**Motivation/ Opportunity**

“As we write in early 2008, Latinos make up about 48 percent of public school students in California, about 46 percent in Texas, and about 20 percent in New York State” (Gándara 2). Latin American students, across the U.S., face an education gap which widens for them as their age increases and is thought to originate, at least partially, from a struggle with a language barrier (Spence). This problem is particularly prominent for second generation Latin American students in the South-west.

One complication of this issue occurs over the summer, which is a rather educationally vital time for students in middle school. Due to a lack of compulsory public education during summer months, unless something is done to stem the loss of knowledge, there is a “brain drain” effect on middle school students during the summer. In their article “Summer Learning Loss: The Evidence and a Possible Solution”, Trevor Kerry and Brent Davies examine this issue. They state, “Students at risk and from low-income families fare worse than other students” (Kerry and Davies 119). Higher income families reduce this effect by enrolling their children in summer camps, maintaining some level of brain activity; these programs frequently cost hundreds of dollars which many recently immigrated families cannot afford. We aim to create a program that allows Latin American, middle school students to remain engaged academically over the summer. Partnerships with public libraries can allow for distribution of our product to students even if they do not have access to a computer in their homes.

The reader may be wondering what is wrong with other, commercially-available language learning software. Rosetta Stone, largely considered the gold standard of language learning software, primarily focuses on conversational language, a category of speech often targeted in low level elementary school. However, there is a clear distinction between basic, conversational English and academic English. Throughout her paper, Robin Scarcella, professor of Academic English at U.C. Irvine, discusses what separates academic English from conversational English, and details why focusing on Academic English should be a key feature of an attempt to narrow a language-induced education gap. Scarcella says, “Learning academic English is probably the surest, most reliable way of attaining socio-economic success in the United States today“ (6). Additionally, Rosetta Stone is also relatively expensive, which is a prohibitive feature for many Latin American students.

On the other hand, our software will be free and easy to access. Our approach aims to harness the power of gamification to motivate students while also focusing on more academic English, a major contributing factor to the education gap. The software features a playful interface of an open book with the story on one side and illustrations on the other. The students play by filling in words where prompted, similar to mad libs, in a story that they write as they play. The opposing page then displays the progression of the story. The story options will be themed, loosely, around familiar, Hispanic cultural icons. Certain characters are more conducive to charming portrayals; though the characters chosen for the stories will range from the mundane zoo animals to the creatures of fantasy like skeletons,
Chupacabras, and Quetzalcoatl.

Following the conclusion of the story, there will be a small quiz on the events of the story, focused around specific vocabulary words that were woven into the story. Every story that each student writes will be saved to their personal account and they have the option of publishing their favorite stories to a group page where they will be voted on in different categories. Accompanying the story sharing and voting will be leaderboards for different achievements, an example being most voted story or most stories shared. Progress will be tracked on a student by student basis and different levels of vocabulary will be reached and shown to the students to reward them for their learning. With every new level, more story options will be unlocked.

This software should incur little to no monetary cost, and may take approximately 18 months of development time. A midterm exam for this project is a complete and thorough design of the application, which has been vetted against the expertise of a linguist. A final exam for this project is a relatively small-scale study performed in conjunction with at least one library. One group of, at least 20 students, will use our software over the course of a summer. Another group of similar size will go through the summer with little to no brain stimulation. A third group will be enrolled in a reading program or similar summer activity. Reading comprehension and vocabulary tests will be administered to all three groups of students. The product will be considered a success if the software-using group shows higher comprehension and vocabulary than both other groups.

**Users:** Latin American middle school students, who should have fairly strong computer-literacy. They expect an exciting learning environment that does not seem monotonous or boring.

**Feature List:** An interactive story-based game mode which integrates academic English. Novel characters and scenarios will be portrayed in a charming manner to accompany the story being written by the students. After every game, comprehension tests will be administered based on the story created. The results of these tests will be stored and the progress of the students will be tracked. There will be an area to share stories with other students and vote on favorite stories. There will also be competition-minded features such as leaderboards, trophies, and achievements.

**Constraints:** Uncertain computer access for students using the software; libraries and schools nearby may or may not have computers available for such use.
Use Case 1: Latin American middle school student using the software at the library, over the summer.

**Primary Actor:** Second generation, Latin American, middle school student. Has a firm grasp of Conversational English but has some trouble with Academic English in classes.

**Stakeholders and Interests:** The student will gain an educational leg-up and, consequently, more career paths for his/her future. The student’s family may benefit from the learning and success of their child. The Latin American community, as a whole, will make strides towards better education and socioeconomic success. The host library benefits from increased traffic and use.

**Preconditions:** The local library must offer free computer use and possibly dedicate a librarian/volunteer to help guide the students. The software has to be implemented in the proper location, with a community in need of assistance.

**Postconditions:** The student will have developed imperative vocabulary and reading comprehension skills and avoided “brain drain” over course of the summer. The student will have much less of a hard time in school, having not only mitigated “brain drain,” but having recovered some lost ground.

**Main Success Scenario:** The student creates an account in the software and begins making stories. The student is motivated to continue learning by the fun, interactive environment, by the competitive incentives, and by the merits of seeing his/her own progress. The student shares many of his/her stories and votes on many other stories. After the library visits, the student goes home and shares what he’s learned with his parents and community. Upon returning to school, the student has renewed confidence and a better understanding of the material.

**Extensions and Alternative Flows:** The student does not make much progress learning vocabulary but stays motivated. The librarian/volunteer is notified by the system that the student is struggling and is prompted to assist the student. With the assistance from the librarian/volunteer and the software, the student begins to improve.
Citations: