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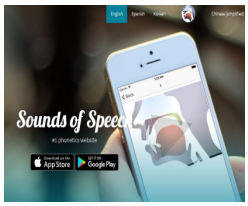
Title	 *Sounds of Speech* Published: iOS, Android-Jerry Moon, University of Iowa Institute Service, Information Technology Service University of Iowa, Carnegie Mellon Pronouncing Dictionary
Publisher & Contact Information	University of Iowa Research Foundation 6 Gilmore Hall, 112 N. Capitol Street, Iowa City, IA 52242-5500
Product Type	Mobile-based application with interactive phonetics teaching and learning tools
Operating System	Mobile-based application accommodating iOS and Android operating system
Minimum System Requirements	Internet connection and mobile operating systems (iOS 8.0 or later, Android 4.0 and up)
Support	University of Iowa Research Foundation uirf@uiowa.edu
Target Language	English
Target Audience	Second/foreign language learners
Price	$3.99
Free Trial	No

Reviewed by Imelda Bangun & John I. Liontas
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Fromkin, Rodman, and Hyams (2014) explained that phonetics is defined as the study of speech sounds. They added that it is essential to know the individual sounds of the American alphabetic system and how each sound differs from all others to describe speech sounds. *Sounds of Speech* is a mobile-based app that consists of animations, videos, and audio samples of an important feature of each consonant and vowel of American English. The app provides a comprehensive understanding of phonetics and phonetic symbols with the second language (or foreign language) learners as its target audience. Notable app features include a home page, a list of vowels or consonants (or both vowels and consonants) with a real-time animated articulatory diagram, and a new word search interface of the Carnegie Melon University (CMU) dictionary. The homepage consists of recent updates with general information about the app, credits, and language choice interfaces. The list page allows mobile app users to view a real-time and interactive animated diagram of the articulatory anatomy for each consonant and vowel; an annotated step-by-step description of American English phonetics; facial view video and audio samples for each speech sound; navigation of consonants by manner, place, and voicing of vowels by tongue; and, finally, access to the pronunciation for each vowel and consonant by native English speakers. The CMU

dictionary search interface functions as a tool that assists with pronunciation and search for a word with International Phonetic Alphabet (IPA) segmentation.

Sounds of Speech has a free website, www.soundsofspeech.uiowa.edu, and a mobile app available for a one-time cost of $3.99. Because adult second/foreign language learners are more likely to have access to a smartphone than a computer, this review focuses on the mobile app as the more accessible technology. Even without the user manual, the app's user interface was easy and quick to navigate. This app claims to have a more user-friendly interface than the previous version. And while users can quit the app from any point in the program, doing so will not save any previous work since the app's primary function is to demonstrate the sounds of speech in American English with animation, video, audio, and annotations for each vowel and consonant.

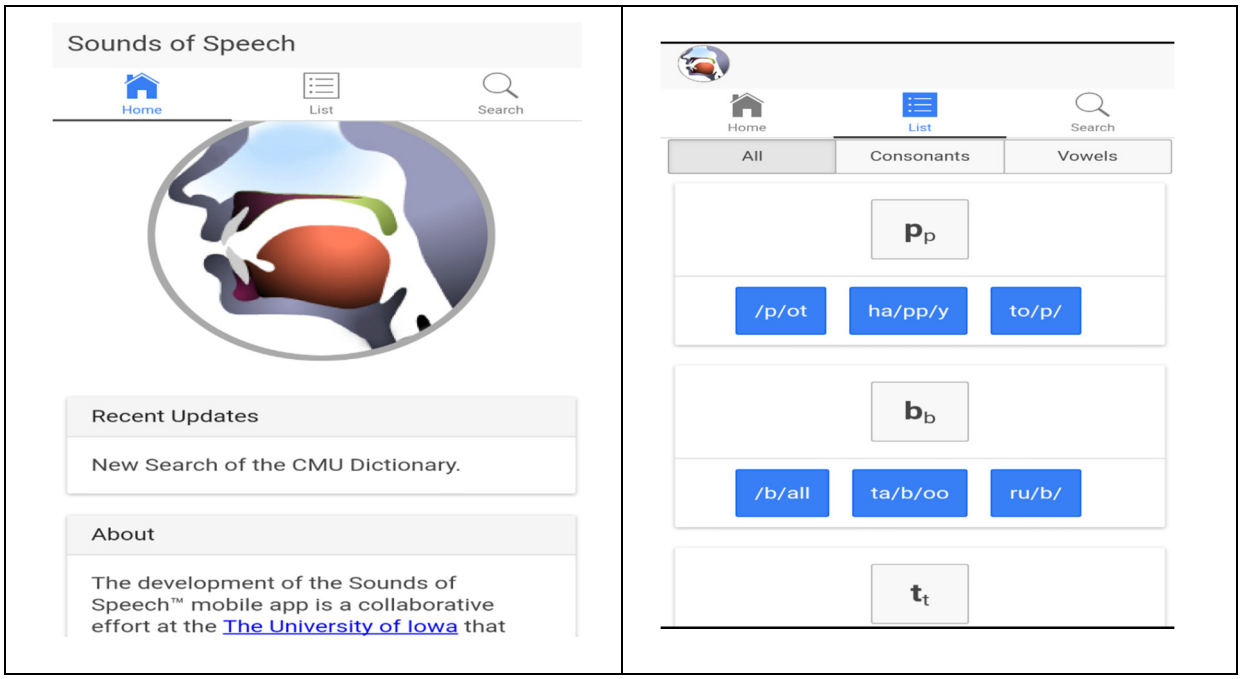

Figure 1. Home Page and List Screenshots – The home page provides general information of the mobile app while the list page provides the distinct options of all speech sounds, consonants, and vowels.

By all accounts, *Sounds of speech* is grounded in a communicative approach to pronunciation teaching. Naiman (2012) stated the importance of the realization of articulatory features (e.g., voiced vs. voiceless, stops vs. fricative, nasal, liquid, guide, etc.) through suprasegmental aspects of English pronunciation. He also explained that suprasegmental practice activities can initially take the form of modeling and imitation, as well as oral reading. The activities in the *Sounds of Speech* app scaffold and model second/foreign language learners with animations that show a real-time animated articulatory diagram, facial view video, and annotations of the articulatory aspects. The app's interface expects users to be able to emulate the diagram and facial video even though there is no instruction for learners to imitate them.

The annotation of a step-by-step description of each vowel and consonant is designed to supplement English language learning and instruction when acquiring American English pronunciation. It explains how the lips should or should not be brought together to obstruct (or not obstruct) the oral cavity, the variety of tongue position depending on the phonetic content, the

folding of the vocal, and the opening or closing of the velopharyngeal port. The animated articulatory demonstrates the step-by-step description of the articulatory diagram.

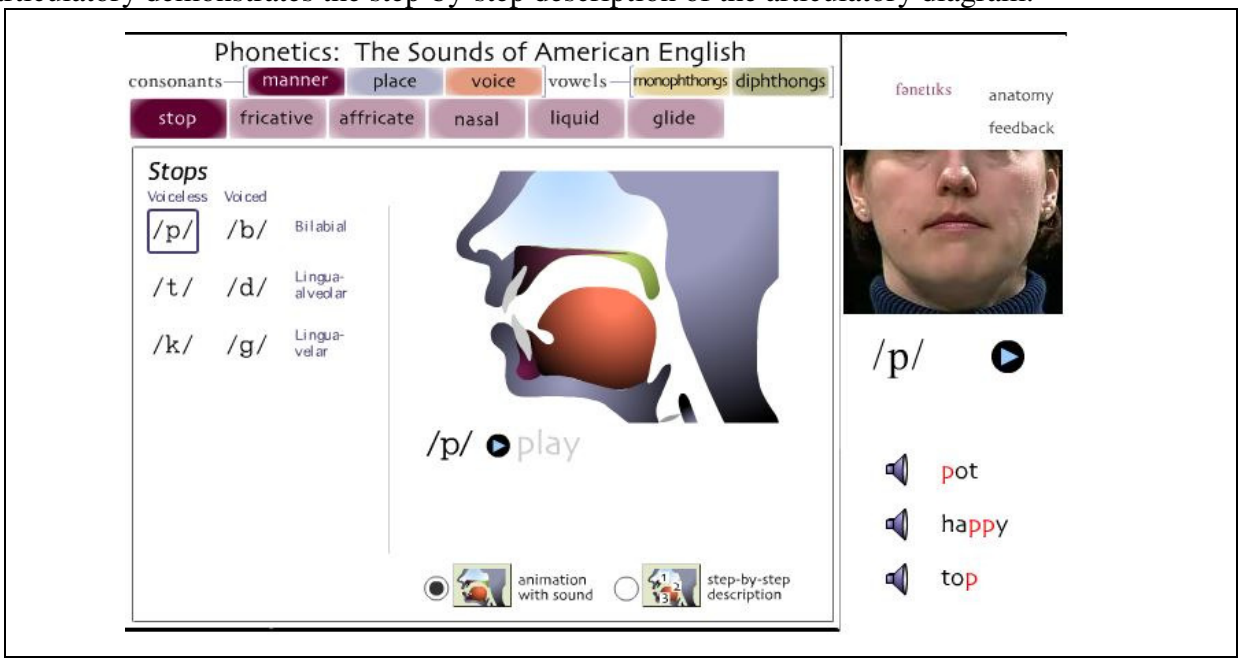

Figure 2. Diagram and Facial Video Screenshot – The articulated diagram shows the positioning of the tongue, lips, oral cavity, vocal folds, and velopharyngeal port while the video shows the facial view.

Further, the recently added search function on the mobile application complements American English pronunciation learning and instruction for users who are interested in searching for words that are not on each vowel or consonant list. When users use search for a word function, *Sounds of Speech* identifies the phonetic symbols with audio for American English vowels and consonant.

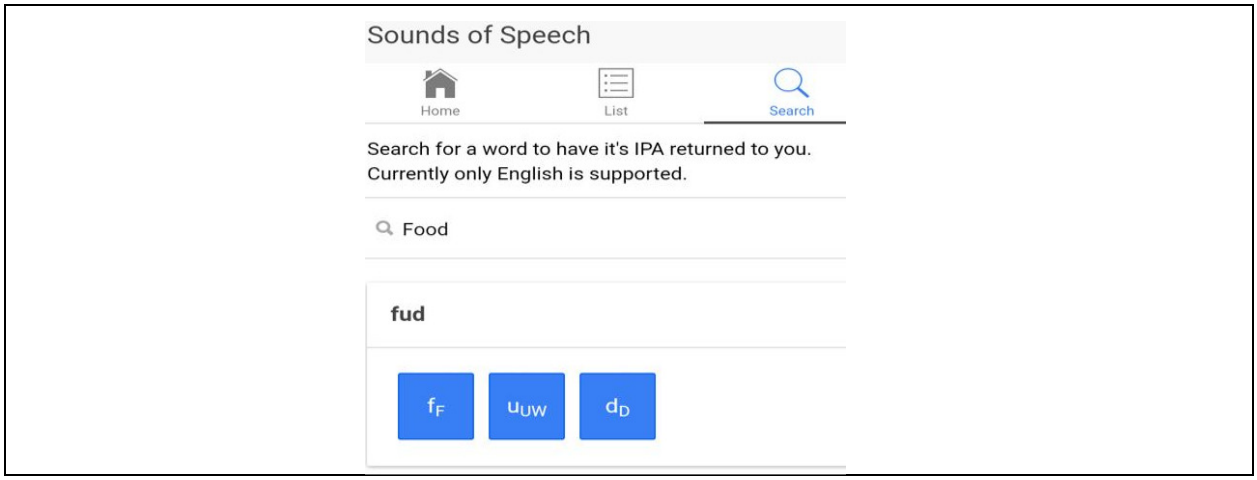

Figure 3. Search Feature Screenshot – The search function is used to type up a word to show users how to pronounce the word, followed by phonetic symbols.

Sounds of speech helps learners acquire American English pronunciation through simulation and drill-and-practice. The information in the app is presented in the form of a diagram, video, and animation, but second or foreign language learners do not have the option to enter their output in either a form of speech or text. They also do not receive feedback from the mobile app. Nonetheless, when the app is used in the classroom, the teacher can offer students immediate feedback. An additional advantage to integrating this app in the classroom is that teachers can modify their lesson plans or add customized lessons using this tool to help their students imitate the diagram or video with three additional vocabulary words that will ultimately help them practice the particular speech sounds of each consonant, vowel, or both.

In sum, *Sounds of speech* can be very beneficial in teaching pronunciation and phonetics for American English consonants and vowels. Teachers can use this app to teach pronunciation to second or foreign language learners of all levels of proficiency. While the application strives to help all learners of all levels with pronunciation, pre-literacy or lower level learners, in particular, may require additional scaffolding. The information presented in the app, especially the annotation of the positioning of the articulatory diagram, could easily overwhelm these learners. Nonetheless, both the concept and the organization of the features model real-time articulatory diagrams and videos depicting facial views with step-by-step annotations, the combination of which allows users to imitate and distinguish all vowel and consonant sounds of English through the distinct properties of monophthongs, diphthongs, manner, place, and voice. Combined with the low purchase price and the free website for users who have access to a computer, *Sounds of speech* is an app that is certain to find a great many users willing to view and imitate the articulatory anatomy of English consonants and vowels. Accurate American English pronunciation is but a simulation away.

References

Fromkin, V., Rodman, R., & Hyams, N. (2014). *An introduction to language* (10th ed.). Boston, MA: Wadsworth Cengage Learning.

Naiman, N. (2012). A communicative approach to pronunciation teaching. In P. Avery & S. Ehrlich (Eds.), *Issues in teaching American English pronunciation.* New York, NY: Oxford University Press.

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