

Integrating Technology in the English Classroom

by

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Abstract

The study examines teachers' perceptions of the use and integration of computer technology in public and private schools in Puerto Rico. Three research questions guided the study: How do English teachers perceive their own preparedness to integrate computer technology in the classroom? How, why and to what extent are these technologies used? How might English teachers integrate computer technology as a priority for teaching English as a second language? Data was collected through a questionnaire and interviews. Results revealed that teachers do not have the facilities to integrate technology in their classrooms. Some employ it amid limited access to computer labs, outdated equipment, and technology costs as barriers. To overcome this lack of technology, most of their work on computers is done at home. The study recommends that educational institutions and school administrators in PR must prepare language educators for integrating technology in the classrooms.

Resumen

Este estudio examina la percepción del maestro al integrar la tecnología en escuelas públicas y privadas en Puerto Rico. Tres preguntas de investigación guiaron el estudio: ¿Cómo perciben los maestros de inglés su preparación al integrar la tecnología en el salón? ¿Cómo, por qué y en qué medida utilizan esta tecnología? ¿Cómo pueden los maestros integrar la tecnología en computadora como una prioridad a la enseñanza del curso de inglés como segundo idioma? La data se obtuvo de cuestionarios y entrevistas. Los resultados revelaron que los maestros no tienen facilidades para integrar la tecnología en su salón y lo emplean, a pesar de las limitaciones de equipos, laboratorios y costos tecnológicos. Para sobrellevar la falta tecnológica, la mayoría de sus trabajos lo realizan en casa. El estudio recomienda a las instituciones y administradores escolares de P.R. a preparar a los educadores del lenguaje a integrar la tecnología en el salón.

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This work is dedicated to my son Victor Manuel Miranda Perez, my daughter Yaritza Marie Miranda Perez, my sisters Marilyn Perez, Vidalina Perez, my nephew Westley Xavier Torres Perez, my mother Cecilia Villa, and my Godfathers Paco and Edwin. I also dedicate this to the best advisor, my chair, Dr. Ellen Pratt.

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Chapter I

Introduction

“The whole art of teaching is only the art of awakening the natural curiosity of young minds for the purpose of satisfying it afterward”. Anatole France (1844–1924)

Before becoming an English teacher in a public school in Puerto Rico (PR), my interest in technology arose because my children had homework and projects that required the use of computers. My children’s teachers asked for graphics on computer templates with added images using specific fonts and letter sizes for the task. In addition, on many occasions they had to write the biography of an author using Microsoft Word. At that time we did not have a computer at home. Consequently, I bought a computer and my children were so happy that day that everyone at home wanted to use it at the same time. Nevertheless, I felt helpless; I was terrified since I did not even know how to turn on a computer. I was worried because my children were struggling with using a computer and I lacked knowledge in this area. Because of this, I needed to learn how to use it in order to help my children. Therefore, I decided to register in a class in Science and Computer programming and my ability in using computers increased. I taught my children how to manage computers and how to use programs like Power Point and Excel. It was a process as in learning to ride a bicycle. I was surprised because my children learned how to work with computers quickly. I thought they learned so fast that they knew more than I did. In just a few months, they were almost experts at it. At that moment computers were not as advanced as they are today. But I still learned to manage the technology and my ability increased. I practiced with different software creating graphics and attractive presentations, and accomplished my goal in learning to use computers.

In addition to raising a family, I worked in a public school doing administrative tasks as a purchaser buying materials and equipment for the entire school community. After a while, I began to train teachers to use computers at school for free and my director used me as a resource. Even though computers were one of my passions, I changed my concentration to English education since the students frequently asked me to help them with their English class. I began to love teaching and for that reason, I completed a bachelor's degree with certification in teaching English and found a job in the Department of Education. I was aware of the importance of integrating technology in the classroom and was willing to use it, but I realized that integrating it was not that easy.

In today's public school systems, technology is seen as an important instructional tool. According to Guzman and Nussbaum (2009), "The process of integrating technology into classroom work has emerged as a significant focus of study in educational research. Interest in the technology movement has motivated the growing number of technology projects' implementation in schools" (p. 453). Even though teachers are not as familiar with technology as some of their students are, they still try to include technology in their classroom instruction as much as possible.

As a teacher, I encourage my students to use technology. I encourage them by teaching my classes using Power Point presentations, which fascinate them. It seems that the use of computers in the classroom appeals to students' interests in learning English skills faster. Unfortunately, there are not many computers in public schools. Furthermore, some teachers resist changing their traditional way of teaching and express their fear of using innovative technology systems. As Velazquez (2006) addressed in her study, "faculty did not use technology in their classes because they were more comfortable with the traditional approaches

and it was considered more work” (p. 8). Based on Velazquez’s findings, educational institutions and school administrators in PR face the challenge of preparing language educators in the integration of learning technologies in their curriculum.

As a professional English language teacher for seven years, I am aware of language education issues and am especially interested in the study of the progress being made to integrate multimedia resources in the English classroom. In this study, I wanted to identify the barriers that prevent the use of computer technology in the English classroom, and finally, examine alternatives to solve this problem, allowing teachers to expand the possibility of students’ development of critical thinking, for example, enriching the class with a variety of technology techniques. To properly assist with the requirements of the students and to plan for their best possible education, one area of interest involves potential technological tools that may be effective supplements to instruction for the acquisition of English as a second language.

This preliminary study will contribute to the current knowledge regarding what teachers report to know about technology and how they use it in their ESL classrooms. It also shows the disparity between what teachers want to do with technology in their schools and what the availability and access to computers allows them to do.

Research Questions

The purpose of this study is to analyze the usefulness of the integration of computer technology in the ESL classroom. According to Velazquez (2006), the use of technology will enhance the learning goals of the English classroom and will also give low-level learners the chance to demonstrate their strengths in other areas.

The study examines teachers’ perceptions of uses and integration of computer technology. The study also recommends that educational institutions and school administrators

in PR face the challenge of preparing language educators for integrating technology in the classrooms.

Throughout this study, I explored how English teachers from public and private schools in Puerto Rico perceive their own preparation in integrating computer technology in the classroom. In addition, I investigated what types of technologies are used in the schools for the purpose of teaching and learning a second language, and how, why, and to what extent these technologies are used. Finally, I wanted to know to what extent English teachers might consider the integration of technologies as a priority for teaching English as a second language. My research questions were:

1. How do English teachers from public and private schools in Puerto Rico perceive their own preparedness to integrating computer technology in the classroom?
2. How, why and to what extent are these technologies used?
3. To what extent might English teachers consider the integration of computer technology as a priority for teaching English as a second language courses?

Justification for the study

This study is important for numerous reasons. In this section I consider the importance of technology to language instruction, and I discuss new findings and future plans regarding technology in education in Puerto Rico and then in the United States. Last, I provide some theoretical bases for the use of computer technology in the classroom and why it is important.

Technology and English Language Instruction

In PR, English language instruction faces many challenges. Language has been a central issue in Puerto Rican education and culture since 1898 when it became a United States (U.S.) territory. Right after PR was ceded to the U.S. government, English was imposed as the medium

of instruction in island schools as U.S. administrators hoped to transform Puerto Ricans through education and English literacy (Urciuoli, 1998). However, strong resistance to the policy by Puerto Ricans—who refused to completely give up Spanish as their medium of instruction in schools—led to a series of language policy changes that lasted more than forty years. The constant change in school language policies ended in 1941 when the first Puerto Rican governor elected by Puerto Ricans reestablished Spanish as the language of instruction in Puerto Rican schools. English then became a mere subject in schools that is studied as a second language from grades K-12. English language instruction in PR is still challenging and students continue to struggle with learning a second language.

Although English has been actively present in the island’s educational system for more than one hundred years, studies reveal that more than 90% of Puerto Ricans still cannot communicate effectively in English and 81% of students in Puerto Rico’s public school system have not developed the English language skills required to communicate effectively in the language (Pousada, 2006; Velazquez, 2006). Therefore, the Puerto Rican Department of Education has focused on strengthening the teaching of English in Puerto Rican schools during the last few years. New certification requirements, more in-service training, and the use of technology in education have been among the many projects undertaken (Albino, 1998).

With this in mind, the Department of Education of PR has strongly encouraged the integration of technology in the English classroom. As part of planning for compliance with the standards of excellence related to technology in 2000, Department of Education of PR created the Office of Information Systems and Technology Support for Teaching (OSIATD), an office that supports teachers and administrators using online services such as a Help Desk (See <http://dde.pr>). This system, known as the Computer Center, integrates four functions--planning,

analysis, network operations, and administration--and is responsible for managing the computer resources of the Department. In addition, the main object of OSIATD is to manage the Department of Education website. Therefore, OSIATD is in charge of designing an Internet implementation plan, offering content strategies on the use of technology for teaching.

Another office is the Division of Educational Innovation and Technology (DITE). According to the Department of Education Informational brochure on Technology of PR (2000), among its functions, DITE has the goal of working together with teachers to transform traditional teaching through the effective integration of technology into the classroom. This technology should provide equal access to technological resources and lead students to (1) develop a positive attitude towards learning; (2) solve problems; (3) search for information and construct knowledge; and (4) contribute to their effective communication.

US Department of Education Technology Initiatives

In addition to the work in PR, the U.S. also has models to increase the use of technology. Richard Riley the U.S. Secretary of Education released the nation's first educational technology plan in 1996, "Getting America's Students Ready for the 21st Century: Meeting the Technology Literacy Challenge" (Riley, Holleman & Roberts, 2000). This plan presented a far-reaching vision for the effective use of technology in elementary and secondary education to help the next generation of school children to be better educated and better prepared for the evolving demands of the new American economy.

Furthermore, the U.S. Department of Education and many organizations such as The Association for Educational Communications and Technology (AECT), and The International Society for Technology in Education (ISTE) have recognized that, without focused and purposeful energy, educators in our schools would be unable to maximize the potential of

technology (Schrum, 1999). According to Schrum (1999), President Clinton challenged teachers to be ready to use technology and teach with it. In order to accomplish this goal, the Department of Education Federal Affairs Office developed a plan for both private and public schools named “Enhancing Education through Technology.” This plan, approved by the U.S. Congress, provided teachers with professional development programs to assist them in effectively integrating the curriculums with technology education aligned with U.S. academic standards.

Current research indicates the need to move beyond “integrating” competencies into the curriculum providing transparent use of appropriate resources and technologies to stimulate higher order thinking skills. White, Ringstaff and Kelly (2002), found that “integrating technology within the curricular framework increases student achievement” (p. 5). This means that teachers need to be taught how to use technology in order to deliver instruction. Therefore, North Carolina Department of Public Instruction is a model for other public schools to consider. In addition, an investigation by Lance, Welborn and Hamiltin-Pennell (1992) concluded that schools with well-equipped media centers and library media trainers will help students perform better on achievement tests for reading comprehension. According to Davie County Schools Technology Plan (2005-2009), by making students active learners in their learning experiences, they are empowered. For example, students use technology to access and demonstrate new knowledge and skills in all necessary curricular areas in order to be competitive in a constantly changing environment. Moreover, when students are using technology as a tool to communicate or to support their ideas, they are active, rather than passive, participants receiving the information transmitted by the teacher (Freire & Macedo, 2000).

Technology allows students to actively choose how to generate, obtain, manipulate, or display information. Furthermore, when technology is used as a tool to support students in

performing authentic tasks, the students are defining their goals, making decisions, and evaluating their progress. Thus, technology allows students to be actively thinking about information, making choices, and evaluating content. At the same time, they monitor their academic performance. There is, however, no substitute for the knowledgeable teacher who guides students through this active learning process. Technology serves to enhance and facilitate this process. Therefore, PR needs to make sure it has knowledgeable teachers who know how to work with technology and how to teach it to their students.

Technology Resources

Because of emerging technologies, teachers need to acquire new techniques for use in their classrooms. For example, in the United States there are educational projects in schools where students have the latest technology and are supported by companies like Apple. In the Punahou School, Teachers

"Teachers observed that students were more engaged when using the Mac, and they saw the effect as potentially transformative. With such promising results, school administrators decided to comprehensively integrate Mac as a learning tool throughout the curriculum for all grade levels. The Mac has helped Punahou move away from structured learning and toward a more flexible, self-directed approach, where teachers encourage student interest and choices" (Apple in Education).

Puerto Rico needs this type of technology experience to improve the education system. Also, facilities are required to effectively integrate these new resources into Puerto Rican English classrooms. The school facility consists of not only the physical structure and the variety of building systems, such as mechanical, plumbing, electricity and security, but also furnishings, materials and supplies, equipment and information technology, as well as various aspects of the

building grounds such as athletic fields, playgrounds, areas for outdoor learning, and vehicular access and parking. Some of these areas could be used as areas for technology in schools. In addition, the administration should update students' records on computers. Furthermore, libraries need digital innovation. According to Wimberley (2005),

“Computer technologies and their effective usage hold potential for providing assistance in language education. As in other areas, the increasingly powerful computer and Internet technologies, linked with appropriate and effective software development, can enhance human resources and extend the range of tools and practice” (p. 1).

However, teachers need to use their pedagogical knowledge to decide when and how to use these tools for effective learning.

There are a number of reasons teachers confront limitations when they try to acquire deeper knowledge of technological concepts. When compared with the type of technology experiences students have in the U.S. as shown in the Mac in Education website, it is obvious that in Puerto Rico there is an absence of adequate resources and modern functional computer equipment. According to Velazquez's (2006) research, the Department of Education of PR gave teachers laptops, but only those teachers with permanent contracts qualified. Velazquez (2006) also pointed out that the “few computers available in the schools were either not working or not used for educational purposes” (p.14). Therefore, if the Department of Education promotes the integration of computers in the different subject areas, they must provide teachers with appropriate and adequate equipment.

Another problem area in technology integration is that all the teachers need to be well prepared in the technical and pedagogical skills required to become competent integrating computers and aligning the skills with the curriculum. However, instead of courses in the

integration of technology, teachers felt education courses should emphasize the use of technologies to enhance language skills (Velazquez, 2006). Finally, teachers are required to be effective users of computer technologies; therefore, it is essential that they have positive attitudes and agree to participate in relevant workshops.

Often, some teachers have negative attitudes toward learning about technology. According to Souza Barros and Elias (1987) some teachers' attitudes indicate the lack of confidence to implement new projects. They may passively reject new methods and technologies; one of the reasons may be the teachers' working condition. In spite of the negativity, Velazquez (2006) admits that Puerto Rican's cannot afford to ignore that our society needs to be competent in the application of the English language and technology to become more competitive worldwide (p. 22). We need skilled, competent, critical thinkers who can use technology to address the growing needs in the world today.

Educational Theories--Gardner and Freire

Educational theories provide a strong basis for the justification of this study. The use of technology in the classroom gives teachers the opportunity to create lessons that take multiple intelligences into consideration. Howard Gardner (1983) defined intelligence as a capability that is dynamic, which can be and should be developed. Gardner discovered many levels of knowledge when developing his theory of multiple intelligences; he identified nine different types of intelligences and emphasized the capability of solving real problems, creating effective products, and finding or creating new problems. These multiple intelligences are Verbal, Bodily-kinesthetic, Interpersonal, Intrapersonal, Naturalist, Existential, Mathematic, Musical, and Visual-spatial. Individual learners use these intelligences in different ways, and technology has the potential to enhance learning in some of these ways. For example, in Bodily-kinesthetic

intelligence, the individual navigates through software- or web-based information and uses the keyboard, joystick, mouse, or touch screen. With the Visual-spatial learner, the individual designs and interprets graphical layouts using draw- or paint programs; charting data in spreadsheet applications; capturing/manipulating images from a digital camera, video, scanner, or web page; and manipulating computer programs. Gardner's theory is a powerful tool for understanding how technology can be paired with learning behavior.

Another important educational theory that supports this research is Freire's criticism of the banking concept of education. Freire describes the banking system as an act of depositing, in which the students are the depositories and the teacher is the depositor (2000, p.72). The teacher communicates and deposits information, which the students are supposed to receive, memorize, and repeat. The scope of action allows students to extend only as far as receiving, filling, and storing the deposited information. An example of this is when the teacher teaches and the students are not allowed to participate or express their ideas. The teacher who knows "everything" teaches students and the students accept all information passively. However, according to Gorder (2008), technology has changed teacher practices in teaching and learning because the classroom becomes more student-centered rather than teacher-centered. Teacher roles move from lecturer and expert to collaborator and facilitator. Student roles change from passive listeners to collaborators and occasional experts. Educational goals change from the memorization of facts to inquiry, invention, and investigation of information. Using technology for active learning keeps students focused, engaged, and motivated. All of these developments and innovations have created a new dimension of language learning and teaching, which shows that technology use can help overcome the banking concept that Freire criticizes so highly. By means of technology, for example, students are able to manage a computer system, identify the

parts of the system and understand their function. They interact with technology and use skills to create new ideas and express their thoughts, developing the idea of "praxis" that Freire so highly recommends. He highlights that praxis emphasizes reflection as leading to action and change. This means that praxis is the process of experiential learning through practice and reflection.

Chapter Summary

In this introduction I described my personal involvement with technology and how it motivated me to undertake this study. I presented my research questions and gave numerous reasons to justify this study. Among them were the new plans for the use of technology in Puerto Rico and the United States, the importance of technology to language learning, and the need for technological resources. Last, I showed how two learning theories are directly related to the study and help to justify it. In the following chapter, I review more literature that is pertinent to this study.

Chapter II

Review of the Literature

This chapter provides an overview of studies on technology and how it is integrated in the classroom as a tool for second language acquisition. Also, it sheds light on the experiences and the impact of technology in the classroom over the recent years. It provides the context in which studies have demonstrated the effectiveness of technology in the process of learning. It also provides information on studies that have been done that show how teachers integrate technology, their attitudes towards technology, and historical information regarding technology in the Department of Education of PR`. This review is divided into four different sections: Overview of Technology and Education in Puerto Rico, Attitudes Toward Computers, Teacher Training Technology, and Implementation of Technology.

Overview of Technology and Education in Puerto Rico

Education in Puerto Rico (PR) has a historically complex pattern and political leaders continue to debate the prospects for school reform. Puerto Rico is considered part of the United States; therefore, the school system is required to teach English as a second language. However, only a small percentage of the population is considered bilingual. Many students in PR's public school system have not developed the English language skills required to communicate orally or in writing. In order to avoid leaving children behind, the Department of Education (DE) must comply with policies or it too will be left behind in the distribution of funds. "In the 1990s Puerto Rico's educational system entered a period of flux with policies racing to catch up with the important changes of the times: globalization, the growth of technology and technology-related industries" (Mateu-Zayas, 2007, p. 19).

Velazquez (2006) investigated why teachers were not receiving sufficient instruction or practice in the integration of learning technologies into their courses. She investigated teachers' preparation in the integration of learning technologies to enhance language learning. This qualitative study documented English second language ESL teachers' perceptions, attitudes and experiences with their training in the use of learning technologies. The researcher conducted focus groups and individual interviews with pre-service and in-service ESL teachers. Since very little research had been conducted on this issue in PR, the study focused on Puerto Rican language teachers' experiences with learning technologies within their teacher preparation programs.

Velazquez explored issues and concerns relating to the pedagogical uses of the new technologies for learning across the curriculum. There was a need to move beyond the acquisition of tools and ensure the development of technique in order for teachers and students to profit from greater access to technology. This report supported the effective use of technology in the classroom for teachers in learning. One example of activity used by teachers was the use of TV and VCR in their literature classes. Teachers used a movie and students had to compare and contrast the movie with what they read. Another activity was the use of computers for a phonics class. Some students had problems with the long /i/ and short /I/ sounds. The teacher indicated using computer to teach a phonics game program, which was useful for students to learn.

According to Velazquez, using these new technologies teachers can (a) enrich and enliven foreign language courses, (b) provide greater diversification of learning activities, (c) accommodate different learning and teaching styles, (d) effectively motivate students who live in a technologically developed society, (e) offer students additional guidance and practice, and (f) involve students in foreign language environments without leaving their regular classroom.

The study reports the experiences of language teachers during their teacher preparation in the use of learning technologies in PR. Three focus group interviews were held with 28 pre-service teachers; nine in-service teachers were interviewed, and a post focus group interview was held with student teachers after they completed their field teaching experience.

Based on the findings, recommendations were made to higher education institutions and school administrators in PR to face the challenge of preparing language educators in the integration of learning technologies in their curriculum. The following recommendations were made to Puerto Rico's Colleges and Department of Education: (a) integrate technology across the curriculum, (b) emphasize technology use in language teaching, (c) invest in technology resources, (d) strive to meet the National Educational Technology Standards, (e) provide suitable technology models for teaching and learning, and (g) build learning communities among pre-service, in-service teachers, teacher educators and administrators.

The following themes emerged during the analysis of the qualitative data of Velazquez' (2006) study:

(a) Course Content must be more than learning to use a program or machine in order for a teacher to be prepared to integrate technology in the classroom; (b) Modeling technology use by teacher educators and cooperating teachers instructs by example, (c) Self-acquisition of technology skills needs to be supplemented by formal training for teachers to acquire the technology skills they need; (d) Access and exposure to technology and Internet needs to be expanded; (e) Practical integration of technology in language teaching requires hands-on-experience throughout the teacher preparation program. (p.1)

To conclude, Velazquez's research highlights the impact of computer technology in the English classroom. It focuses on the technical and technological requirements to prepare

teachers effectively in the use of technology. Within the Department of Education's objectives, integrating technology to provide different experiences for nurturing learning is required. My study links with Velazquez' because she also makes reference to teachers' limitations. In the present research study, I point out why the use of technology can enhance learning. Teachers face challenges when using computer technology successfully without adequate equipment or proper training.

Al-Seghayer (2001) stated that the uses of technology in the English classroom have become one of the innovations that provided access to a variety of tools, where our society can accomplish new goals. During this century, diversity in education is not easy to carry out; to be successful, teachers need to be well trained, possess adequate resources, and receive technical support to address the needs of students. At present, our resources in PR such as trained personnel, materials, and understanding are not sufficient. Technology can be an effective resource and useful addition to education and the learning process. Computers facilitate the organization, selection, and presentation of multiple sensory components in learning (Al-Seghayer, 2001).

Caraballada (2000) conducted a study on the use of multimedia instruction and constructivist learning in attaining academic achievement and developing problem-solving skills at a university in PR. In constructivist learning, students are actively engaged in learning and responsible for creating knowledge. On the other hand, creating effective multimedia instruction means creating environments that adhere to cognitive learning theory. The research demonstrated that this method allowed individualized learning and promoted interaction between teacher and student through constructivist processes incorporated in an environmental science course offered to college students. Furthermore, it corroborated that worldwide level over the

past decade has brought a multitude of positions and resistance related to the high expectation it brings and its possible future transformations, and this is also felt in PR. Morales (1999) pointed out that in general, productivity of computer technology in education is a continuing process and the impact of technology is based on individual performance. When an individual's attitude changes, due to the socialization skills that technology entails, the individual's willingness to adopt technological tools is required. Therefore, if there is going to be a change regarding technology in the classroom, a transformation of attitudes leads to positive action.

Meanwhile, change is also required from a collective consensus involving teachers, students and administrative authorities to successfully implement educational policy and programs in the use of computers and technology. Àvila Muñoz (1999) indicated that technological progress in communication development could generate new alternatives in education. Through computers, new patterns in accessing information and using a variety of communication strategies allow people to communicate process information and interact through numerous operational modes. Therefore, it is important to determine not only teachers' attitudes, but also students' attitudes toward the use of computers in the classroom for an effective introduction to the computer. It is necessary to promote motivation through software, suitable media and working methods, so teachers can teach and students can learn effectively in a nurturing environment.

Nowadays, the public schools in P.R. have total autonomy, which allows teachers to review and adjust the course curricula based on students' needs. In addition, schools can revise their courses and upgrade them by improving the teaching methodology. Thus, the school should be aware of the new methodologies, such as technology, in regards to pedagogical practices (Department of Education, 1999).

The Puerto Rican public education system needs to prepare prospective language educators so they feel comfortable using a variety of modern technologies. According to Kavanaugh-Brown (1998), teachers are not receiving sufficient instruction or practice in the integration of learning technologies into their courses. As an important part of Puerto Rican philosophy, the education system contributes to the economic, social, and personal development of the individual. Moreover, in vocational schools, the Department philosophy focuses on preparing individuals who possess basic academic, occupational and employability skills to help students acquire a job, maintain it and advance in it, while they become productive in our society. These occupational skills are now essential to enter the work field, due to their use in different trades and industries. The world involves computers that are actually a necessary tool for today's jobs (Spiegel, 1997). Therefore, the Assistant Secretary of Education Technology Programs of the Department of Education (1996) is in charge of preparing human resources and developing their abilities to face the labor force.

Attitudes Toward Computers

One important area related to the use of technology is the attitudes toward their use. Various studies have been undertaken to look at attitudes and the use of technology. Recently, Lavin, Korte, and Davies (2011) conducted a study that focused on the positive and negative attributes of technology use from the perspective of the institution, student and professor.

The purpose of their research was to examine whether the use of technology in university classes impacted student behavior and student perceptions of instructional quality. Students who were taking various business classes in a medium sized- Midwestern university were invited to participate in a research study to assess the impact of the presence or absence

of technology in the classroom. The findings indicated that students who took business classes perceived that technology use in the classroom did indeed have an overall positive impact, while technological enhancement may not necessarily be appropriate for all classroom situations and all subject matter. Results suggested that instructors who are comfortable using technology and find that it enhances their teaching experience should continue to incorporate it in their classes.

Liu (1999) investigated the influence of different teaching methods on student attitudes toward computers. Two teaching methods were used: the traditional instructional methods (teacher-centered) and the constructivist method (student-centered). A sample of two groups of students were selected, each of them with basic computer skills, and they were exposed to one of two teaching methods. The variables to measure and compare were as follows:

- Pleasure: the extent to which the students wanted to learn and work on the computer.
- Motivation: the degree to which the students wanted to learn and work on the computer.
- Importance: the number of students who believed that learning and working with the computer was important.
- Anxiety caused by computer: the degree to which students felt anxiety as they learned and used a computer.

According to Liu (1999), in his conclusions he found that using an instructional method of teaching helped reduce student anxiety toward computers, especially for those students that planned to study computer technologies. Moreover, his results determined that the use of constructivist teaching method helps to increase motivation to learn and use computer technology.

The connection among these studies and my research is based on the importance of teachers' attitudes toward the use of computers in the classroom as fundamental in promoting learning. If the teachers in my study see technology as important in their classrooms and make use of it, then it can be assumed that they also have positive attitudes toward using it in conjunction with their other classroom materials. According to Topkaya (2010), the successful use of technologies in the classroom depends on several factors such as dynamic lesson plans, decisions concerning hardware, and software.

Training and Teachers' Self Perceptions

According to research, technology has the potential to transform the learning environment from passive to active and allows for learner control. In addition, research points out that technology can be used well or poorly, and its effectiveness depends on how it is used, by whom and for what purpose. This means that teachers can have equipment and can be well prepared toward the use of technology; but it all depends on how the teacher uses it. Therefore, not only are attitudes important to consider but also how teachers change with training. Teachers can help students become more intelligent through study and practice, access to appropriate tools, and learning to effectively use these tools (Perkins, 1995).

Guzman and Nussbaum (2009) attempted to establish specific domains and teaching competencies with in-service teacher training. The processes aimed at strengthening technology integration in the classroom by determining six domains (instrumental/investigative, pedagogical/curricular, didactic/methodological, evaluative/investigative, communication/relational and personal/attitudinal). These domains emphasize the strengthening of abilities for practical application of technology in the classroom. The first of the six dimensions is an instrumental domain that encompasses the training teachers need to develop

technology-handling abilities. The second means that until teachers develop the requisite pedagogical competencies, it will not be possible to implement technology projects that bring innovative scenarios to the schools, nor will it be feasible to configure actions that drive educational change. The next domain explains that although there are certain basic technical requirements that teachers must meet, technology will not be integrated until the use of the technology has been planned and incorporated into a broader training proposition that succeeds in establishing a close connection between technology and the curriculum. Another element that research has indicated as a constituent part of a teacher-training proposition has to do with methodological factors. These refer to the development of didactic knowledge that bolsters the inclusion of technology in the educational activities implemented in the classroom. The evaluative/investigative domain attempts to estimate the extent to which teacher training is achieving the goals initially set for it, providing evidence for adopting the corresponding solutions when they are needed. Some studies have introduced the relational sphere as an essential element to be incorporated into training actions. For example, technology can be used for collaborative work and it can be used to integrate technology. This would require concrete abilities in order to achieve successful negotiation and consensus processes. The teacher is the one who communicates pedagogical competencies and guarantees that students' tasks will be performed. In other words, if a teacher has not obtained the necessary competencies to carry out the task, he/she would not be able to deliver a higher quality performance to help students overcome their limitations.

Finally, Guzman & Nussbaum (2009) pointed to the need for incorporating a personal element in the adoption of technology innovations in the classroom. Attitude is what ultimately makes the difference in the quality of an implementation because the way a technology design is

interpreted and put into practice depends on the subjectivity of the teacher doing it. These important elements that influence the incorporation of technology in the classroom are teachers' beliefs, emotions, experiences and expectations. These elements must be formally taken into account in teacher training.

Guzman and Nussbaum (2009) stated, "technology integration should be defined not simply as a question of access but rather as a tool for improving educators' professional productivity and promoting student learning" (p. 453). This means that educators need to consider technology integration for teaching and learning as a resource to share their knowledge and perspectives with the world. In addition, Guzman and Nussbaum pointed out that there is a growing interest in the integration of technology into the classroom.

In another study, Chen, Looi and Chen (2009) analyzed teachers' personal experiences using technology in the classroom based on their knowledge, goals and beliefs (KGB). According to the researchers, the KGB plays an important role in every pedagogical decision that the teacher makes. This paper investigated the different KGB of two teachers in a primary school as they integrated technology software called Group Scribbles (GS). Their lessons employed collaborative and constructivist pedagogies. They found that teachers' beliefs play an important role in influencing teachers' instructional decisions and classroom practices. They also argued that beliefs play a central role in a teacher's selection and prioritization of goals and actions in teaching. Moreover, beliefs shape how teachers perceive and interpret classroom interaction, which influences their responses and decision-making processes in the classroom.

The findings of this study by Chen, Looi and Chen (2009) indicated that teachers' developmental trajectories in integrating GS technology show coherency among teachers' beliefs, goals, and knowledge and the interaction of technology is the main key for taking

advantage of technology effectiveness. Furthermore, this study explains the importance of teachers' KGB, and shows that teachers' attitudes toward technology influenced them as professionals and enriched their classrooms. Technology has much to offer. In addition, a range of initiatives has been launched to develop in-service teacher training processes that will strengthen this integration.

Not only do teachers and students change their attitudes toward technology, but they also begin to think and act in different ways because of technology. González (1999) conducted an investigation related to the knowledge, opinions and attitudes of teachers in the regular classroom, and technological assistance as part of the process of teaching students with disabilities. The findings show that teachers in the regular classroom and in special education showed a lack of knowledge of existing technological equipment or accessories. The analysis of socio-demographic data revealed that neither the regular classroom teachers nor the special education teachers had received enough training to acquire the necessary knowledge in this area. These teachers were willing to use technological assistance for students with disabilities if it was available in their classrooms.

According to Topkaya (2010), researchers investigated the perceptions of computer self-efficacy of pre-service English teachers in regards to different variables such as gender, grade differences, computer use frequency, and computer experience. The study also explored the relationship between pre-service English language teachers and their perceptions based on computer experience, self-efficacy and their perceptions of general self-efficacy using Bandura's self-efficacy theory. This is defined as "a judgment of one's capability to use a computer" (p. 144). In general, people who have high self-efficacy in the use of computers will invest more time and are more willing to learn and do new things with computers. The researcher used

English language teachers in Turkey and three basic research instruments: The Computer Self-Efficacy Scale, The General Self-Efficacy Scale, and a survey about personal information and previous computer experience.

The findings indicated that pre-service English teachers had a moderate level of computer self-efficacy perceptions. Computer experience, frequency of use, and gender were identified to create a significant difference in the perception of computer self-efficacy. A significant difference was found concerning the 1st and 4th grade levels. According to the findings, students were comfortable with computer technology. Meanwhile, results reported that male students have a higher level of ability perception than female students. Nevertheless, this study reveals that students were not very familiar with computers. In other words, the low levels of computer self – efficacy found for all grade levels in this study indicate that students are not familiar with computers. Moreover, the course that those teachers took related to the use of computers as educational tools fell short in providing pre-service teachers with the necessary knowledge, skills, and sense of efficacy that they should have in order to integrate computer technologies in their future teaching successfully.

However, the correlation analysis between general sense of self-efficacy and computer self-efficacy revealed a moderate and a positive correlation between the two psychological constructs. Finally, regression analysis showed that computer experience was the variable that affected the computer self-efficacy beliefs of pre-service English teachers.

Implementation of Technology

Because of cycles of new reform models available in education, many changes continue to take place to develop and improve academic achievement. Shoffener, Oliveira and Angus (2010) investigated adolescent literacy as an increasingly complex issue in the classroom. The

researchers pointed out that in classrooms around the world, teachers still address the expected foci of reading and writing but, within those areas, they also work with alternative texts, modern media, popular images and instructional technology. Conceptions of literacy continue to expand in multiple directions, moving far beyond former emphases on reading comprehension and writing ability. This article presented the efforts of two secondary English language arts teachers in the U.S. to expand the meaning of literacy in their own classrooms. Using a case study approach, the authors examined each teacher's understanding of literacy, views on enacting literacy in the classroom and efforts to engage students in multi-literacies. In doing so, they raised questions about what constitutes a multimodal approach to the teaching of English and the relationship between multimodality and multi-literacies (Shoffener, Oliveira and Angus, 2010). The researchers selected two English language art teachers called Helen and Scott who taught at public high schools in Midwestern U.S., and were both graduates of the same large university in Midwestern U.S. Throughout the study, they reviewed field notes and interview transcripts, and developed preliminary categories and themes. Preliminary data analysis, for example, identified the teachers' use of various assignments and activities that focused on 21st century literacy and multimodal strategies. According to the results, Helen's and Scott's experiences showed students' multiple understanding of literacies and encouraged teachers to incorporate varied literate strengths of students into the English classroom.

A case study that contributes to my study is one by Gomez, Schieble, Curwood and Hassett (2010,). Throughout the investigation of "new and multiple media, literacy practices, and processes" (p. 20), the researchers analyzed interactions between secondary students and pre-service teachers in an online environment in order to understand how its meaning-making processes embodied distributed cognition. Distribution cognition describes reading as the act of

cultural mediation within an experimental space. The theory was based on the cognitive processes of thinking and reading circulated through individuals' interactions with each other and using a variety of tools. In this case, reading involved the social use and interpretation of representational tools as part of conceptual thinking. The study examined the ways pre-service English teachers and adolescents used multimodal resource discussions of young adult fiction in Moodle, an open source, web based software for creating virtual classrooms. The findings indicated that intelligence was distributed across tools, texts, institutional spaces and participants' cultural schemas in the act of interpreting events from a novel. Meanwhile, the use of technology resources is something that educators have to take advantage of and integrate in the classroom to develop reading and writing.

When using new technology, language use can be affected or can change. Fitze and McGarrell (2008) compared students' behaviors and language in written electronic (WE) and face-to-face (FTF) discussions. This article presented an exploratory study of the teacher's verbal output using WE and FTF. The WE discussions were whole-class discussions in which the students and the teacher interacted with each other by typing and viewing messages while seated at computers. In contrast, the FTF discussions were traditional whole-class discussions whereby participants communicated as one group while seated around a large table in a seminar room. "The researcher repeatedly-measures and counter-balanced study reports on a comparison of quantity and quality of one teacher's language in face to face FTF and written electronic WE discussion with advanced English as a Subsequent Language (ESL) students" (Fitze and McGarrell, 2008).

The investigation was originally designed to study high-intermediate and advanced ESL students' production in the two discussion environments, and to explore whether students tended

to generate more discourse and were more lexically complex in one of the two conference settings given equivalent amounts of time. In addition, the study explored whether students in the WE conferences demonstrated more interactive competence and more balanced participation compared to the FTF conferences. The total number of words that students produced in an equivalent amount of time in the two types of conferences was not statistically significant. The discourse in the WE conferences, however, reflected greater lexical range and the students produced more discourse demonstrating interactive competence. Transcripts from the two types of discussions were compared for complexity of teacher input and the language functions this input served during the discussions. Teacher's input to the FTF discussions, unlike the WE discussion, created inequality in participation in the whole group. In the WE setting, teacher language encouraged interaction with individual students, while in the FTF setting, it tended to promote interaction with the whole group. Integrating technology within the curricular framework seems to increase student achievement and facilitates learning different skills. In addition to the use of computers, it may increase students' performance in writing.

Richmond (2003) investigated many educators' beliefs that the new computer- and communication-based technologies have much to offer K-12 education and that the infusion of technology into school settings will bring profound changes. While significant change is already underway, and more change can be expected, the trends are in need of critical analysis.

In the study by Richmond, the nature of technology was analyzed together with the nature of teaching and learning to identify the potential application of technology to classroom learning. Different types of applications to learning are identified together with an analysis of the benefits and limitations of each. The paper identified and analyzed different perspectives on how change should be approached and implemented.

In the Saskatchewan approach (Richmond, 2003), the thoroughness of recent curriculum reforms and the continuing commitment to renewal suggest that a good foundation has been laid for an in-depth examination of the role of technology in the classroom. While it now seems inevitable that technology will play a significant role in the transformation of classrooms in the future, other educational practices must be maintained and extended. These include curricular reform, quality interpersonal relationships within the school, the use of peer- and cross-age tutoring and mentoring, and new ways of integrating parental involvement in schools. Approaches to technology change must support such developments. Moreover, providing adequate support for teachers, both in terms of professional development and on-site technical support, is critical for effectively encouraging teachers to become active using technology.

This report attempts to maintain an open posture concerning the values associated with those who advocate both “direct” instruction, where learning intents are quite easily identified and judged to be “basic”, and those who advocate more “indirect” approaches to learning where content is frequently viewed as “means” to global ends such as critical thinking and knowledge integration. Therefore this study reviews issues and concerns related to pedagogical uses of new technologies for learning across the curriculum. Moreover, Richmond mentions Shanker who reflects on the American preoccupation with educational reform and the effects of some of these issues on the lives of teachers. In addition, Shanker notes that "the new kind of curriculum reform involves major changes in attitudes, values, and beliefs; managing difficult dilemmas and conflicts; and lots of time" (as cited in Richmond, 2003, p. 34).

The findings indicate that widespread use of technology in schools will create the critical need for a range of technical support functions. For technology to be taken seriously by teachers and for it to make a sustained impact on learning, technical support must be there when needed;

it must function as intended, and people must know how to use it productively. Such options provide means to develop an instructional model for adoption at the local level. While costs may yet be too high and curriculum content issues continue to exist, it is likely that major solutions to the effective integration of technology throughout the curriculum will be achieved more quickly through collaborative and even certain commercial approaches than through relying upon local initiatives to bring about the desired change.

Richmond (2003) specifies the importance of the use of computer technology in the classroom and mentions the essential contribution of computer technology in school settings. Teachers need to adapt new computer equipment and recognize its benefit in effective learning environments for students. According to Topkaya, (2010) the advantage of using computer technologies in language classrooms is that it also prepares learners for today's information through authentic tasks like keeping electronic portfolios, writing e-mails, and conducting online research that can help students learn a second language and also how to use computers.

Al-Seghayer (2001) pointed out that a multimedia program helped learners construct referential connections between two forms of mental representation systems: the verbal and the visual one. These referential connections were more easily built when both verbal and visual materials were presented simultaneously.

Learning to use certain computers, based on the technology's effectiveness is not always a simple process (Richmond, 2003). A computer, by itself, has little educational value in the classroom. A computer acquires value only by adding software, programs that effectively reconfigure the machine into a highly specialized tool.

It is difficult for educators to imagine an approach of teaching and learning that differs significantly from what we have been conditioned to expect in schools. Teaching skill in

using the existing technologies has been acquired through extended personal experience, the inculcation of teaching methods in teacher education programs with the conventional technologies, and the continuing use of these technologies, with only slight variation in schools today (Richmond, 2003, p. 9).

Richmond analyzed pedagogical uses of the innovative technological in learning across the curriculum. He focused primarily on educational practice in K-12 classrooms and evaluated effects of new forms of electronic communications and computer-based technologies. Among the findings, he stated that teachers needed to renew professional understanding of the potential role of technology as a medium for learning, as well as renew their understanding of the teaching methodologies and strategies that must now accommodate various types of technology integration across curricular areas.

For instance, computer technology programs provide the use of the dictionary and students can also use online technology dictionaries. “Multimedia annotations provide immediate access to the available annotated information in a program including textual, audio, and visual annotations. This access immediately provides readers with the desired meaning and allows them to pursue reading without disturbing the reading process, a problem usually caused by stopping to look up words in a dictionary” (Al-Seghayer, 2001, p. 3).

Second, multimedia annotations give access to images. Visual information attached to a word enables readers to confirm or reject hypotheses made about the meaning of a word. Finally, Al-Seghayer, (2001) pointed out that multimedia annotations provide an opportunity for readers to interact and be actively involved in the reading process.

Many Puerto Ricans grew up with the idea of needing to move to the U.S. in order to obtain a good job and achieve their dream. Once settled in the states, they recognized the

importance of knowing English or an additional language. A good job could help people achieve success in a respectable company and even be promoted to a new position if they were proficient in an additional language. "According to the Department of Education (1996), students with technological education will be able to identify a career and at the same time develop positive attitudes toward work. In addition students will recognize their capacity and ambitions, once they identify the job" (Department of Education, 1996).

In research that focused on the impact of technology in student's learning, Ringstaff and Kelly (2002) classified technology describing computer hardware and software used to store, retrieve, and manipulate information. In this study, the servers were connected to each other and to users via a network infrastructure. Users accessing these servers had their own hardware, operating systems, and software tools. The use of technology in the classroom challenged the teacher to design different teaching strategies, which could be motivating and relevant to students as well as aligned with the current parameters of a highly technological society. Hence, the use of technology also encouraged teachers to continue preparing themselves in the use of emerging educational technologies that would help meet the new challenges of designing meaningful classes that enriched student learning, and meet this generation's students' needs. Their needs are based on a lot of stimulation in their learning environment, collaborative learning and the integration of technology.

Based on the information reviewed in Chapter Two, it would be beneficial to analyze ESL/ELL software with the objective of improving its pedagogical applications as an integral part of every school's curriculum. Chapter Three presents a description of the procedures of the study conducted to investigate the effects of integrating technology in the English classroom. Furthermore, it responds to my research questions and presents significant suggestions and

recommendations to the Department of Education and private institutions in Puerto Rico in order to satisfy student's needs for learning a second language.

Chapter III

Methodology

Design of the Study

The main goal of this study was to investigate the integration of computer technology in the ESL classroom. I used a mixed-method study with qualitative and quantitative instruments to validate the reliability of the data. Quantitative research provides numerical representations, which, according to Sukamolson (2005), “explain phenomena by collecting numerical data that are analyzed using mathematically based methods (in particular statistics)” (p. 2). This is not the case for qualitative research. Qualitative study is defined as “an inquiry process of understanding a social or human problem, based on building a complex, holistic picture, formed with words, reporting detailed views of informants, and conducted in a natural setting” (Creswell, 1994, p. 12).

This investigation used a questionnaire to quantify the uses of technology in ESL teachers’ classrooms in public and private schools. Interviews were used to gather more information and to find out more about ESL teachers’ perceptions, attitudes and practices concerning computer technology use in their classrooms. The interviews provided a deeper analysis by recording teachers' reports of their attitudes, feelings and behaviors. It encouraged teachers to expand on their responses and offered new topic areas, which were not initially considered. Based on the questionnaire findings, the interviews were used to validate the data and compare the outcomes of both the questionnaires and the interviews.

Setting. The schools that I used in this study were two public schools and two private schools located on the west side of the island of PR. In this area, the population is approximately 1,100 people per square mile (Rosenberg, 2005). In addition, “Spanish is the primary language

on the island and, for a short time earlier this decade; it was the commonwealth's official language. While most Puerto Ricans speak some English, only about a quarter of the populations are fully bilingual” (Rosenberg, 2005, p. 1).

Participants. The participants in this study consisted of 21 teachers from public and private schools on the west side of PR. Thirteen of the teachers came from public schools and 8 from private schools. I chose them based on their willingness to participate in the study, which constitutes a convenience sample (Ross, 2005). This means that it was easy to contact the participants. In addition, two English teachers from each school were asked to participate in the interview sections.

Instruments. I created a set of documents to complete before initiating the study. The documents consisted of a consent letter to the superintendent and directors of public and private schools (Appendix A), teacher consent letters (Appendix B), and questionnaires to complete the first phase of the study (Appendix C). In addition, I gave interview forms to public schools (Appendix D), and private schools (Appendix E).

I created the questionnaire using questions that were pertinent to finding out about teachers' needs and perceptions regarding technology in their classrooms and schools. I analyzed these to see if they could provide a choice in response mode, which means that participants decided based on their interpretation or perceptions. The questionnaire had a total of 34 questions and was constructed in four sections. (Note: Questions one, two and three were later eliminated from the final percentage, because respondents had misunderstood the questions.)

Section 1 (Q4-6) asked questions about accessibility to a portable computer.

Section 2 (Q7-12) examined teachers' accessibility and use of stationary computer labs.

Section 3 (Q14-15, 17-19) asked teachers to respond to their planning and integration of computer technology in their classrooms, and their creation of activities.

Section 4 (Q 16, 32, 33, 34) looked at the administration of professional development for teachers (see Appendix C).

In order to answer my research questions and to collect the data, I constructed a questionnaire and generated a set of seven interview questions. I asked a few computer teachers to give me ideas to create the questions. Once the questionnaire for the interview was constructed, I revised and modified it. The purpose of using questionnaire and interview forms was to gain as much information as possible to better understand the status of computer technology integration in the secondary ESL classroom. The interview questions were created to obtain deeper information on teachers' perceptions, attitudes and practices of computer technology integration in the ESL classroom.

Procedure

I conducted this study among ESL teachers from two public and two private schools on the west side of the Puerto Rico. I provided a copy of the questionnaire to 21 teachers of public and private schools. I also distributed a consent letter to the Superintendent and directors of public schools and to directors of private school institutions.

First, I contacted the superintendent of public schools and principals of public and private schools. After receiving their approval to initiate the study, I visited the schools, contacted the director of each school and contacted teachers to sign the consent letter. The following week I collected the consent letters and distributed the questionnaires. Once I identified the teachers who agreed to participate in the study, I gave them the questionnaires and collected them the following week. If the teacher needed more time, I gave teachers another week to complete the

questionnaires. I collected all the questionnaires between October 10 to the 17, 2011. Once I collected the questionnaires, I analyzed the relevant data from October 26 until November 4, 2011.

The second section of the study used qualitative data conducted from interviews based on a set of questions created to look more closely at individual use of technology in the classroom, its benefits, and barriers for integration. To begin the second part of the study, I visited each school to contact the principal for interview authorization and scheduled an appointment with the teachers. At the same time, I revised the interview questions. Only two teachers from each school participated in the interview sections. After the arrangement date, I visited each school and interviewed the teachers using a digital recorder. The following is the research schedule I used to complete data gathering.

Data Collection Procedure

Research Phase	Research Activities	Dates
#1 Consent letter	Contact Superintendent	September 29
#2 Consent letter	Contact Principals	September 30
#3 Consent letter signed	Contact teachers	October 3
#4 Questionnaires	Give questionnaires and collected them	October 10–17
#5 Interview	Picked up questions	October 18
#6 Interview	Interviews with selected participants	October 20- 25
#7 Data Analysis	Qualitative and Quantitative	October 26
#8 Analysis of Findings	Questionnaires and interview	November 7-11
#9 Revision of the Thesis	Integrating existing theory with study findings	November 14-30
#10 Revision of Thesis	Committee revisions	April – May 2012.
#11 Thesis Defense	Formal presentation	May 2012

This table summarizes the procedure followed to complete the thesis from the beginning to its end. The next chapter presents the questionnaire responses of the 21 English teachers who participated in the study. Teacher responses to the questionnaires were used to describe actual teacher practices of computer technology integration as well as to identify teacher attitudes, beliefs, opinions, and practices related to integration of computer technology in the English language arts (ESL) classroom.

Chapter IV

Questionnaire: Results and Discussion

Analysis of the Questionnaire

As explained earlier, the questionnaire was constructed in four sections:

- Section 1 (Q4-6) asked questions about accessibility to a portable computer.
- Section 2 (Q7-12) examined teachers' accessibility and use of stationary computer labs.
- Section 3 (Q14-15, 17-19) asked teachers to respond to their planning and integration of computer technology in their classrooms, and their creation of activities.
- Section 4 (Q 16, 20, 32, 33, 34) looked at the administration of professional development for teachers.

The following will give the results for each section along with some discussion.

Section 1: Accessibility to Portable Computers, Q 4-6. Of the 21 participants, 18 did not have any accessibility to a portable computer lab that could be brought to their classrooms; while only three did have access (to clarify, of those three who did have access only two teachers did have a single computer lab in their classroom).

To conclude, it is important to point out that the majority of the teachers of public schools do not have a computer lab in their school, but those teachers who do have one wrote that "Most of the computers are not functioning." This explains why the majority of the answers written by the teachers reported that computers were never available. See results in Table 1.

On the other hand, some teachers of private schools wrote, "We have Internet, computer, and a projector in each classroom." By this comment it is clearer to notice why some private school teachers pointed out that they use the computer lab only one day in a month. They do have at least one computer in their classroom, which they can use to present to their classes using

the projector. Nevertheless, it is also clear that students cannot use the computer in the classroom, but once the teacher goes to the computer lab, students are able to use it.

Table 1.

5. During English class time, how accessible is the portable computer lab?				
Participants	Less than once per month	Never available	Daily	3-4 times per week
21	1	19	1	0

*Public school teachers' comments on questions number 5, "Most of the computers are not functioning".

* Private school teachers' comments on question number 5, "We have internet, computer, and projector in each classroom".

The Stationary Computer Lab, Q 7-12. The second part of the questionnaire begins with Q7, which asked about access to a stationary computer lab during English class time. Most do not have one. For those who do (Q8), it is located in the same building as their classroom. However, the table shows that the majority of teachers do not have any access to a computer lab, and only three teachers who have access appear to use it regularly. To see the detailed differences, go to Appendix F.

Table 2

9. On average, how often do your classes use the stationary lab?	
Frequency	Participants
Daily	1
1-2 times per week	2
1-2 times per month	2
Less than 1 per month	1
Never	12
No answer	3

On Q10-11, “Are there enough computer and space in the stationary lab for your entire class to work in small groups/independently?” six of the respondents with a stationary computer lab reported “Yes.” On the other hand, some teachers answered that it did not apply for them and others claimed that the computer lab was used as storage; therefore they could not use it. According to the teachers, the computer teacher who was in charge of managing the computer lab was assigned to do office work.

The questionnaire item Q12 asked if the teachers had computers that were “fully functional at full lab capacity.” Eleven said that it does not function adequately. Five said that it did function. The other five teachers wrote no answers or wrote a comment. To see the detailed differences, go to Appendix F.

In conclusion, the majority of the students from public and private schools cannot use a stationary computer lab for various reasons. First, there usually is no lab; if there is, there are not enough computers. Second, not all the computers worked adequately, and respondents reported that the stationary computer labs are not always available for students or teachers. For example, one of the private school teachers indicated that she did have a stationary computer lab but she did not have access to it. However, at least she had one computer, an In Focus projector, a Smart Board and some resources available for each teacher in the English classroom. They obviously have more than public school teachers.

Planning Integration of Computer Technology, (Q14-15, and 17-19). Of the 21 participants, nine teachers reported that they spent zero hours per week planning for technology instruction and preparing materials that will help students use computer technology for learning. As the chart shows, one-third of the participants reported spending 1-3 hours planning while a few spent more time than that.

Table 3

14. On average, how many hours per week do you typically spend planning for technology instruction and preparing materials that will help students use computer technology for learning?	
Frequency	Participants
0 hours	9
1-3 hours	7
4-6 hours	0
7-10 hours	1
More than 10 hours	1
No answer	3

When asked (Q15) if they had planned instruction that involves the use of computer technology with their colleagues, the school media specialist or a facilitator, about half answered “No.”

Table 4

15. Do you work cooperatively with other teachers or specialist to plan instruction that involves the use of computer technology?	
Frequency	Participants
Never	10
Sometimes	6
Regularly	2
Always	1
No answer	2

The next table shows the responses to Q17, and results suggest that most teachers regularly use a computer for creating instructional materials, including handouts, tests, quizzes, or assignments.

Table 5

17. On average, how often do you use computer technology to create instructional materials, including handouts, test, quizzes, or assignments?	
Frequency	Participants
Daily	13
Weekly	4
Monthly	0
1-2 times per grade	1
1-2 times per semester	2
1 time per year	0
Not at all	1

*Public school teachers, a teacher marked two alternatives in question 17. Computer used at home not in school.

In Q18, teachers responded that they have used multimedia often to create instructional materials. Over half of the participants used it daily or weekly.

Table 6

18. On average, how often do you use multimedia to create instructional materials?	
Frequency	Participants
Daily	5
Weekly	7
Monthly	3
1-2 times per grade	1
1-2 times per semester	2
1 time per year	0
Not at all	3

Then on Q19, respondents answered about the use of computers to adapt activities for individual student needs. This practice was less common than the teacher using multimedia to create instructional materials; only one teacher answered that she used a computer daily for students' needs, eight used it weekly.

Table 7

19. On average, how often do you use computers to adapt activities for individual student's needs?	
Frequency	Participants
Daily	1
Weekly	8
Monthly	3
1-2 times per grade	0
1-2 times per semester	2
1 time per year	0
Not at all	7

The Administration of Professional Development for teachers (Qs 16, 20, 32-34).

Who is responsible for assisting teachers in your department with integration of new computer? This section looked at how teachers perceive their professional development opportunities in their schools and districts. According to the results, the schools or district work collaboratively with teachers to provide information of technology to English teachers to develop or improve computer use in the classroom.

In Q16, two public school teachers pointed out that technology information was provided 1 or 2 times per semester, eleven reported not receiving any, one reported that this year he/she did, and one responded that she never received information. In addition one of the private school teachers responded that she had received technology information daily, two teachers said they

received it 1 or 2 times per grading period, meanwhile two wrote 1 time per year and another one responded not at all or not applicable to them.

From the table below, on Q20, it is clear that the majority of the English teachers who participated on the west side of PR reported not receiving individual assistance regarding how to integrate computer technology in their classrooms. There are some schools that do have a technology facilitator who is responsible for helping integrate technology skills, programs, or activities into the English classroom. Nevertheless, the results indicated that the technology specialist is not always accessible or the school does not have an assigned specialist.

Table 8

20. Who is responsible for the assisting teachers in your department with integration of new computer technology skills, programs, or activities into your classroom lessons?					
Responsible	Technology Facilitator on school staff	District technology Facilitator or	You do not receive individual assistance	Others	N/A
Participants	7	2	9	3	1

*A public school teacher marked two alternatives.

Qs 23-31 How do teachers make specific uses of Technology for Teaching. In Q23, English teachers were asked if they used computer technology to calculate student’s grades, and the results were that 17 did. The other three did not (one did not answer). In conclusion, the majority of the English teachers do use computer technology to calculate student’s grades.

Q24 asks teachers if they used the computer to generate reports of student progress; sixteen said “Yes.” The others said “No” with one “N/A”. These results indicate that the majority of the English teachers do generate reports of student progress.

Q25 asked if students used technology for assignments during class. One teacher reported using it daily; six teachers use it 1 or 2 times per week; and three reported using it less than 1 time per week. The other approximately half of the participants did not use it.

In Q26, the teachers were asked how often they use computer technology to communicate with students. The answers showed that approximately half of the teachers do not use this method.

Table 9. How often do you use computer technology to communicate with students?

26. How often do you use computer technology to communicate with students?	
Frequency	Participants
Several times a week	5
Several times a month	4
Several times a semester	2
Never	10

Q27 asked participants if they had a teacher Web page. Of the 21 participants, four teachers do have a Web page.

In Q28 English teachers were asked how often they posted student assignments on a Web page; of the four teachers using Web pages, three teachers reported several times a month and the other indicated that she was in the process of doing it.

In Q29 some teachers marked more than one alternative. Teachers were asked how often they ask students to create multimedia projects for the class, and six teachers reported several times a semester, eight answered once or twice a year and nine teachers indicated that they never ask students to create a multimedia project.

Q30 asked teachers how often they ask students to create a Web page for the class, and 16 reported never or not applicable. Three teachers answered several times a week, three several times a month, one teacher answered once or twice a year, and some teachers marked more than one alternative. The results are unexpected, because while teachers indicated that four of them did have a Web page and three had students working with it, they did not ask students to create a Web page, contrary to public school teachers where thirteen (100%) said that they did not have a teacher Web page, but some teachers did ask students to create a Web page for the class.

In Q31, English teachers were asked which of the instructional programs teachers used for planning or presentations. Teachers responded as follows: 14 teachers used Power Point, 11 teachers used Word, three used video clips, and two teachers indicated not applicable. Some teachers marked more than one alternative.

In Q32, teachers were asked to complete a sentence, which said, “The assistance I receive for integration of computer technology into my classroom lessons sufficiently meets my needs/does not sufficiently meet my needs.” Six teachers answered that their assistance sufficiently met their needs. Twelve said that it did not. One reported, “I haven’t received assistance,” and two did not answer. According to the results, there are more satisfied teachers in private school than there are in public schools.

Q33 asked teachers if they had become acquainted with web-based instructional sites through staff development. Based on teacher’s answers, it is clear that the majority of the teachers are not acquainted with the Web- based instructional sites. Even so, there are some teachers who seem to know about these sites and used them before. Two teachers selected *SAS* as a program used in school. One of the teachers selected “Marco Polo” as one of the programs

used for class. A total of 18 out of 21 answered that they were not familiar with the staff development activities.

For Q34, the final question for private and public school teachers, responses indicated a limited number of teachers' participating in professional development activities regarding technology use and integration in the classroom. Also, possible barriers to technology use emerged. As participants identified the number of hours spent participating in various technology related staff development activities over the past 12 months, more than 50% of the respondents reported participation in zero hours of professional development in each of the five different categories:

Table 10 Hours of Professional Development

Frequency	Participants
Internet use for classroom lessons	7
Use of online instructional programs	4
Application tools Word processing, Spreadsheet, Presentation Software, Database, etc.	5
Content specific instructional software	5
Teaching methods for technology integration	7

Professional development in these categories ranged from 1 to 24 hours with less than half the survey respondents reporting participation. See Table 9 for details. To summarize, the majority of the teachers had taken a few hours of professional development. Some teachers only marked the alternative but did not indicate the exact hours of professional development.

However, the outcomes showed that teachers are willing to learn more about computer programs.

Table 11 – Q 34, Estimate the number of hours of professional development in which you have participated during the last 12 months in the following areas:

Participants	Internet use for classroom	Content specific instructional	Use of online instructional	Teching methods for technology	Application tools	None
21	7	5	0	4	5	9

*Some teachers marked more than one alternative.

I gave questionnaires to 13 English teachers from public schools and 8 English teachers from private schools for a total of 21 participants. The items in the questionnaire were used to identify their opinions and practices pertaining to the integration of computer technology in the English classroom. The majority of the teachers answered all of the items, but some items were not included in the results because teachers misunderstood the questions. Though I originally designed my study to separate and analyze differences between public and private school teachers, for this chapter the results have been combined for readability.

According to the questionnaire responses in question 17 to 34, it is noticeable that the majority of the teachers are willing to use computers in their classrooms. The results show that most teachers do not have computers in their classrooms but would like to have them and integrate them into the curriculum. The next chapter will explain the results of the interviews.

Chapter V

The Interviews: Results and Discussion

In order to determine the validity of the study and the effects of integrating technology in the English classroom, I conducted 15-minute face-to-face interviews with two teachers of each school I selected to participate. Throughout the interviews, I asked these four teachers seven questions related to the use of technology. I collected the data using a digital recorder. Before initiating the interview, I told the participants that the conversation was going to be recorded. Each section lasted from 7 to 15 minutes. The participants were interviewed individually. The purpose of the interviews was to expand the obtained data on questionnaires and collect more information in regard to the integration of technology in the classroom and teachers' attitudes toward this. The advantage of recording was to further analyze each detail of the sections. This section explains and describes how teachers answered each interview question.

For Interview Q1 (Tell me about your experience with technology in your school and at home), the majority of the teachers of public and private schools indicated using technology generally at home. They used technology at home to prepare their plans, make presentations, register students' grades and attendance, download worksheets of different skills, do research and find other materials related to the class theme. Meanwhile, teachers from public schools complained that they did not have the resources to facilitate the integration of technology in their classroom. For example, Margie is a public school teacher of 10th grade. She said, "I haven't had any experience in this school with technology, because we do not have computers. We only have computers in the library and they are for the students to use only". Most of the teachers responded that technology was not available in their school. In addition, computers that were available were not updated.

Four private school teachers responded that they had limited access to computer labs. Some teachers had the opportunity to use the computer lab once or twice a month. Those teachers who did have technology in their classroom or had a computer lab in their schools used it frequently. For example, Lisa explained, "I use the computer every day. I do my lesson plans; I get into YouTube and download audio for them to read along. There are a lot of materials available on the Internet." Lee also indicated that through technology, teachers could gather new information. She said, "We can get pieces of literature and even search for the movies from YouTube and show my students how to make a connections with the literature read in class." Results also revealed that the other half of the private school teachers did not have the facilities to use computers in the English classroom. Therefore, they indicated that they used technology at home to prepare materials for the English class.

Based on teachers' answers, it is clear that teachers seem to be active agents in the process of change and implementation of new ideas to support any educational reform such as using innovative technology programs. While only a few have the opportunity to use it at school, most of them do so at home.

Interview Q2 asked teachers if they have taken teacher workshops of technology. They were asked to describe what a technology workshop includes. The majority of the teachers had taken a technology workshop in their present school or in another school where they had worked. In the workshops, they were instructed only in the use of Power Point, Excel, Word Processing, and some other programs required by teachers of private and public schools. For example, *Rosetta Stone* is one of the programs used in one of the private schools. Teachers of both private and public schools indicated that they were not trained properly in the use of technology. In

addition, their reports revealed that some workshops did not include any hands-on work activities for technology.

A peculiar observation is that all the teachers must use technology to post students grades, even if they do not have the facilities to do it. An example of this is a private school teacher named Lee. Ms. Lee said,

“In August the school began to work with a new program called ‘Brain Honey’ so we can grade and create our tests there. The students can take their tests; teachers can give homework and access through it. Students can access us at home, the parents can access us at home and we can communicate with them constantly.” Lee also explained, that “this program literally extends the school day because teachers and students continue to communicate with each other into the late afternoon. The program is similar to a blog, it is very new for us and we are still working with it. It works something like Black Board, like the ones they have in the university.” In addition, she also explained that “the school gives us an 8 hour workshop and it has hands-on activities. They show us the stuff, they showed us what it was for, and the different things we could do on it.” While Ms Lee describes a system used in private schools, the DE of PR has a similar program called SIE that all teachers must use.

A public school teacher, Ms. Helen indicated taking a technology workshop in 2011, which orientated teachers in the school about a program that the Department of Education has. The creation and use of the programs is in response to a certification from the Department of Education that requires teachers to use it. The teachers can use materials from that program that follows the standards and expectations. The first school where Ms. Helen worked was preparing the school with smart boards, projectors, and computers for the teachers to integrate technology;

unfortunately Ms. Helen was moved from that school to another one that did not have these facilities. Hence, she was able to make use of these technological advances and this situation shows the unbalances and unequal availability of computer technology in schools.

In Interview Q3 teachers were asked: What do you see as the biggest problem when you try to integrate technology in your classroom? Analyzing teachers' responses in public and private schools, it becomes obvious that the majority of the teachers lack technological equipment. For example, a teacher from a private school explained that there was only one computer for all teachers to use in her school, and that it was located in the library. In addition she pointed out that they did not have any technology resources. The other private school teachers indicated that each of the teachers does have a computer, Internet, a projector, a Smart Board and other resources inside their classroom. Therefore, they do not have much problem integrating technology in their classrooms. Besides, teachers explained that students actively interacted with computers inside the classroom although they did not have a computer for each student to use. Ms. Lee added to her answer by stating the following:

“My biggest problem is that I only have one computer inside my classroom.

Otherwise we have three stationary computer labs where each one of our students has a computer, but one of the problems is that some of the sites are blocked. Even the educational sites are blocked. On the other hand, to use the computer lab, each teacher is assigned to use it only on a certain day and time.”

From this question, it becomes obvious that public school teachers lack resources and facilities to integrate technology in their classroom. For example, Mrs. Bella said,

“We do not have the materials that we need every day to make our class more productive with our students, since the most important thing for us as teachers is to

integrate technology in our class to make it more interesting, more attractive, and more productive. I think that for me, it is a challenge to give class and to make my students as interested as possible through all the entire year.”

According to Helen, one of the major problems that she has is that she does not have an assigned room. She indicated that some of the classrooms that she uses do have a computer, but the computers are out of date because they have floppy drives, which are no longer used.

Furthermore, Mr. Joe, a high school teacher from public school, narrated his experience where in his school technology was always available and he had all the resources he needed in the classroom. Nevertheless, the school was closed for remodeling because the government selected the school for the new 21st century project. This school will have air conditioners, and will be specialized in education with all the available technological resources. The main problem is that school employees were temporarily moved to another school that did not have the facilities to integrate technology until the government remodeled their school. Based on the responses of the majority of the teachers, they would like to integrate technology in their classes but lack resources and materials to do it. Even so, all teachers said that they use technology in their homes.

Interview Q4 asked teachers how technology could help them to better teach ESL in public schools or ELL in private schools. Their answer revealed that teachers from public and private schools consider the integration of technology to be a very helpful tool for their class. Ms. Helen said,

“Students are visual learners and if we use technology or computers they can see and read while they listen to a Power Point presentation and they can also add some

programs with headphones to better learn the English language.” In addition she said, “Not all the students learn in the same ways, some are visual learners.”

Mrs. Lisa, a private school teacher said, “This is English immersion, but to integrate literature, it is useful because they will write pieces, edit them on the computer, publish them and they can see the process and they can use Internet to work directly on the smart board or the computer.”

In interview Q5, teachers were asked the following: What computer programs do you know that are useful for your work in teaching English to your students? Do you use them regularly? Why? What are the benefits of using this program? How do students respond to this program? Some of the programs used by private schools teachers are Power Point, Word, Movie Maker, a literature CD that comes with teacher editions, and teachers’ grading programs among others. The participants from private schools used these programs for students to write stories on the computer, correct their work, print their work, and also share their work with other students, which was a motivational strategy. In addition, Mrs. Lisa said, “I have many programs that I use in the classroom, but I have used educational games and I have also used reading of literature from Stanformer.” Moreover Mr. Joe (a public school teacher) also said, “I usually use Power Point presentations or Word and I have used photographs for students to describe and write a descriptive writing piece.”

In addition, public school teachers said that they had used the Power Point program for their students, and also Microsoft Word and Excel. One of the teachers indicated that she would like to use the “Rosetta Stone” program for ESL students.

Another of the teachers Mrs. Bella shared her experiences integrating technology in the classroom. When working for a private school that had the facilities of a computer lab, her

students had the opportunity to participate in a competition in San Juan, PR. Students used the computers to create their writing, prepare the stage decoration and costumes. They were responsible for the makeup and everything was supposed to be done in 24 hours. Mrs. Bella said that without computers they would not have been able to win the first prize in that competition. Over all, the results revealed that private and public school teachers agree that the benefits of these computer programs motivate students.

In Interview Q6, teachers were asked what alternatives they would suggest for the Department of Education or for their private institution to improve teaching language with technology. One of the teachers from a private school with ample facilities responded that what they needed was to update the computers. Another private school teacher complained about the lack of technology. One teacher explained,

“My suggestion is to have a computer room where the students could go with their teachers and do work on the computers. It would be good to have a workshop in order to learn more about the new assessment and activities that we can make with these suggestions to use with ESL students”.

Another suggestion was made by Mrs. Bella: “I think that every single teacher should have a classroom with a minimum of 4 or 5 computers and if they could have a computer lab in the school that will be awesome.” Ms. Maggie said,

“The Department of Education should do like in the university, have a computer lab where students will have to go and put on the headphones and listen to the conversations. I guarantee that it will improve students’ interest in English and they will learn English better.”

The last Interview Q7 asked teachers the following: If you could have any technology in your classroom to help you teach better, what would you choose and why? One of the private school teachers that had all the available technology answered, “Everything I need in my classroom to teach I have.” The other teacher (Mrs. Lisa) said,

“I understand that the school has given the teachers the tools in technology. I do understand it is very idealistic for our students to have their own computer, but the computer will never substitute a pencil and a paper, we need that. It will never substitute books from the library because that’s culture. I think there should be a happy medium in between.”

On the other hand, the private school teachers who lacked technological resources answered,

“I would like to have at least 2 computers in the classroom where the students will take turns using them. I also think it will be good to have books that come along with CD to listen to a story; as they read it, they can learn to hear good pronunciation.” The other teacher (Mrs. Vanessa) answered,

“A computer lab will be excellent for students to understand literature, grammar, use headphones to improve oral communication and be successful with the ESL class. I have used YouTube with my previous school and we had Internet to search for different activities and games that help students tremendously.”

In contrast, the public schools teachers all agreed that it is indispensable to have a computer for all their students to use in the classroom. Other resources that they would like to have are printers with scanners, Smart Boards, and projectors to give presentations on Power Point to change class routine. Mr. Joe said,

“I would definitively choose a good laptop with a good projector, to project the materials without having to use the green board or any chalk. There would be no allergies and with a good fan or air conditioner, there would not be so much heat.

Students will not have to copy so much because everything is projected and we can give them flyers for them to follow through.”

Ms. Helen said, “Since students are visual learners, they will pay a lot more attention while I can use the computer to present the material and explain it faster and the class will be more dynamic.”

The interviews were essential to collect more data from the participants and to have a better view of the status of computer technology integration by ESL teachers. For example, the interviews showed that teachers worked with technology in their homes, something that the questionnaire never would have indicated. In addition, the data collected helped answer the research questions concerning computer technology integration in today’s ESL classroom and its importance to teachers, and helped evaluate how teachers perceive the integration of computer technology as a priority or need. In the next chapter the results are analyzed and discussed in detail.

Chapter VI

Research Question Analysis and Discussion

The previous chapter expressed that it was evident that English teachers from public and private schools have varied experiences regarding their use of technology and their expertise using it. In this chapter, I attempt to explain the reasons behind the statements the teachers made in the questionnaire and the interviews. Using the data that was analyzed in the previous chapter, I will now answer the three research questions.

RQ1 How do teachers perceive their preparedness to integrate technology?

Based on teachers' responses, the majority of the ESL teachers perceive computer technology as a priority that is needed in the English class. To validate this answer I looked for themes across the interviews and from the questionnaire.

One theme that repeated itself was that teachers explained that they knew how to use certain types of software. During the interviews, teachers reported using programs such as Word, PowerPoint, Excel, the basics of word processing, media and numbers. In addition, teachers mentioned using programs for grade keeping and reporting such as Brain Honey, and School Max, both of which require extensive computer knowledge. They also mentioned programs for teaching English and Literature such as Stanform, a digital book site for reading literature. Other teachers have used Movie Maker for filmmaking, another program that requires knowledge in computer use. These examples show that the teachers are prepared to work with software and are willing to do so.

Another theme that shows that teachers are prepared for using computers while teaching is that they make connections between their class materials and what they find on the Internet.

Some teachers mentioned using YouTube to connect with the readings and Music Videos for teaching English.

Another area where teachers show preparedness is in how they use innovation to teach when they do not have the basic technology in their classes. For example, one teacher uses an iPad to project her activities and some use educational games also using iPads. Teachers looked for a way to use technology in the home and bring some examples of it to their students in class. In fact, many students had to do assignments using technology from their homes or from the school library if the technology was not available in their classroom. Hence, teachers show that they have the preparation and the skill, but because they do not have the hardware, they find other ways to present the material to their students.

However, teachers feel that they still need more practice and would like to receive more workshops where they can learn to manage the programs and new techniques to apply inside their classrooms. Therefore, even when the facilities are not always available at school, all the teachers of public and private schools use computers at home to prepare their plans and student materials. This way, they have prepared themselves exploring different sites, software, and programs.

RQ2 How, why, and to what extent are these technologies used?

First of all, information from the questionnaire and the interviews shows that teachers use the technology in a variety of ways, for different reasons and purposes. The extent to which they use them is mostly determined by their availability and knowledge. In class, teachers use projectors, Power Point presentations, Excel for graphs and for math and they also use word processing writing projects. Usually, students are assigned to write at home and bring in printed copies or a pen drive, which is projected for the entire class to view. The majority of the

teachers describe the use of technology as ideal to support classroom instruction, and reported daily or weekly use of computer technology to create instructional materials. Among those materials used, respondents reported preparing multimedia presentations in combination with literature, handouts, worksheets, Internet research to enhance class discussions, test, quizzes, comic strips, or assignments and projects. In sum, teachers find creative ways to overcome their lack of hardware.

As far as how they use computers, it may be noted that only two teachers from private schools and one from public schools indicated that they used a stationary computer lab during their ESL class period. They reported using the stationary lab 1-2 times per month or less. The majority of the respondents reported not using a stationary lab or not having access to one during class time at all. Some teachers reported not having a stationary lab in their schools. All of the teachers indicated not having a portable computer lab in their schools. Therefore, the way they use technology is severely hampered by their lack of computers for students to use.

In addition, they use computers at home to maintain students' grades and update reports. With their home computers, they tabulate tests, enter students' attendance as required by the administration, prepare lesson plans, and send e-mails to students or parents. It is apparent that at home, teachers need to use computers for facilitating effective teaching and learning.

When considering the extent teachers use technology in and outside their classrooms, results indicate that most of the teachers use computers to adapt activities for individual student needs within the curriculum. Most of the respondents revealed using computers routinely at home for multiple purposes. Even so, the majority of the teachers do not have a teacher Web page or a blog and only a few teachers from one private school reported having a Web page to post student announcements, assignments or special work. This indicates that although teachers

use technology for basic teaching and assessment, they lack knowledge and skill in developing higher-level technological forms of communication that could be used with students. There might be two reasons for this. The first is that they do not have the computers or the time to spend with their students on this type of activity, or they may not have the training and development that is needed for them to do so. From the answers provided on the questionnaire, teachers stated that they had little help from a technology specialist in school and that the professional development opportunities often did not let them have hands-on experiences that would help them to learn how to use new types of technology. However, even if they did learn new technologies they mostly did not have the hardware available to practice what they might learn with the students.

RQ3 To what extent might English teachers consider the integration of computer technology as a priority for their ESL courses?

In response to the questionnaires and the interviews sections, the majority of the teachers perceive computer technology as a priority in the ESL classroom. In addition, teachers revealed that it was a very important goal to use computer technology in the secondary language classroom.

Most of the teachers indicated that the use of technology helped them make their classes more productive and it was useful to facilitate the students' levels of comprehension. For example, teachers explained that technology expanded student knowledge. Through the use of the Internet, students are able to virtually visit places they might not be able to go to otherwise. Oftentimes, ESL students read texts and do not comprehend them, but with visuals and real life experiences, or films based on the written text, they are able to more fully comprehend a story.

One of the public school teachers, Mrs. Bella, is very enthusiastic about using computers and finds them to be a great enhancement to her teaching. "I think anything that comes in a computer is good for a class. We have students in our school that already have computers in their home and they already know how to use them". Therefore, she sees their use as critical to teaching English in her classroom.

When teachers have the materials such as those that Mr. Joe uses, they take advantage of them and use them to their fullest. Mr. Joe has a Smart Board, an InFocus projector, a computer, and a printer. The benefit of the Smart Board is that students can interact with it by selecting answers and writing on their own. It has everything at their fingertips and makes teaching easier. Lessons go by quicker. This example points to the possible ways that ESL teachers could make use of technology if they had the opportunity to do it, which should be a priority.

Discussion

From Velazquez' study, the following themes emerged during the analysis of the qualitative data: First, course content that should prepare teachers to integrate technology in the classroom; second, modeling technology used by educators must instruct by example; third, for teachers to learn technology skills, self-acquisition of technology skills needs to be supplemented by formal training; fourth, expand access and exposure to technology and Internet needs; fifth, integrate technology in language teaching through a hand - on work preparation program (p. 1).

All the items discussed above are the same issues discussed by teachers who were interviewed in my study. Teachers said that workshops discussed how the programs worked, but did not provide the opportunity for "hands-on" experiences, which are essential for real learning to take place. Therefore, teachers wanted to expand their knowledge and asked for training and more exposure to technology and Internet resources and tools.

In this section, I will discuss topics related to how the teachers answered the questions on the questionnaire and the interview and what the reality is for teachers in public and private schools today.

The first area that is important is the problem that exists between what teachers can do in their classrooms with technology and what the Department of Education requires of them. Teachers of the public schools are required to integrate technology in their classroom and the circular letter #6 2000-2001 indicates details of the goals and expectations projected by the DE of PR website (See <http://dde.pr>)

There is a disjuncture because teachers are required to use technology but most schools do not have hardware, software, or the computers are out of date. So the question remains: How are teachers supposed to carry out the duties and expectations of their job when this condition exists? The opportunities for teachers to use computers are quite often limited to one computer in a classroom, often without Internet, or teachers must use a computer in the school library, or require students to work at home with their own technology. Examining Velazquez' study results (2006), it is clear that in the past six years, the DE continues confronting the same limitations. Teachers lack resources, equipment, and Internet connections and, as a consequence, are not able to integrate technology as they wish.

It seems that, according to this study, teachers mostly make use of computer technology by expecting students to work with the technology in their own homes. This situation creates another problem because many homes do not have computers and do not have Internet, creating an imbalance of facilities for students to learn, which is not in keeping with what a public school system is supposed to do. Public schools are supposed to provide equal opportunities for students to learn. According to what DITE stated previously, technology should provide equal

access to technological resources. DITE is an office called the division of educational innovations and technology. This office is in charge of transforming the traditional education and collaborates toward the integration of technology in the classroom in an effective way.

But what is happening to the Department of Education of PR's plan of working together with teachers to transform teaching through the effective integration of technology into the classroom? The idea is not to use technology because it is mandatory, but to use the best and most effective technologies that aid in the learning process and to learn how to employ these technologies to their fullest potential. Therefore, interviewed teachers pointed out that technologies should be used to better address pedagogical needs and concerns. Richmond (2003) also reviewed issues and concerns related to pedagogical uses of new technologies for learning across the curriculum. His study, which was discussed in the review of the literature of this thesis, recommends the use of various pedagogical techniques fostered through technology such as more interpersonal relationships, peer tutoring, mentoring, parental involvement and technical support. These outcomes are desperately needed in the schools of Puerto Rico in order to achieve the technology goals that are expected of teachers today. In addition, Guzman and Nussbaunt (2009) also indicated that in today's public school systems, technology is seen as an important instructional tool.

In the meantime, the Department of Education of PR is demanding that teachers continue to take workshops and keep themselves updated with new strategies in order to catch up with these new generation needs. Based on Velazquez' investigation, teachers were not receiving sufficient instruction or practice in the integration of learning technologies into their courses, but that was in 2006 and now, in 2011, teachers are required a minimum of 45 hours of professional development.

According to the interview results, teachers must complete a number of hours taking workshops, which are now mandatory in the Department of Education of PR. All the interviewed teachers had a positive attitude toward taking workshops and preparing themselves in learning new innovational technology systems. In the Velazquez study (2006), the faculty did not use technology in their classes because they were more comfortable with traditional approaches and it was considered more work. Contrary to Velazquez's findings, teachers in this study agreed to integrate technology resources in order to improve students' interests in learning English. This shows that over recent years, teachers have a more favorable attitude toward using technology in their classrooms.

Nowadays, the DE is offering professional development opportunities that instruct teachers on the use of various computer technologies, equipment and software. Nevertheless, teachers complain about the need for equipment in order to be able to integrate technology in their classrooms.

As a result of this study, the public school teachers have made suggestions that the Department of Education of PR might consider. They have asked for the following:

- a. Acquire the necessary technology equipment for schools.
- b. Bring readings that are relevant to the students of Puerto Rico
- c. Integrate a computer lab in all the schools.

As explained before, the Department of Education and private institutions demand the use of technology inside the classroom. Teacher evaluations include how they integrate the use of technology in the classroom. This means that teachers have to show evidence of the use of technology in the classroom, even if the schools do not provide the resources.

Most private school teachers do not have a problem integrating technology into their classrooms. The schools are well equipped with the necessary tools to integrate technology resources. Some teachers from private schools that had a stationary computer lab responded, that they used the facilities. Nevertheless, teachers indicated that the school only allows teachers to schedule the use of it one or two days per month. Teachers of the public schools expressed frustration for not having any facilities to integrate technology. Analyzing public and private schools results, it is clear that the majority of the teachers lack resources to integrate technology in the classroom.

In spite of this, private school teachers use Brain Honey, a system which is an innovative program used by them. For example Ms Lee said that Brain Honey is a school program where teachers must register students' grades. She explained how students, parents and teachers connected online and maintained communication regarding academic work. This type of connection could increase student achievement. According to Ringstaff and Kelly (2002), the integration of technology within the curricular framework increases student achievement.

On the other hand, it is important to point out that the public school system also has a program similar to Brain Honey called Students Information System (SIE) or School Max. The DE of PR demands the use of this system even when schools lack functional and adequate computer systems. Moreover, the system is not working as it is supposed to be working. The DE needs to update the system and offer continuous maintenance.

Chapter VII

Conclusions, Recommendations and Limitations

This study examined teachers' perceptions about integrating technology in English classrooms in both the public and private schools on the west side of PR. The analysis of both quantitative and qualitative data revealed a number of important results about teachers' perceptions toward the integration of technology in their classes. The overall findings emphasized teachers' perceptions about the important role of technology in second language teaching and learning. The participants of public and private schools understand that, even when the majority of the teachers lack computer and technology resources, they are able to use technology at home. Teachers often use computers to navigate the Internet and find resources for their classes. One of the teachers frequently creates her tests using online resources like Easy TestMaker.com. In addition, teachers construct quizzes and their school lesson plans on computers.

According to the respondents, my first research question is answered. Teachers of public and private schools perceive a level of knowledge in the use of technology and they are, to some extent, prepared to use it. The majority identified computer technology as a primary goal for students to enhance the learning process.

Historically, people saw this big move to computers about 10 years ago. The ex – secretary of the Department of Education of PR, Victor Fajardo wanted a computer for every student (Ruano, 2000). The federal government offered considerable funding for materials, computers, and technology resources. Suddenly, this boom toward computers began to rise and incorporated school environments, but the lack of an appropriate infrastructure, access to the Internet, and functional and updated computers affected this boom and it failed.

Attached to this problematic environment in the Education Department, an economic crisis transpired and now, there are almost no properly functioning computers in the schools. In spite of this, the administrators still insist on redirecting their sights towards the use of technology when there is none. Even the government is in the process of creating new programs for schools in the 21st Century. Among administrators' plans, there are schools called technological schools for the 21st century, which are supposed to be well equipped with all the technological resources. Overall, teachers see that there are benefits from technology, especially when they use materials that they have accessed from the Internet in their classes. In addition, a few teachers ask their students to send some of their work such as homework, projects and special assignments by e-mail.

Consequently, much of the teachers' tasks are employed outside of the classroom, so the expectations are that students will also use technology outside the classroom. This is primarily because none of these technology resources exist in the English classrooms.

Differences between Public and Private Schools

Based on the responses to the questionnaires and the interviews, there were some differences between public and private school resources and the knowledge of technology. The private school teachers used technology more than public school teachers because they had the necessary resources available in the classroom. Public school teachers remarked that they practically had little or no computer use in their classrooms. On the other hand, one of the private school teachers responded having Internet access any time she wanted during the class period. Meanwhile, both public and private schools lack Internet access and resources to implement technology in the class. Although there has been a strong push to get educational technology into the hands of teachers and students, many obstacles to this implementation still

exist, especially in the public schools systems. It is usually assumed that Puerto Rico private schools have an advantage over public schools. Even when private schools have to generate their own funds, federal grants are provided and private funding aids in providing and promoting the use of technology resources for teaching. In contrast, public school funds come from the Puerto Rican government and federal agencies. The funding often trickles down and changes are not seen rapidly. The majority of the public schools also serve middle to lower class students whose parents cannot provide individual funds to the schools. Therefore, public schools have less and less opportunities to receive technological resources. These are some of the barriers experienced by teachers of public and private schools.

Similarities between Public and Private Schools

My second research question, how, why and to what extent are these technologies used, is answered when we consider the similarities between public and private schools. All the teachers responded that they use technology resources at home and bring them into the classroom. All teachers seem to be prepared or have had an experience with technology and are willing to work with it in the classroom. Even so, they need more activities in professional development where they actually receive hands-on work. They want to be well trained with the new innovations such as the creation of websites, blogs and other networking systems.

Overall, these “reform” teachers are gently pushed to do all their work on computers at home. According to the ex-secretary of the Department of Education in 2011 (Jesus Rivera Sanchez), teachers now are responsible for all the materials used in their classrooms because of computers. He stated to teachers, “You don’t need books,” but there are no computers in schools (Puerto Rico Daily Sun). Teachers from public and private schools agree that computers should

compliment literacy, but Lisa, a private school teacher, said, "technology will never substitute a pencil, a paper, or books because books are culture."

Educators have always worked hard to keep their students motivated and they believe that the use of technology in the classroom makes class more dynamic. According to the teachers in this study, the use of technology can help students strengthen their learning, but it requires teachers' extra time. Therefore, the lack of time is another issue that teachers have to manage.

Trends in Technology and Education

Regarding the third research question, results reveal that the majority of the interviewed teachers consider technology an integral part of teaching and learning in the English classroom. In addition, teachers assume a positive attitude toward the use of technology in the classroom. Teachers also said that it was useful to integrate literature using online sources. Therefore, teachers want to comply with what administrators require, but they need the tools, the resources, and the necessary equipment to integrate technology. They want to be treated in a better way. They want to integrate technology and make the class friendlier because some students have to struggle with the second language and with technology, it would be more interesting for them. For those teachers who use technology there is yet a lot to learn about technology in language teaching.

One of the important results is that teachers confirmed the inevitable impact of technology on their own teaching practices, which may promote student learning. Furthermore, results revealed that all the teachers who participated in the study are willing to integrate technology in their classes to improve language teaching and learning.

The influence of new people from different cultures who speak a language other than Spanish puts some strain on our educational system, since Puerto Ricans often reject changes in their dialect. (Pousada, 1996) Nevertheless, the American community must take the time to understand the Puerto Rican culture, and vice versa. In order to sustain an advantaged place in the eyes of the world, meet the needs of those who want to learn English, and obtain profit in Puerto Rico's job market, it is necessary to develop instructional objectives in both languages. Computer systems have created a global revolution and many companies demand academic preparation. Therefore, mastering computers and communicating in an extra language provides better professional opportunities.

Recommendations

Nowadays, teachers must be prepared to provide technology inside the classroom. Therefore, one of the recommendations suggested by teachers of public and private schools is for the Department of Education to be more aware of the students' problems and incorporate readings that concern their country. Another suggestion was to change the curriculum or review courses, and to consider the integration of at least one computer lab in each school. It is important to include headphones and software for students to listen to English conversations. In addition, as far as technology is concerned, it might be good to have books that integrate an oral component; this will help students enhance their pronunciation. There's no doubt that with computers, Internet facilities, software programs like Photoshop and Power Point, and the necessary equipment to integrate technology, our ESL students could expand their vocabulary. One of the private schools has all the facilities to integrate technology and use the computer lab, but teachers suggest that the institution maintain and update the computers. Nevertheless, understanding students' needs is essential for stimulating the learning process. According to

English teachers from public and private schools, technology enriches the curriculum. Even so, I am aware that the introduction of computers into schools has placed pressure on all school members. As a result, I recommend that before acquiring any technological equipment, adequate teacher training is necessary. In addition, an effective plan must be implemented in order to apply for funding, acquire equipment and maintain the technological infrastructure.

Training should not be restricted to how to use computer technology; it should show teachers how to make use of technology in improving the quality and effectiveness of their instruction, as well as how such technology resources can be effectively integrated into the curriculum. In other words, findings suggest the need for ongoing training and assistance in helping teachers to better employ computer technology resources in pedagogical practices.

Limitations

This study attempted to identify English teachers' perceptions and attitudes toward the integration of technology in the English classroom. However, this study has some limitations. First, a small sample of participants located on the west side of PR was selected. The sample did not include other private and public schools around the island. Participants were teachers from two public and two private schools. A total of 21 teachers participated in the study. The results of the study are specific to these schools and cannot be generalized to other similar institutions.

In addition, the questionnaire that was created for the study had certain flaws that did not allow me to use some of the questions: therefore, it weakened some of my findings for the questions used. Although the interviews helped to complement the questionnaire with qualitative data, this data cannot be generalized to any other population, making my findings useful primarily for a small group of teachers on the west side of Puerto Rico.

Suggestions for Further Research

As stated in the Limitations section, there was a small sample used to undertake this study. To increase validity, this study could be done again with a larger sample. In addition, it should include teachers from other geographical areas of Puerto Rico because resources and teacher training may vary across municipalities. Teachers in San Juan, for example, may have more access and better training than teachers on the west side of P.R. By looking across municipalities, the disparity across them could be assessed. In addition, because as shown in the introduction, companies like Apple are investing time and money in increasing and improving the use of technology in schools in the U.S., it would be interesting to assess how technology is used in some areas of the U.S. when compared to P.R. Finally, a study that looks at what students do in classrooms that have all the newest technology could be compared with those that do not to see the differences in how students learn from technology.

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APPENDIX

Appendix A: Informed Consent Form

September _____, 2011

Dear: _____
Director of _____ (School's Name)

Greetings, my name is Jeanette Pérez, a graduate student of the English Department of the University of PR at Mayaguez, I am currently developing a study in the English program on the thesis course to complete my MAEE degree.

I am asking for your authorization to contact the English teachers in your school. I will distribute a consent letter where they will accept or reject to participate in my research by answering a questionnaire, plus observing two classes where technology is integrating.

The purpose of this study is to investigate how do teachers in the English course perceive and experience the integration of computer programs in the learning process in the Public and private School System in Puerto Rico.

The data collected will be used on my thesis research, title "Integrating Technology in the English classroom. This study will give educational leaders a view into the successes, frustrations, barriers, and innovations of Puerto Rican English language arts teachers as they use computer technology in their classrooms.

It is important to understand that teachers names and or any identification will Not Be associated with this study (only the researcher will know their identity). Research findings will be available after the study is completed. There are no known risks or discomforts associated with this study. The expected benefits will be the information concerning the learning experiences that I will provide.

- Yes, teachers from my school may participant**
- No, teachers from my school may not participate in this study**

Full Name

Signature

Date

Respectfully,

Ellen Pratt, Ph.D.
Thesis Committee Chair

Jeanette Pérez
Graduate Student
English Department
UPR at Mayaguez

Kevin Carroll, Ph.D.
Interim Director
English Department

Appendix B: Informed Consent Form

Teacher Participants

I, _____, agree to participate in the research project "Integration of Technology in the English Classroom" conducted by Jeanette Perez, who is a graduate student at the University of Puerto Rico at Mayaguez, Department of English

I understand that my participation is voluntary, which means that I am free to decide not to participate or withdraw at any moment, without affecting my relationship with the English Department, the professor, or the University of PR at Mayagüez.

I authorize Jeanette Perez to use the answers to a questionnaire that I will be given and that will take approximately 20 minutes to complete. In addition, I also authorize her to interview me based on 9 questions about how I use technology in my classroom.

I understand that my name and or any personal identification will not be associated with this study (only the researcher will know my identity). I understand that I am allowed to ask any questions before, during or after the questionnaire and interview process. Research findings will be available to me after the study is completed. There are no known risks or discomforts associated with this study. The expected benefits will be the information concerning the learning experiences that I will provide.

By signing this consent form I am aware of the nature and purpose of the procedures, which have been described above. A copy of this Consent Form will be given to me to keep. If I have any questions or concerns I understand that I can contact Jeanette Perez at 787-615-2784 or by e-mail at jiny_pv@yahoo.com

Yes, I will participant

No, thank you, I would prefer not to participate in this study

Teacher's Name

Teacher's Signature

Date

Appendix C: Secondary ELA Computer Technology Paper Mode Questionnaire

Availability of Computers

1. Do you work for a private or public school?
 private public
2. Do you have a designated teacher computer in your classroom?
 yes no
3. How many computers are accessible for students use within your classroom?

4. Do your English classes have access to a portable computer lab that can be brought to your classroom during English class time?
 yes no
5. During English class time, how accessible is the portable computer lab?
 available daily available 1-2 times per month
 available 3-4 times per week available occasionally, less than once per month
 available 1-2 times per week never available
6. During English class time, how often do your classes use portable lab?
 daily 3-4 times per week 1-2 times per week
 1-2 times per month less than once per month never
7. Do your students have access to a stationary computer lab during English class time?
 yes no
8. Is the Stationary computer lab in the same building as your English language arts classes?
 yes no
9. On average, how often do your classes use the stationary lab?
 daily 3-4 times per week 1-2 times per week 1-2 times per month
 less than once per month never
10. Are there enough computers and space in the stationary lab for your entire class to work in small groups?
 yes no

11. Are there enough computers in the stationary lab for each student in your class to work independently?

yes no

12. Overall, in the stationary lab, are the computers and program fully functional at full lab capacity?

yes no

13. If your classes have access to a portable or stationary computer lab during English class time and you rarely or never use it, please explain?

lack of teacher interest
experience

lack of personal technology

lack of student interest
closing lab

lack of time for setting up and

lack of technology staff support

other

not applicable

Planning for Computer Technology Integration

14. On average, how many hours per week do you typically spend planning for technology instruction and preparing materials that will help students use computer technology for learning?

0 hours 1-3 hours 4-6 hours 7-10 hours more than 10 hours

15. Do you work cooperatively with other teachers or specialist to plan instruction that involves the use of computer technology?

never sometimes regularly always

16. To what extent does your school or district Information Technology or Technology in Education Department work collaboratively with your school's English teachers to develop or improve computer technology use in the classroom?

daily weekly monthly 1-2 times per grading period

1-2 times per semester 1 time per year not at all

17. On average, how often do you use computer technology to create instructional materials, including handouts, test, quizzes, or assignments?

daily weekly monthly 1-2 times per grading period

1-2 times per semester 1 time per year not at all

18. On average, how often do you use multimedia to create instructional materials?

daily weekly monthly 1-2 times per grading period
 1-2 times per semester 1 time per year not at all

19. On average, how often do you use computers to adapt activities for individual student's needs?

daily weekly monthly 1-2 times per grading period
 1-2 times per semester 1 time per year not at all

Integration of
Computer Technology

20. Who is responsible for assisting teachers in your department with integration of new computer technology skills, programs, or activities into your classroom lessons?

Media Specialist
 Technology Facilitator on School Staff
 District Technology Facilitator or District Staff Member
 You do not receive individual assistance
 Other

21. Do you use cooperative learning in your lessons designs?

never sometimes regularly always

22. Please rank your top 5 uses of computer technology for instruction in the following areas:

1 = MOST frequent use

5 = LEAST frequent use

<input type="checkbox"/> Research	<input type="checkbox"/> Reading comprehension
<input type="checkbox"/> Publishing	<input type="checkbox"/> Grammar review/practice
<input type="checkbox"/> General learning	<input type="checkbox"/> Educational communication
<input type="checkbox"/> Interactive learning	<input type="checkbox"/> Literary terms
<input type="checkbox"/> Reading literary works	<input type="checkbox"/> Independent or small group projects

23. Do you use computer technology to calculate student's grades?

yes no

24. Do you use computer technology to generate reports of student progress?

yes no

25. On average in the past four weeks, how often have students used school computers to undertake English class assignments during your class time?

every day 1-2 times per week not at all
 3-4 times per week less than 1 time per week

26. How often do you use computer technology to communicate with students?

several times a day several times a month once or twice a year
 several times a week several times a semester never

27. Do you have a teacher Web page?

yes no

28. How often do you post student assignment on a Web page?

daily several times a month once or twice a year
 several times a week several times a semester never

29. How often do you ask students to create multimedia projects for your class?

several times a week several times a semester
 several times a month once or twice a year never

30. How often do you ask students to create a Web page for your class?

several times a week several times a semester
 several times a month once or twice a year never

31. Which of the following programs do you use for instructional planning or presentation?

Power Point Marco Polo
 Words Other

32. Please complete this sentence :

The assistance I receive for integration of computer technology into my classroom lessons ...

sufficiently meets my needs. does not sufficiently meet my needs.

33. Which of the following Web-based instructional sites have you become acquainted with through staff development activities?

None

SAS in Schools

Marco Polo

34. Estimate the number of hours of professional development in which you have participated during the last 12 months in the following areas:

Internet use for classroom lessons

Content specific instructional software

Use of online instructional programs

Teaching methods for technology integration

Application tools (Word processing, Spreadsheet, Presentation Software, Database, etc.)

Appendix D: Interviews Mode
Interviews Form Public Schools

1. Tell me about your experience with technology in your school and at home.
2. Have you taken a teacher workshop of technology? Describe for me what a technology workshop includes.
3. What do you see as the biggest problem when you try to integrate technology in your classroom?
4. How can technology help you to better teach ESL?
5. What computers programs do you know that are useful for your work in teaching English to your students? Do you use them regularly? Why? Which are the benefits of using this program? How do students respond to this program?
6. What alternatives would you suggest for the Department of Education to improve teaching language with technology?
7. If you could have any technology in your classroom to help you teach better, what would you choose and why?

Appendix E: Interviews Mode
Interviews Form Private Schools

1. Tell me about your experience with technology in your school and at home.
2. Have you taken a teacher workshop of technology? Describe for me what a technology workshop includes.
3. What do you see as the biggest problem when you try to integrate technology in your classroom?
4. How can technology help you to better teach ESL?
5. What computers programs do you know that are useful for your work in teaching English to your students? Do you use them regularly? Why? Which are the benefits of using this program? How do students respond to this program?
6. What alternatives would you suggest for the private schools institutions to improve teaching language with technology?
7. If you could have any technology in your classroom to help you teach better, what would you choose and why?

Appendix F.

Table 1. Portable Computer Lab questions 4, 5, and 6.

QUESTIONS						
	4. Do your English classes have access to a portable computer lab that can be brought to your classroom during English class time?		5. During English class time, how accessible is the portable computer lab?		6. During English class time, how often do your classes use portable lab?	
Public Schools Participants 13	Yes 1 (7.7%)	No 11 (84.6%)	Available occasionally, less than once per month 1(0.08%)	Never Available 9 (69%)	Never 11 (85%)	No answer 2 (15%)
Private schools Participants 6	Yes 2 (25%)	No 6 (75%)	Available daily 1 (12.5%)	Never Available 4(50%)	Daily – 1(12.5%)	3-4 times per week 1(12.5%)
Total	3(16%)	17(89%)	2(11%)	13(68%)	12(63%)	1(.05%)
N/A	1 (0.08 %) Public school	0 % Private school	3 (0.23%) Public school	2 (25%) 1 Did not know if one exists (13%) Private school	3 (0.23%) Public school	Never 4(50%) 2(25%) no answers

*Public school teachers’ comments on questions number 5, “Most of the computers are not functioning”.

* Private school teachers’ comments on question number 5;”We have internet, computer, in focus and projector in each classroom”.

Table 2 Stationary computer lab Question 7 and 8

QUESTIONS								
	7. Do your students have access to a stationary computer lab during English class time?				8. Is the Stationary computer lab in the same building as your English language arts classes?			
	Yes	No	N/A	Comments	Yes	No	N/A	Comments
Private Schools Participants 8	4 (50%)	3 (37.5%)	1 (12.5%)		6 (75%)	2 (25%)		
Public schools Participants 13	1 (8%)	12 (92%)		It is closed	5 (38.46%)	6 (46.15%)	2 (15.38%)	

*Public school teachers report that the computer lab is closed and it is used as storage.

Table 3 Stationary computer lab question 9

QUESTION					
9. On average, how often do your classes use the stationary lab?					
	Daily	1-2 times per week	1-2 times per month	Never	Comments
Private Schools Participants 8	1 (13%)	2 (25%)	1 (13%)	2 (25%)	No answer 1 (13%)
	Less than 1 per month	1-2 times per month	Never	Comments	
Public schools Participants 13	1 (8%)	1 (8%)	10 (76%)	No answer (8%)	1

Table 4 Stationary computer lab questions 10, 11, and 12.

QUESTIONS												
	10. Are there enough computers and space in the stationary lab for your entire class to work in small groups?				11. Are there enough computers in the stationary lab for each student in your class to work independently?				12. Overall, in the stationary lab, are the computers and program fully functional at full lab capacity?			
	Yes	No	N/A	Comments	Yes	No	N/A	Comments	Yes	No	N/A	Comments
Private Schools Participants 8	4 (50%)	2 (25%)	1 (12.5%)	If it was Accessible? Yes 1	5 (62.5%)	2 (25%)	1 (12.5%)		4 (50%)	2 (37.5%)	1 (12.5%)	No answer 1
Public schools Participants 13	2 (15%)	9 (69%)	1 (8%)	It is used as a storage - 1 (8%)	2 (15%)	10 (77%)		It is used as a storage - 1 (8%)	1 (8%)	9 (69%)		No answer 2 (15%) I don't know 1 (8%)

Table 5 Planning and integration of computer technology in the English classroom.

		QUESTION							
		14. On average, how many hours per week do you typically spend planning for technology instruction and preparing materials that will help students use computer technology for learning?				15. Do you work cooperatively with other teachers or specialist to plan instruction that involves the use of computer technology?			
		1-3 hours	7-10 hours	More than 10 hours	N/A	Never	Sometimes	Regularly	N/A
Private Schools Participants	8	5 (62.5%)	1 (12.5%)	1 (12.5%)	1 (12.5%)	3 (37.5%)	2 (25%)	2 (25%)	1 (12.5%)
		0 hours	1-3 hours	No answer	For Projects		Sometimes	Always	Other years
Public schools Participants	13	9 (69%)	2 (15%)	1 (8%)	1 (8%)	7 (54%)	4 (31%)	1 (7.5%)	1 (7.5%)

Table 6 Planning and integration of computer technology in the English classroom.

		QUESTION									
		17. On average, how often do you use computer technology to create instructional materials, including handouts, test, quizzes, or assignments?					18. On average, how often do you use multimedia to create instructional materials?				
		Daily	Weekly	N/A	Comments	Daily	Weekly	Monthly	N/A		
Private Schools Participants	8	5 (62.5%)	2 (25%)	1 (12.5%)		1 (12.5%)	4 (50%)	1 (12.5%)	1 (12.5%)		
		Daily	Weekly	1-2 times per grade	1-2 times per semester	Daily	Weekly	Monthly	1-2 per grade	1-2 per semester	Not at all
Public schools Participants	13	8 (62%)	2 (15%)	1 (8%)	2 (15%)	4 (31%)	3 (23%)	2 (15%)	1 (8%)	2 (15%)	1 (8%)

*Public school teachers; a teacher marked two alternatives in question 17. Computer used at home not in school.

Table 7 Planning and integration of computer technology in the English classroom.

Question						
19. On average, how often do you use computers to adapt activities for individual student's needs?						
	Weekly	Monthly	1-2 per semester	N/A		
Private Schools Participants 8	4 (50%)	2 (25%)		2 (25%)		
	Daily	Weekly	Monthly	1-2 per semester	Not at all	No answers
Public schools Participants 13	1 (8%)	4 (31%)	1 (8%)	1 (8%)	4 (30%)	2 (15%)

Table 8 Assisting teachers, question 20.

Question					
20. Who is responsible for the assisting teachers in your department with integration of new computer technology skills, programs, or activities into your classroom lessons?					
	Technology Facilitator on school	District technology Facilitator or District	You do not receive individual assistance	Others	N/A
Private Schools Participants 8	2 (25%)		1 (12.5%)	3 (38%)	1 (12.5%)
Public schools Participants 13	5 (38%)	2 (15%)	8 (25%)		

*A public school teacher marked two alternatives.

Table 9 – Q 33, Which of the following Web- based instructional sites have you become acquainted with through staff development activities?

	SAS in schools	Marco Polo	None	N/A
Private Schools Participants 8	1 (12.5%)		5 (62.5%)	2 (25%)
Public schools Participants 13	1 (8%)	1 (8%)	11 (85%)	

Table 10 – Q 34, Estimate the number of hours of professional development in which you have participated during the last 12 months in the following areas:

	Internet use for classroom	Content specific instructional	Use of online instructional	Teching methods for technology	Application tools	None	N/A
Private Schools Participants 8	3 (37.5%)	4 (8 hours) (50%)		1 (12.5%)	4 (50%)		2 (25%)
Public schools Participants 13	4 (31%)	1 (8%)		3 (23%)	1 (8%)	7 (53.8%)	

*Some teachers marked more than one alternative.