

# Talsalotl Project Proposal

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## Executive Summary

Humans rely on one factor over all others within the world today: language. Through bringing people together, society capitalized on languages, often English, to express ideas, thoughts, and beliefs. However, some individuals in society—for various reasons—struggle with learning a respective language in their area, which greatly decreases the opportunities that are present to them. With the ever increasing rates of immigration in the United States, the English language barrier has been made much more prevalent in today's society. Coupled with the minimal to close to zero knowledge of the language, immigrant children especially are directly impacted by this lack of knowledge when they are faced with the task of attending school. Unable to be taught the language by their parents, these children are faced with the daunting task of learning this new language, as well as potentially teaching it to their parents and siblings.

When it comes to learning languages using apps, Duolingo is often the go-to choice for many people. Its popularity is well-deserved because it does a great job of teaching essential language skills like vocabulary, grammar, and sentence structure. One crucial aspect of language learning that has been largely identified as vital to learning English, is pronunciation. Duolingo's strengths lie more in reading, listening, and writing, and one of its most consistent criticisms is its limitations regarding speaking and pronunciation practice, which it does not adequately address (Mascarenhas, 2021). Babbel falls short as well in providing comprehensive support for speaking and pronunciation practice. While the app offers speaking exercises, these may not be sufficient to help learners develop confident and accurate speaking skills.

With the focus on pronunciation and reading comprehension, the app will tackle these two skills in different ways. In terms of both, users will take a placement test to evaluate their current level, and then for reading comprehension will be presented with fill in the blank, multiple choice, and multi-select questions based on passages. In regards to pronunciation, the app will have an audio attached of the correct pronunciation for the user to listen to and practice, and then they will record their own audio and submit it. Utilizing the SpeechSuper software, this will analyze and grade the users audio. Gradually getting harder, single words will turn into short phrases, and the amount of fill in the blanks for comprehension will increase. Users will be given a color according to how they did on a specific question, pink for perfect, purple for so close, and blue for on the right track. By providing affirmations at the bottom of each page, users will feel a developed motivation to continue improving their English skills.

According to an ESL teacher who assisted the developers with gaining perspective on this issue, there are 4 key features to conducting natural language acquisition: listening, reading, speaking, and writing. Despite our app currently prioritizing academic language acquisition for its immense benefits, the developers hope to diversify the performance of the application, allowing for an increased accessibility to a wider audience with a more diverse set of needs. Hopefully, Talsalotl becomes a vital part in the lives of ESL students, propelling them forward to an array of new opportunities.

## Problem

Humans rely on one factor over all others within the world today: language. Through bringing people together, society capitalized on languages, often English, to express ideas, thoughts, and beliefs. However, some individuals in society—for various reasons—struggle with learning a respective language in their area, which greatly decreases the opportunities that are present to them. Communication, which is a widely used and interpretive skill among people, is a skill that individuals must have the ability to do in order to thrive in society. Building on that, comprehension is a skill that people must have an understanding of in order to be able to communicate and effectively work with those around them. As Figure 1 conceptualizes, ESL/ELL students from one Grafton High School classroom reported that Speaking and Writing was their hardest part with learning English.

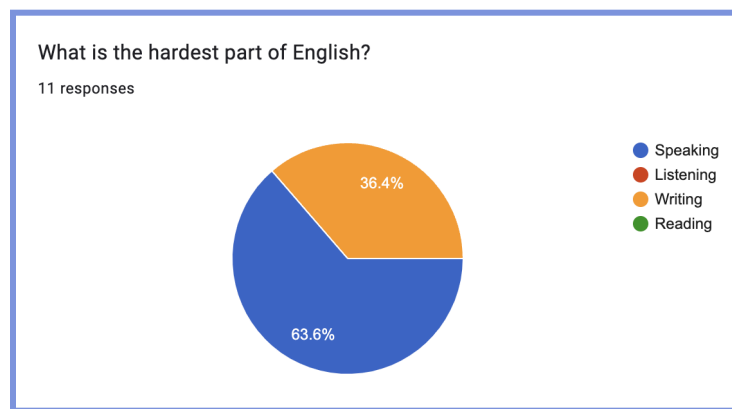


Figure 1: Exemplar question from survey taken by ESL students

## Audience

The Brookings Institute, an international think tank, quantifies that nearly 1 million immigrants, most of whom with a lack of a concrete English background, enter the United States annually (*Immigration Is Driving the Nation's Modest Post-Pandemic Population Growth, New Census Data Shows*, n.d.). Coupled with the minimal to close to zero knowledge of the language, immigrant children especially are directly impacted by this lack of knowledge when they are faced with the task of attending school. Unable to be taught the language by their parents, these children fall victim to the daunting task of learning this new language. At the beginning of this process, those who are unable to speak the language especially in a school environment are often excluded from groups, being looked down upon, and experience additional stressful school experience. Navigating halls and even what native speakers may think is fundamental such as asking for directions or holding a conversation is extremely difficult for this audience. Even for those students who are likely placed in an ESL class, this does not always give them the necessary attention to improve upon their English skills, ultimately proving to be less effective than desired. Given the probable lack of motivation to learn the language given its difficulty, a way to gamify the process is also crucial to maintain the user's attention. When users log into the app, they will be greeted by a page to restore their previous progress, and then they are able to decide to work on reading comprehension or pronunciation. If comprehension is chosen, they will work on filling in the blank, multiple choice, and/or multi-select questions based on the skill level assessed from the

placement test. Designed to ultimately help them understand texts they read in school, this vital skill will benefit them in the school environment. If pronunciation is chosen, the users will be presented with singular words or short phrases applicable to their everyday lives, and they will be able to listen to a recording of it being properly spoken and then record their own take of the recording. Designed to improve upon their speaking skills, this aspect of the app will assist with communication, which as stated earlier is a pivotal aspect of life. Over time, the goal is that the users will understand more and speak better, which will correspond with harder material in the form of longer passages and more fill in the blanks for reading comprehension, and longer phrases for pronunciation.

## **Competition**

When it comes to learning languages using apps, Duolingo is often the go-to choice for many people. Its popularity is well-deserved because it does a great job of teaching essential language skills like vocabulary, grammar, and sentence structure. However, even with its strengths, there are multiple areas where Duolingo could be improved, as when learning a language Duolingo shouldn't stand as a person's sole resource (Lau, N.D). In addition to Duolingo, another prominent language learning app is Babbel, which also boasts a large user base and offers a variety of language courses. However, Babbel has its own set of limitations that our app seeks to address and improve upon.

One crucial aspect of language learning that has been largely identified as vital to learning English, is pronunciation. Duolingo's strengths lie more in reading, listening, and writing, and one of its most consistent criticisms is its limitations regarding speaking and pronunciation practice, which it does not adequately address (Mascarenhas, 2021). Babbel falls short as well in providing comprehensive support for speaking and pronunciation practice. While the app offers speaking exercises, these may not be sufficient to help learners develop confident and accurate speaking skills. Pronouncing words correctly is essential for effective communication, yet learners often struggle to receive sufficient support in this area. According to a [Google Survey](#) we conducted in Ms. Miranda's ELL classroom, students learning English have the most trouble with the speaking aspect, in comparison to listening, reading, and writing. One of the key features of our app is its focus on interactive exercises that actively engage learners in practicing their pronunciation. Our app will provide learners with ample opportunities to practice speaking and listening to native-like pronunciation. These exercises will include repeating phrases and recording their voice to compare it with native pronunciation. By incorporating interactive elements into the learning process, we aim to make pronunciation practice more engaging and enjoyable for learners.

While both of these apps offer large platforms for language learning, they do not provide sufficient resources to effectively develop reading comprehension abilities. Reading comprehension is a vital aspect of language learning, however, both Duolingo and Babbel's reading comprehension may be limited in scope and variety. Our app recognizes the importance of this aspect and will prioritize it by offering a diverse range of reading materials tailored to learners' needs and proficiency levels. Our app will have a selection of reading materials that cater to different levels of learning. Students will have access to texts that challenge and engage them at their proficiency levels. Our app will also provide comprehension questions and exercises to accompany each text. These questions will be designed to

assess learners' understanding of the material and reinforce key language concepts and skills. By incorporating comprehension questions into the learning process, we aim to encourage active engagement with the texts and enhance learners' ability to comprehend and interpret written language effectively.

One of the drawbacks of Babbel specifically is its relatively high subscription cost compared to other language-learning apps. The relatively high pricing model may pose a barrier for some potential users, particularly those who are on a tight budget or students seeking more economical options for language education (Howard, 2024). This pricing discrepancy could potentially deter individuals from accessing the app's language courses, limiting the reach and impact of its educational offerings. In contrast, our app is committed to providing accessible and affordable language learning resources to ensure that language education remains inclusive and available to all learners, regardless of their financial circumstances.

## Features

Our app will have two main facets, which are pronunciation and reading comprehension. For pronunciation, the app will accept an audio input. It can then analyze the pronunciation of the word or sentence recorded and tell the user about it, recommending ways they can improve. With reading comprehension, there are a few ways that we're planning to do it. We plan to have three different types of questions: multiple choice, multiselect, and fill-in-the-blank. The multiple choice questions are designed to be the easiest and to cater to those who are newer in their learning journey. After reading a short passage, the user is asked a series of multiple choice questions to measure how well they understood the passage. The multi select questions are designed to be a step up from the multiple choice questions. While not too difficult, they are supposed to be slightly more difficult than the multiple choice questions because rather than having only one correct answer, there may be multiple. The fill-in-the-blank questions are meant to be the hardest of the three kinds. After reading a short passage, the app puts together a short narrative with certain plot holes. The user is then expected to fill them in with the correct words. These fill-in-the-blank questions are also split into two categories. The easier ones have a "word bank" that the user can use to drag the correct words into the correct places. The harder ones will not have this word bank; the user will have to come up with the correct words themselves.

Beyond the questions, the app also tracks the user's progress. It records where they started and where they are at a given point, and this data can be shown to the user. It also provides affirmations: i.e., if they do something well, it congratulates them. Finally, the app also asks how the user is doing both before and after they practice, to make the users feel more comfortable and build a sense of trust and care.

## Feedback

Feedback will be received through two unique media during the testing and developing phase of our application. First, through the assistance of Ms. Miranda's classroom. Second, through a feedback system integrated within our application. Ms. Miranda, an ELL (English Language Learner) Teacher for over 35 years, discussed the foundational factors, attributes, and considerations that should be made to create an effective. At the end of our meeting, she offered us the ability to work with her students to gain insight throughout the development process. During the week of April 1st, we reached out with a preliminary survey prior to the in-depth construction of the app to gain feedback on the skills that are vital to our target audience's needs. In fact, the Google Survey aspires to collect valuable information on where these speakers struggle, succeed, and hope to see in an app. Throughout this process, we hope to further our connection with providing her with the application to see if her students can identify potential areas of improvement and deterrents prior to pushing the app to market (With paperwork completed and accounted for from Mass Academy). Even after the app goes to a larger audience, we hope to continue to reach out to local school's to hear the spontaneous feedback provided by ELL teachers and students. Outside of this testing group, our app will contain a chat button, which may be used to reach the Talksolotl team's email ([talksolotl.afg@gmail.com](mailto:talksolotl.afg@gmail.com)). This part of the app will likely be used by parents, teachers, administrators to discuss their opinions on the app's performance. In addition to this, we request the user to input how they are feeling at the start and the end of any educational session, allowing us to track if the level is maintained or higher at the end of every time that they use the app. Ultimately, both forms of audience engagement analytics will be re-integrated into the modeling of a better application that benefits all people driven to expand their communication abilities.

## Potential Future Additions

According to Ms. Miranda and ELL teachers internationally, there are 4 key features to conducting natural language acquisition: listening, reading, speaking, and writing (<https://www.cambridgeenglish.org/blog/benefits-of-testing-the-four-skills/>). Listening and reading are both input skills, skills that are acquired from the environment to the learner, whereas speaking and writing are output skills, skills that are acquired from the learner to the environment. Our app is currently designed with the intent of addressing 2 of the 4 pillars: reading (input) and speaking (output). However, from the preliminary data sample that was collected over the short period of time, it becomes evident that it would be beneficial to invest resources into extending the intended application to incorporate writing as well. While the fill-in-the-blank option is present, it would be far beneficial to dedicate some resources directly to allowing the ability for writing to take place at a greater extent.

Secondly, it would be beneficial to incorporate priority shifting because as Ms. Miranda noted, the app should envision to fulfill 1 of the 2 language objectives: Conversation Language and Academic Language (*The Difference between Conversational and Academic English | SFU Library, 2021*). Although ELL students are frequently perceived to have achieved a solid level of understanding upon excelling in conversational English, it fails to pose as much of a long-term benefit compared to academic learning. The academic language performs the spillover effect, allowing for an increased amount of opportunities that allow them to achieve greater feats in the long term. Despite our app currently prioritizing academic

language acquisition for its immense benefits, the developers hope to diversify the performance of the application, allowing for an increased accessibility to a wider audience with a more diverse set of needs.

## References

- Galaczi, E. (2018, June 27). *Benefits of testing the four skills (reading, listening, writing, and speaking)*. Cambridge.  
<https://www.cambridgeenglish.org/blog/benefits-of-testing-the-four-skills/>
- Frey, W. H., Costa, K., Gilbert, K. L., Hais, M., Busette, C., & Winograd, M. (2024, January 16). *Immigration is driving the nation's modest post-pandemic population growth, new census data shows*. Brookings.  
<https://www.brookings.edu/articles/immigration-is-driving-the-nations-modest-post-pandemic-population-growth-new-census-data-shows/#:~:text=US%20net%20immigration%20and%20natural,2000%2D01%20to%202022%2D23&text=But%20it%20was%20the%20sharp,the%20nation%27s%20recent%20population%20gain>
- Howard, S. (2024, March 21). *Is Babbel Worth It? An Honest and In-Depth Babbel Review*. Course Reviewers.  
<https://courserereviewers.com/is-babbel-worth-it-an-honest-and-in-depth-babbel-review/>
- Lane, J. (2021, June 8). *The difference between conversational and academic English*. SFU Library.  
<https://www.lib.sfu.ca/about/branches-depts/slc/incommon/conversational-and-academic-english>
- Lau, T. (N.D). *A review of Duolingo: is it really worth your time?* Cambridge Coaching.  
<https://blog.cambridgecoaching.com/learning-a-foreign-language-a-review-of-duolingo>
- Mascarenhas, N. (2021, May 3). *Duolingo can't teach you how to speak a language, but now it wants to try*. TechCrunch. <https://techcrunch.com/2021/05/03/duolingo-ec1-future/>