



CALIFORNIA STATE SCIENCE FAIR 2016 PROJECT SUMMARY

Name(s) Adishree S. Ghatore	Project Number 36671
Project Title A Software Application as a Learning Platform for Increasing Memory Retention of Definitions of Words	
Objectives/Goals Vocabulary is essential part of education and facilitates effective communication. Many learn vocabulary by memorizing definitions without understanding and never use them. Understanding is more effective than memorization and existing methods focused on repeated testing. My goal is to make a software learning platform that increases retention of definitions of words by utilizing how human memory works and facilitation of research. Abstract Methods/Materials Some techniques increase memory retention. Association with prior cognizance strengthens neural connections. Motivation means that a person tends to retain ideas they care about. Attributing visuals increases retention. Prospective memory is remembered by cues. I created an iOS app that implements these into four methods. First my app allows users to learn a word from its Google search result. In the first method, story, user depicts dialogue conversation. Making stories uses passionate experiences and prior knowledge, increasing retention more than impersonal definitions. Etymology, second method, is derivation of words from roots. On screen, a Google search result of etymology of words facilitates research. User can recreate etymology in drawing space. The meanings of parts of the word serve as cues for prospective memory. Image, third method, allows users to illustrate the word to aid recall. Image method utilizes motivation and association. Visual aspects and colors add depth. Word connections, fourth method, is for words with meanings that can be associated with short phrases. It utilizes prospective memory by offering cues to the definition. Formatting can be selected to capture more associated emotion. To test effectiveness of my app I gave test subjects six unfamiliar words to learn with a method of their choice and six unfamiliar words to learn with my app. I tested recall on study day and three days later. Results On study day, mean score increase with my app over preferred method is 35%. Three days after study, mean score increase using my app over preferred method is 58%. Three days after study, mean score with my app was 5.6 and with preferred method was 2.3. Conclusions/Discussion Test subjects showed better scores and understanding of context using my app over preferred method. Memory of words studied with preferred method deteriorated but strengthened when studied with my app.	
Summary Statement I made a software learning platform that aids learning vocabulary and increases retention by applying how human memory works and assisting user research.	
Help Received Science teacher, Mrs. Basu, reviewed project planning and drafts; my parents taught Unix environment and debugging Swift in Xcode; Mrs. Hsiao, Girls Who Code instructor, introduced web views; Mr. Robert Zeidman and Mr. Benjamin Kimes helped me with patent application; test participants	