, L. (1997). Boricuas in America: The Struggle for Identity, Language and Power [Review of the book *Exposing Prejudice: Puerto Rican Experiences of Language, Race, and Class*]. *Pedagogy and Cultural Studies*, 19, 349-365.
- Tienda, M. & Mitchell, F. (2006). *Multiple Origins Uncertain: Hispanics and the American Future*. Retrieved February 7, 2007, from 1-176 at <http://www.hispanicad.com/banners2/uploadfiles/nas.pdf>
- University of Puerto Rico at Mayagüez. *2006-2007 Undergraduate Catalogue*, p. 1, 59.
- Urciuoli, B. (2003). Performing the Nation in Chicago, *Anthropological Quarterly*, 76(3), 531-538.
- Urciuoli, B. (November, 2006). *Whose Spanish? The Tension between Linguistic Correctness and Cultural Identity*. Paper presented at Language, Pedagogy and Power Conference, New York
- UsingEnglish.com. (n.d.). Retrieved March 26th, 2007, from <http://www.usingenglish.com/glossary/colloquial.htm>
- Vega, W. (1990). Hispanic Families in the 1980s: A Decade of Research. *Journal of Marriage and the Family*, 52, 105-1024.
- Worthy, J. & Rodríguez, A. (2006). “Mi Hija Vale dos Personas”: Latino Immigrant Parent’s Perspective about their Children’s Bilingualism. *Bilingual Research Journal*, 30(2), 579-601.
- Zayas, L. & Palreja, J. (1988). Puerto Rican Familism: Considerations for Family Therapy. *Family Relations*, 37(3), 260-264.
- Zentella, A.C. (1997). *Growing up Bilingual: Puerto Rican Children in New York*. Malden, MA: Blackwell Publishing.
- Zurer-Pearson, B. (2007). Social Factors in Childhood Bilingualism in the United States. *Applied Psycholinguistics*, 28(3), 399-410.

Appendix A. Informed Consent Form (English Version)

ENGLISH IN THE LIVES OF FORMER UPRM ENGINEERING STUDENTS

**UNIVERSITY OF PUERTO RICO
MAYAGUEZ CAMPUS
COLLEGE OF ARTS AND SCIENCES
ENGLISH DEPARTMENT**

Thank you very much for expressing your willingness to participate in the study that I am conducting to fulfill the requirements for the Masters of Arts in English Education at the UPRM.

Name & Contact Information of Student Researcher:

Damaris Echevarría, email: damaris@ece.uprm.edu , Phone: 265-3821
Advisor: Dr. Elizabeth Dayton, email: edayton@uprm.edu

Purpose of the Study: The primary goal of this study is to determine the role English plays in the workplace and in the lives of former UPRM engineering students.

Potential Benefits: The results can be used to benefit future UPRM engineering students.

Confidentiality: This study is voluntary, confidential, and anonymous. All responses to this survey will be kept confidential. Your name or identity will not be linked in any way to the research data.

Duration: It should take you under *15 minutes* to complete this online questionnaire. I will make the results available to you through my digital thesis which is to be completed in December, 2007.

Right to refuse to withdraw: The participation in this study will include the completion of this online questionnaire. Your participation is voluntary and you may refuse to participate, or may discontinue it at any time.

Individuals to contact: If I have a question about my participation in this study, I can contact Damaris Echevarría at the following address damaris@ece.uprm.edu or her thesis advisor Dr. Elizabeth Dayton at edayton@uprm.edu.

I have read this entire form and I understand it completely. All of my questions regarding this form or this study have been answered to complete satisfaction. I understand that my participation is voluntary and I may refuse to participate, or may discontinue it at any time. I agree to participate in this research. I understand that by typing my name in the box below I am signing this form and therefore am providing informed consent for this study.

Alternatively, if confidentiality of responses is a concern the following text could be used: By typing the words I AGREE in the space below and by completing the attached online questionnaire I am giving my consent to participate in this study. You are encouraged to print a copy of this statement for your records.

Appendix B. Informed Consent Form (Spanish Version)

Formulario de Consentimiento

El Inglés en las Vidas de los Egresados de la Facultad de Ingeniería del RUM

UNIVERSIDAD DE PUERTO RICO
RECINTO DE MAYAGÜEZ
COLEGIO DE ARTES Y CIENCIAS
DEPARTAMENTO DE INGLÉS

Muchas gracias por expresar su disposición de participar en este estudio que estoy realizando con el fin de completar los requisitos del grado de Maestría en Artes de la Educación en Inglés en el RUM.

Nombre e Información contacto de la investigadora principal y de la directora de tesis:

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Dra. Elizabeth Pine Dayton, Directora de Tesis
E-mail: edayton@uprm.edu

Propósito del estudio: Determinar el rol que desempeña el inglés en el área de trabajo y en las vidas de los estudiantes egresados de la facultad de Ingeniería del RUM.

Beneficios Potenciales: Los resultados obtenidos podrán beneficiar futuros estudiantes de Ingeniería del RUM.

Confidencialidad: Este estudio es voluntario, confidencial, y anónimo. Todas las respuestas se mantendrán en estricta confidencialidad. Su nombre ó identidad de ninguna manera serán atados a la data obtenida.

Duración: El mismo debe tomar menos de 15 minutos en ser completado. Los resultados de este estudio estarán disponibles a través de la versión digital de mi tesis la cual será completada para diciembre de 2007.

Derecho a rehusar ó declinar el estudio: Su participación en este estudio incluirá completar el cuestionario a través de Internet. Su participación es voluntaria y puede rehusar participar del mismo ó discontinuarlo en cualquier momento.

Personas contacto: Si usted tiene alguna pregunta acerca de su participación en este estudio, usted puede contactar a Damaris Echevarría a través de la siguiente dirección(es) electrónicas: damaris@ece.uprm.edu ó damaris.echevarria@gmail.com También puede contactar a su directora de tesis, la Dra. Elizabeth Pine Dayton a: edayton@uprm.edu.

He leído esta sección en su totalidad y entiendo completamente lo establecido en la misma.

Todas mis preguntas relacionadas a la misma ó acerca del estudio han sido respondidas satisfactoriamente. Entiendo que mi participación es voluntaria y que puedo rehusar de participar ó discontinuar el cuestionario en cualquier momento. Estoy de acuerdo en participar. Entiendo que al escribir mi nombre en el espacio provisto a continuación estoy firmando de forma electrónica y proveyendo un informe de consentimiento para participar de este estudio.

Por otro lado, si prefiere no utilizar su nombre como firma electrónica, podrá escribir la palabra ESTOY DE ACUERDO en el espacio provisto. Al completar el cuestionario usted está otorgando su consentimiento para participar de este estudio. Para su beneficio, usted puede imprimir una copia de este informe de consentimiento para sus archivos personales.

Appendix C. Questionnaire (English Version)

I. SOCIO-DEMOGRAPHIC INFORMATION

1. Gender Female___ Male _____
2. Age _____
3. Born Puerto Rico ___ US (continental) ___ other ___
4. Raised Puerto Rico ___ US (continental) ___ other ___
5. If you currently live in PR, please, specify the municipality: _____
6. Have you ever lived in the United States? Yes___ No___
7. If yes, Where? _____ How long? _____
8. If you currently live in the US, please, specify the state: _____
9. How long have you been living in the US?
 less than a year___ 1-3 years ___ 4-6 years ___ 7-9 years or more ___
10. If you are married, please indicate if your spouse is:
 Puerto Rican___ Nuyorican___ North American___ Other _____ Explain if
 necessary

11. Elementary school? (**K-6**) Puerto Rico ___ US (continental) ___ other ___
12. Elementary school? (**K-6**) Private ___ Public ___
13. If private elementary school Bilingual ___ Non-Bilingual___
14. Intermediate school? (**7-9**) Puerto Rico ___ US (continental) ___ other ___
15. Intermediate school? (**7-9**) Private ___ Public ___
16. If private intermediate school Bilingual ___ Non-Bilingual___
17. High school? (**10-12**) Puerto Rico ___ US (continental) ___ other ___
18. High school? (**10-12**) Private ___ Public ___
19. If private high school Bilingual ___ Non-Bilingual___
20. Your first language is: English___ Spanish___
21. The language of your family
 at **home** is: English___ Spanish___ Both___

22. Engineering department at UPRM from which you got your B.S. degree:
Agricultural__ Civil__ Chemical__ Computer__ Electrical__ Industrial__
Mechanical__

23. B.S. graduation year:_____

24. Other degrees obtained: M.S.____ Ph.D.____ Post-Doctoral____

25. Are you employed? Yes__ No__

26. If , yes, you work in: Puerto Rico ____ US (continental) ____

27. Specify the **municipality or state** _____

28. Name of the company _____

29. Job position _____

Mother

30. Where was your mother born? Puerto Rico ____ US (continental) ____other ____

31. Which is your mother's first language? English____ Spanish____

32. Does your mother speak English? Yes__ No__

33. Did your mother graduate from High School? Yes__ No__

34. Did your mother graduate from college? Yes__ No__

35. Has your mother ever lived in the US? Yes__ No__

36. If yes, how many years? _____

Father

37. Where was your father born? Puerto Rico ____ US (continental) ____other ____

38. Which is your father's first language? English____ Spanish____

39. Does your father speak English? Yes__ No__

40. Did your father graduate from High School? Yes__ No__

41. Did your father graduate from college? Yes__ No__

42. Has your father ever lived in the US? Yes__ No__

43. If yes, how many years? _____

II. UPRM ENGLISH PREPARATION FOR THE WORKPLACE

44. "UPRM is a bilingual school". Do you agree with that? Yes__ No__
45. Your first English course as a freshman at UPRM was:
Pre Basic __ **Basic**__ **Intermediate**__ **Advanced** __
46. Did you take only the English courses required in your academic program?
Yes____ No____
47. Which one(s) of the following English courses did you take at UPRM?
Technical Writing__ **Public Speaking**__ **Conversational English**__
None__
48. If you answered **none**, why didn't you take other English courses as elective courses?

49. Which other course(s) would you like to have had the opportunity to take during your college years? You may check more than one.
Technical Writing__ **Public Speaking**__ **Conversational**__ **Business**
Communication__ **Other**__ please, specify _____
50. Did you participate in an Exchange Program or Plan Coop program **in the US** while you were a student at UPRM?
Yes->__ Please, specify where _____
No ____
51. If you answered yes to the previous question, which was/were the reason (s) that motivated you to do so? You may check more than one
___to earn some money
___to get experience before graduation
___to improve my English skills
___all of them
52. Do you consider that the UPRM English courses helped you in the process of becoming bilingual?
Yes__ No__

	<i>Excellent</i>	<i>Good</i>	<i>Satisfactory</i>	<i>Barely</i>	<i>Failing</i>
	<i>(A)</i>	<i>(B)</i>	<i>(C)</i>	<i>(D)</i>	<i>(F)</i>

Rate the preparation for the world of work that you think UPRM English courses offered to you as an engineering major

- | | | | | | |
|----------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 53. Reading skills | <input type="checkbox"/> |
| 54. Listening skills | <input type="checkbox"/> |
| 55. Speaking skills | <input type="checkbox"/> |
| 56. Vocabulary | <input type="checkbox"/> |
| 57. Grammar | <input type="checkbox"/> |
| 58. Writing | <input type="checkbox"/> |

	<i>A Lot</i>	<i>Enough</i>	<i>Just a little bit</i>	<i>Not at All</i>
	<i>N/A</i>			

The English courses at UPRM helped me to improve my:

- | | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 59. Conversational English | <input type="checkbox"/> |
| 60. My understanding when participating
at a professional conference | <input type="checkbox"/> |
| 61. My understanding of academic texts | <input type="checkbox"/> |
| 62. Ability to write essays and reports | <input type="checkbox"/> |
| 63. Ability to speak formally in English | <input type="checkbox"/> |
| 64. Ability to speak casually in English | <input type="checkbox"/> |

III. ENGLISH AT WORK AND IN HOME DOMAINS

The following questions are related to your current job as well as other job positions you might have had before the one that you occupy right now. Please, select the answer that best fits with your individual experience.

	<i>English</i>	<i>Spanish</i>
65. Language used during your first job interview:	<input type="checkbox"/>	<input type="checkbox"/>
66. Language used for your interview at your current job:	<input type="checkbox"/>	<input type="checkbox"/>
	<i>Yes</i>	<i>No</i>
67. Were bilingual skills required for your first job position?	<input type="checkbox"/>	<input type="checkbox"/>
68. Are bilingual skills required for your current position?	<input type="checkbox"/>	<input type="checkbox"/>

For the following questions, please rate your current ability in the following skills.

	<i>Excellent</i>	<i>Good</i>	<i>Satisfactory</i>	<i>Barely</i>	<i>Failing</i>
	<i>(A)</i>	<i>(B)</i>	<i>(C)</i>	<i>(D)</i>	<i>(F)</i>
69. Ability to read in English	<input type="checkbox"/>				
70. Ability to write in English	<input type="checkbox"/>				
71. Ability to speak in English	<input type="checkbox"/>				
72. Ability to understand spoken English	<input type="checkbox"/>				

For the following questions please select the alternative that best describes your English usage at WORK

	<i>English Only</i>	<i>Mostly English</i>	<i>English&Spanish with the same Frequency</i>	<i>Mostly Spanish</i>	<i>Spanish Only</i>	<i>N/A</i>
73. When <u>talking to your peers</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
74. When <u>talking</u> to a client	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
75. When <u>talking</u> to your boss	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
76. When <u>writing</u> at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
77. When <u>making or receiving phone calls at work</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
78. When <u>reading</u> at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
79. When <u>using Instant</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Messaging (IM) with
peers during working time?

80. When making oral reports
- to an audience

The following questions have to do with the necessity of English and Spanish. Please, check the number that best describes your situation (1=Not necessary at all; 4=Extremely necessary).

	<i>Not necessary at all</i>			<i>Extremely necessary</i>
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
81. How necessary is it to be able to speak English at work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
82. How necessary is the English language to advance in your profession?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
83. English at work to obtain better job performance evaluations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
84. How necessary is it to speak Spanish to be Puerto Rican?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
85. How necessary is it to be born in PR to be Puerto Rican?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For the following questions please select the alternative that best describes your English usage at HOME

	<i>English Only</i>	<i>Mostly English</i>	<i>English&Spanish with the same Frequency</i>	<i>Mostly Spanish</i>	<i>Spanish Only</i>	<i>N/A</i>
86. When you <u>talk</u> to the people who live with you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
87. When <u>listening to music</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
88. When <u>watching</u> TV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
89. When using <u>subtitles</u> for a movie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
90. When using the <u>telephone</u> at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

91. When reading at home
92. When receiving a visitor at home
93. When receiving a relative at home
94. Which is the language used in the correspondence you receive at home
95. When writing at home (E-mails, payments, etc.)

Never *Rarely* *Sometimes* *Frequently*

96. How often do you switch between English and Spanish *at work*?
97. How often do you switch between English and Spanish *at home*?

The following questions have to do with your decision to accept job offers or employment in Puerto Rico or abroad. Please, read carefully and select the answer that best fits with your personal case.

98. Is your current job position in Puerto Rico?

Yes-> If yes, go to questions 99 to 101

No -> If no, go to questions 102 to 104

Specify whether you agree or not with the following statements:

	<i>Strongly Agree</i>	<i>Agree</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
99. Your decision to accept a job offer/employment <u>in Puerto Rico</u> had to do with personal reasons such as family, religion, and personal beliefs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
100. Your decision to accept a job offer/employment <u>in Puerto Rico</u> had to do with your weak English language skills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
101. Your decision to accept a job offer/employment <u>in Puerto Rico</u> had to do with the fact that you did not receive job offers from US companies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>Strongly Agree</i>	<i>Agree</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
102. Your decision to accept a job offer/employment <u>in the US</u> had to do with personal reasons such as family, religion, political and personal beliefs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
103. Your decision to accept a job offer/employment <u>in the US</u> had to do with your good English language skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
104. Your decision to accept a job offer/employment <u>in the US</u> had to do mostly with economical reasons and better wages.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IV. OPEN ENDED QUESTIONS

105. Describe other reasons for leaving Puerto Rico for work.

106. Describe other reasons you might have decided to work in Puerto Rico.

***Thank you very much for your participation
Please feel free to contact me to any of the following e-mail addresses:
damaris@ece.uprm.edu or damaris.echevarria@gmail.com***

Appendix D. Questionnaire (Spanish Version)

I. INFORMACIÓN SOCIO-DEMOGRÁFICA

1. Género Femenino ___ Masculino ___
 2. Edad ___
 3. Nacido@ : Puerto Rico ___ EU (continental) ___ Otro ___
 4. Criado@ en: Puerto Rico ___ EU continental) ___ Otro ___
 5. Si actualmente vive en Puerto Rico, por favor, especifique el municipio: _____
 6. ¿Ha vivido anteriormente en los EU? Sí ___ No ___
 7. Si su respuesta fue **SÍ**: ¿Dónde? _____ ¿Por cuánto tiempo? _____
 8. Si actualmente vive en los EU, por favor, especifique el estado: _____
 9. ¿Por cuánto tiempo ha vivido en los EU?
Menos de un año ___ 1-3 años ___ 4-6 años ___ 7-9 años ó más ___
 10. Si está casado, por favor indique si su cónyuge es:
Puertorriqueño ___ Nuyorican ___ Norteamericano ___ Otro _____ Explique si es necesario
-
-

11. Escuela Elemental (**K-6**) Puerto Rico ___ EU (continental) ___ Otro ___
12. Escuela Elemental (**K-6**) Privada ___ Pública ___
13. Si asistió a una Escuela Elemental Privada (**K-6**) Bilingüe ___ No Bilingüe ___
14. Escuela Intermedia (**7-9**) Puerto Rico ___ EU (continental) ___ Otro ___
15. Escuela Intermedia (**7-9**) Privada ___ Pública ___
16. Si asistió a una Escuela Intermedia Privada (**7-9**) Bilingüe ___ No Bilingüe ___
17. Escuela Superior (**10-12**) Puerto Rico ___ EU (continental) ___ Otro ___
18. Escuela Superior? (**10-12**) Privada ___ Pública ___
19. Si asistió a una Escuela Superior Privada (**10-12**) Bilingüe ___ No Bilingüe ___
20. Su primer idioma es: Inglés ___ Español ___

21. El idioma que su familia inglés___ español___ Ambos___
utiliza en la casa es:
22. Seleccione el departamento de Ingeniería del RUM que confirió su grado de bachillerato:
Agrícola__ Civil__ Química__ Computadora__ Eléctrica__ Industrial__
Mecánica__
23. Año en el que obtuvo su grado de bachillerato:_____
24. Otros grados obtenidos: M.S.___ Ph.D.___ Post-Doctoral___
25. Al presente, ¿está empleado? Sí___ No___
26. Si su respuesta fue **Sí** a la pregunta anterior, usted trabaja en: Puerto Rico ___ EU ___
27. Indique el municipio o el estado _____
28. Nombre de la compañía para la cual trabaja _____
29. Título de la posición que ocupa _____

Las siguientes preguntas están relacionadas a los datos socio-demográficos de sus padres.

Madre

30. Lugar de nacimiento: Puerto Rico ___ EU (continental) ___ Otro ___
31. ¿Cuál es su primer idioma? Inglés___ Español___
32. ¿Habla inglés? Sí___ No___
33. ¿Se graduó de escuela superior? Sí___ No___
34. ¿Se graduó de Universidad? Sí___ No___
35. ¿Ha vivido en los EU? Sí___ No___
36. Si su respuesta fue **Sí**, ¿cuántos años?_____

Padre

37. Lugar de nacimiento: Puerto Rico ___ EU (continental) ___ Otro ___
38. ¿Cuál es su primer idioma? Inglés___ Español___
39. ¿Habla inglés? Sí___ No___
40. ¿Se graduó de escuela superior? Sí___ No___
41. ¿Se graduó de Universidad? Sí___ No___
42. ¿Ha vivido en los EU? Sí___ No___
43. Si su respuesta fue **Sí**, ¿cuántos años?_____

Califique, según su criterio, la preparación para el mundo real del trabajo que le dieron los cursos de inglés que tomó en el RUM mientras era estudiante de ingeniería:

	<i>Excelente</i>	<i>Bueno</i>	<i>Satisfactorio</i>	<i>Deficiente</i>	<i>Pobre</i>
	(A)	(B)	(C)	(D)	(F)
53. Destrezas de lectura	<input type="checkbox"/>				
54. Destrezas auditivas	<input type="checkbox"/>				
55. Comunicación oral	<input type="checkbox"/>				
56. Vocabulario	<input type="checkbox"/>				
57. Gramática	<input type="checkbox"/>				
58. Escritura	<input type="checkbox"/>				

Los cursos de inglés que tomó en el RUM le ayudaron a:

	<i>Mucho</i>	<i>Suficiente</i>	<i>Sólo un Poco</i>	<i>No del Todo</i>	<i>N/A</i>
59. Mejorar su inglés conversacional y comprender mejor el lenguaje	<input type="checkbox"/>				
60. Cuando participa de una conferencia técnica	<input type="checkbox"/>				
61. Entender los libros técnicos	<input type="checkbox"/>				
62. Mejorar su habilidad para escribir ensayos e informes	<input type="checkbox"/>				
63. Mejorar su habilidad de expresarse formalmente en inglés	<input type="checkbox"/>				
64. Mejorar su habilidad de expresarse casual e informalmente en inglés	<input type="checkbox"/>				

III. EL INGLÉS EN LOS AMBIENTES DE TRABAJO Y EN EL HOGAR

Las siguientes preguntas están relacionadas tanto con su empleo actual como con otras experiencias previas que haya tenido. Por favor, seleccione la respuesta que mejor describa su situación.

	<i>Inglés</i>	<i>Español</i>
65. Idioma utilizado en su primera entrevista de trabajo:	<input type="checkbox"/>	<input type="checkbox"/>
66. Idioma utilizado durante la entrevista para la posición que ocupa actualmente:	<input type="checkbox"/>	<input type="checkbox"/>
	<i>Sí</i>	<i>No</i>
67. ¿Ser bilingüe era un requisito en su primer trabajo o posición?	<input type="checkbox"/>	<input type="checkbox"/>
68. ¿Ser bilingüe es requisito para la posición que ocupa actualmente?	<input type="checkbox"/>	<input type="checkbox"/>

En las siguientes preguntas, catalogue la habilidad que posee en las siguientes destrezas:

	Excelente	Bueno	Satisfactorio	Deficientes	Pobre
	(A)	(B)	(C)	(D)	(F)
69. Leer en inglés	<input type="checkbox"/>				
70. Escribir en inglés	<input type="checkbox"/>				
71. Hablar en inglés	<input type="checkbox"/>				
72. Habilidad para entender el inglés hablado	<input type="checkbox"/>				

En las siguientes preguntas, seleccione la alternativa que mejor describe el uso del inglés en su TRABAJO

¿Cuál es el idioma que utiliza en su trabajo?

	Sólo Inglés	Mayormente Inglés	Inglés y Español con la misma frecuencia	Sólo Español	Mayormente Español	Sólo Español
73. Cuando <u>habla con sus compañeros.</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
74. Cuando <u>habla</u> con un cliente.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
75. Cuando <u>habla</u> con su jefe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
76. Cuando <u>escribe.</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
77. Cuando <u>hace o recibe llamadas telefónicas.</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
78. Cuando <u>lee.</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
79. Cuando <u>utiliza Instant Messaging (IM).</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
80. Cuando <u>prepara y hace informes y presentaciones profesionales.</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Las siguientes preguntas tienen que ver con cuán necesarios son los idiomas inglés y español. Por favor seleccione el número que mejor describa su situación.

(1=No es del todo necesario; 4=Extremadamente necesario).

	<i>No es del Todo Necesario</i>		<i>Extremadamente Necesario</i>	
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
81. ¿Cuán necesario es hablar inglés en su trabajo?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
82. ¿Cuán necesario es el inglés para crecer y desarrollarse profesionalmente en su trabajo?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
83. ¿Cuán necesario es el inglés para obtener mejores evaluaciones de desempeño de su trabajo?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
84. ¿Cuán necesario es el hablar español para ser puertorriqueño?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
85. ¿Cuán necesario es haber nacido en Puerto Rico para ser considerado puertorriqueño?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

En las siguientes preguntas, seleccione la alternativa que mejor describa su uso del inglés en el HOGAR

	<i>Sólo Inglés</i>	<i>Mayormente Inglés</i>	<i>Inglés y Español con la misma frecuencia</i>	<i>Sólo Español</i>	<i>Mayormente Español</i>	<i>Sólo Español</i>
86. Cuando <u>habla</u> con las personas que viven con usted.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
87. Cuando <u>escucha música</u> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
88. Cuando <u>ve</u> TV.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
89. Cuando <u>usa subtítulos al ver una película</u> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
90. Cuando <u>utiliza el teléfono</u> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
91. Cuando <u>lee</u> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
92. Cuando <u>recibe un visitante</u> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
93. Cuando <u>recibe algún familiar</u> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
94. ¿Cuál es el idioma utilizado	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IV. PREGUNTAS LIBRES

105. Describa otras razones que puedan haberle llevado a tomar la decisión de salir de PR con el fin de trabajar en los EU.

106 .Describa otras razones que puedan haberle llevado a tomar la decisión de quedarse a trabajar en PR.

Appendix F. Invitation Letter

Tu Alma Mater quiere saber de ti. Importante estudio sobre el uso del Inglés por Ingenieros Egresados del RUM

Damaris Echevarria <damaris.echevarria@gmail.com>

Mon, Jan 15, 2007 at 11:02 PM

To: pablo.matias@pw.utc.com, gvez3@cfl.rr.com, nispero@rocketmail.com, "felix. fontan" <felix.fontan@lmco.com>, felix.fernandez@ece.uprm.edu, ryb7@ece.msstate.com, earzuaga@ece.uprm.edu, ray.figue@gmail.com, jorge_c_camacho@yahoo.com, vera.aida@gmail.com, bernadette_mrtnez@yahoo.com, dalimar.velez@ece.uprm.edu, nestor.lopez@colorado.edu, cmtirado@southernco.com, cberas@southernco.com, diana.colon@pgnmail.com, f_quinones@southernco.com, gperez@southernco.com, jose.rodriguez@pgnmail.com, haxel_estavillo@raytheon.com, mvegal@us.ibm.com, woodler.bazelais@guidant.com, cvidal@burnsmcd.com, karla.fraguada@kraft.com, srodz@pop500.gsfc.nasa.gov, glezy_pr@hotmail.com, gotita_5@hotmail.com, gut4vo@hotmail.com, rosaledith@hotmail.com, h_quinones28@hotmail.com, esq99@hotmail.com, enrico.mattei@gmail.com, mairim_g_say@hotmail.com, abiezer@gmail.com, cucusita1@hotmail.com, eladior@bu.com

Estimado Egresado:

Mi nombre es Damaris Echevarría y trabajo como Consejera Académica en la Facultad de Ingeniería del RUM. Por otro lado, estoy terminando una maestría en Artes de la Educación en Inglés. Como sabrán, mucha información tiene la universidad acerca del perfil de los estudiantes que ingresan a la facultad de Ingeniería, pero muy poca o ninguna data existe acerca del tipo de trabajo que realizan y a dónde van a trabajar nuestros egresados una vez se gradúan y las razones para decidir irse a los Estados Unidos o permanecer en la Isla. Tampoco existen estudios acerca del uso del Inglés como idioma en el área laboral de nuestros egresados y cómo los cursos de Inglés que tomaron estos estudiantes durante su preparación académica les han contribuido a su vida profesional y que sugerencias tendrían estos egresados para mejorar los cursos de Inglés de los futuros estudiantes de Ingeniería en el RUM.

Es por eso, que me dirijo a ti para solicitar tu ayuda y consultarte si estarías dispuesto a participar de dicho estudio y así contribuir con la necesidad de información que tiene el Recinto al respecto. El estudio será confidencial. Agradeceré que si en tu área de trabajo tienes compañeros egresados de la Facultad de Ingeniería del RUM, le copies este mensaje para que se unan y participen.

Agradeceré respuestas este mensaje con la siguiente información.

1. Nombre
2. Lugar de Trabajo
3. Departamento del cual te graduaste y fecha de graduación
4. Título de la posición que ocupas
5. Teléfono donde contactarte de ser necesario (Opcional)

De necesitar información adicional, no dudes en consultarme a través de esta dirección electrónica. Gracias anticipadas.

Sra. Damaris Echevarría Méndez
Estudiante Graduada
Departamento de Inglés