

TECHNOLOGY REVIEW

Blue Canoe

Katherine Yaw, Northern Arizona University

INTRODUCTION

Blue Canoe is a mobile phone app to help users build speaking skills in North American English. It emphasizes two aspects of speech: word stress and accurate pronunciation of vowels in stressed syllables. The Blue Canoe app follows the Color Vowel® approach, which provides users with a two-word anchor phrase (e.g., *green tea*, *silver pin*) that models the target vowel sound in the stressed syllables in both words (Taylor et al., 2016). This approach has been adopted by the U.S. Department of State, the Peace Corps, and numerous English language programs worldwide. The Blue Canoe app combines this approach with automated speech recognition (ASR) technology to monitor users' spoken production and provide immediate pronunciation feedback. The app can be incorporated into classroom and/or business communication learning environments, or users can access it independently to work on their own pronunciation in English.

DESCRIPTION

The Blue Canoe app is a tool for users to boost their spoken communication skills through a combination of interactive lessons and games by practicing at least 10 minutes per day. Based on the Color Vowel® system, Blue Canoe is designed to engage users through kinesthetic, visuospatial, and musical learning activities, moving beyond traditional listen-and-repeat exercises. The app is compatible with Apple (iPhone 5S or later) and Android (5 or later) mobile phones. It may also work on tablets, but it cannot be used on desktops or laptops at this time. The following app features will be described in this section: Color Vowel® chart and dictionary, pronunciation lessons, video lessons, *Color It Out* game, *Sort It Out* game, and pronunciation profile.

Color Vowel Chart and Dictionary

New users are introduced to the Color Vowel® chart (Taylor & Thompson, 1999, 2019), which is available for reference at any time in the app (see Figure 1). Tapping the color vowel symbol lets users hear the anchor phrase plus the vowel sound in isolation (e.g., *green tea /i/*). Learners can also use the dictionary feature to look up a word and hear its pronunciation with the corresponding color vowel phrase.

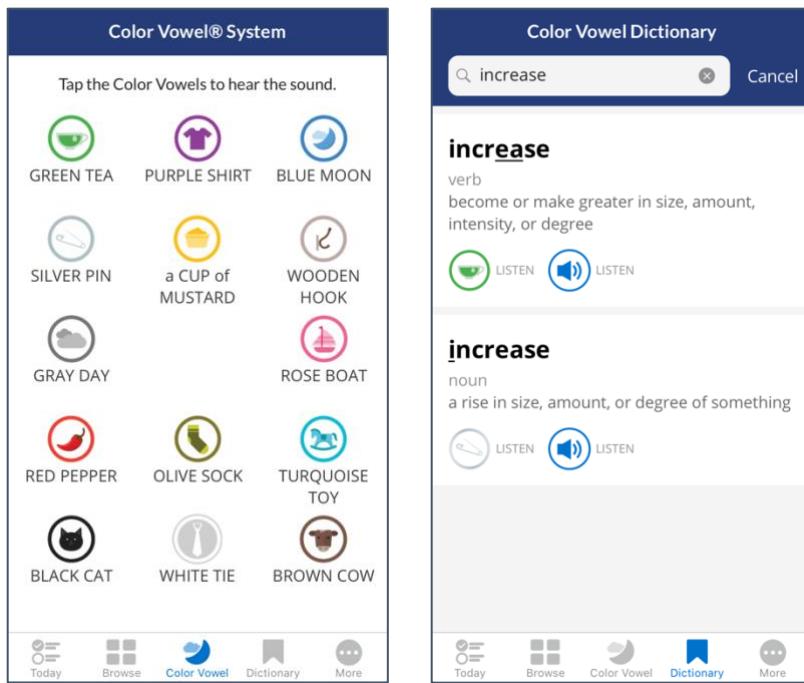


Figure 1. The Color Vowel chart (left) and dictionary (right).

Pronunciation Lessons

The ‘Lessons’ section of the app provides users with sentences to practice word stress and vowel pronunciation (see Figure 2). These are organized according to topic (*Life, Language, Work, Industry, and School*), with themed lessons related to the topic (e.g., for the *School* topic, lessons on academic discussions include *course registration, declaring a major, and office hours*). Within each lesson, users encounter six sentences. Each sentence is presented with one thought group per line, with the stressed syllable of the thought group underlined and the color sound of the stressed vowel indicated (these color vowel hints can be hidden to make the lessons more challenging). Users can listen to a recording of the sentence before recording it themselves. They receive feedback based on their word stress, vowel pronunciation, and overall comprehensibility.

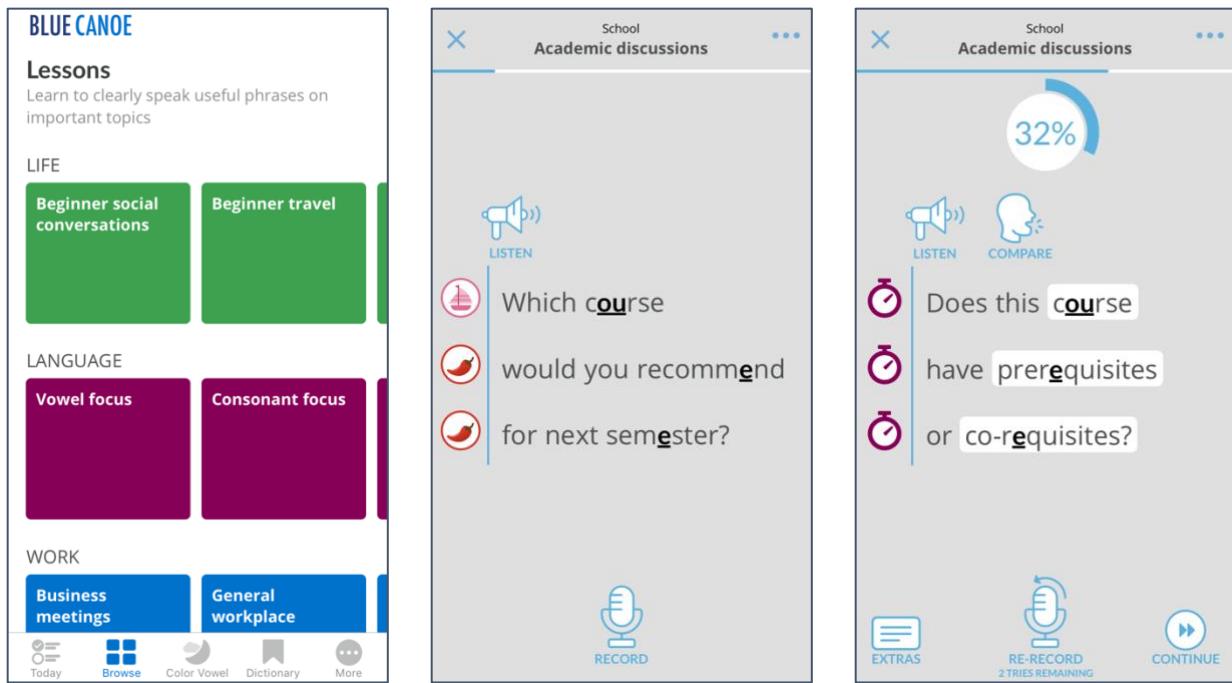


Figure 2. Image from Blue Canoe pronunciation lessons (l-r): initial lesson topic screen, presentation of a practice sentence, feedback on a user's recording of a practice sentence.

Video Lessons

Blue Canoe has a library of short (1-3 minute) video lessons included in the app (see Figure 3). The Color Vowel® Minute (CVM) series introduces learners to different aspects of pronunciation, such as differences between spelling and pronunciation or rhythm in English, via the Color Vowel® system. The Color Vowel® Yoga series taps into kinesthetic activities, such as moving from a closed fist to an open hand, that help learners with word stress and proper configuration of articulators for vowel production. Both sets of videos link directly to the skills that are practiced in other parts of the app. The video library is also available on YouTube.

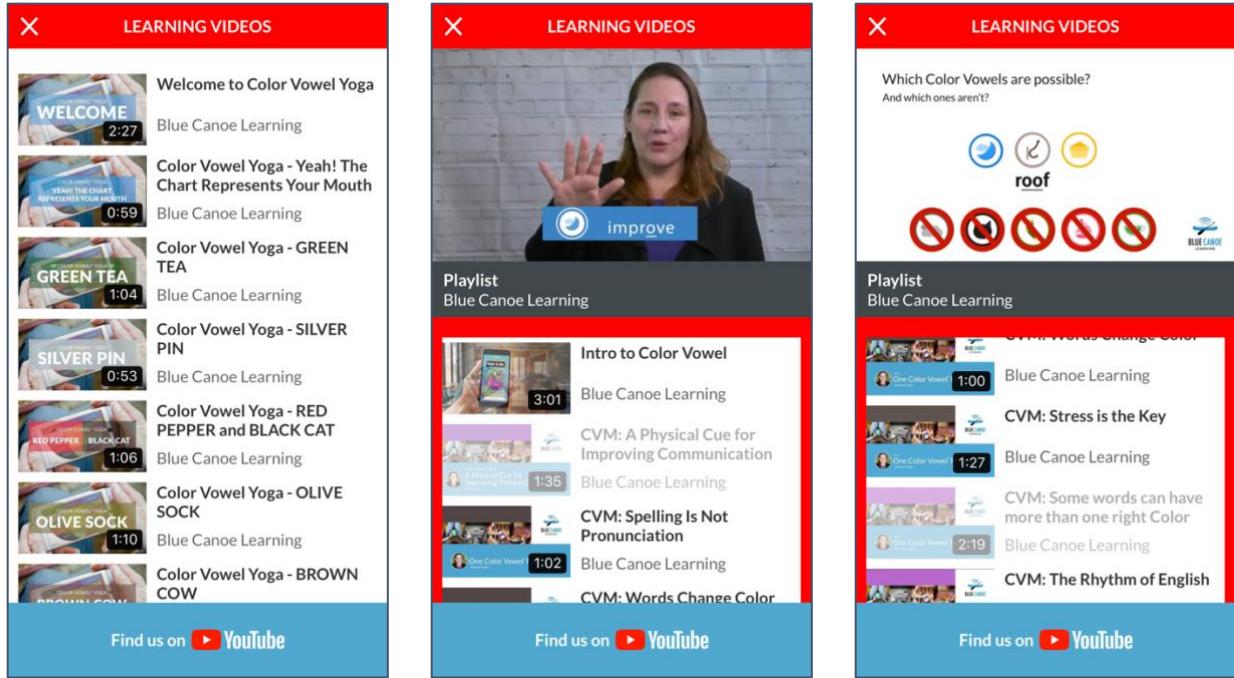


Figure 3. Video lesson images (l-r): Color Vowel® Yoga video library, screenshot of a CVM lesson on hand movement for word stress, screenshot of a CVM video on words with multiple color sounds.

Color It Out

Color It Out is a card matching game that users play against the computer (app). Both players are dealt a virtual hand of cards (see Figure 4). Each half of the card (top or bottom) shows a word, along with a color and color vowel symbol to remind users of the target vowel sound in the stressed syllable of the word. To play, the app draws a card from a central deck, and the player must find a card in their hand that matches one of the vowel sounds on the center card. Once a matching card has been identified, it is played by saying the two matching items aloud. This gives the user a chance to repeat the same vowel sound six times in a row (e.g., *rose boat those, rose boat though*). If the spoken production is correct, the game continues. If there are errors, the player receives oral feedback (e.g., *You're using a different color vowel here: BLUE MOON, instead of ROSE BOAT /o/*), and then can try recording again. When the computer plays its turn, the learner will hear the computer 'speak' its turn for additional pronunciation modeling. The first player to play all of their cards is the winner.

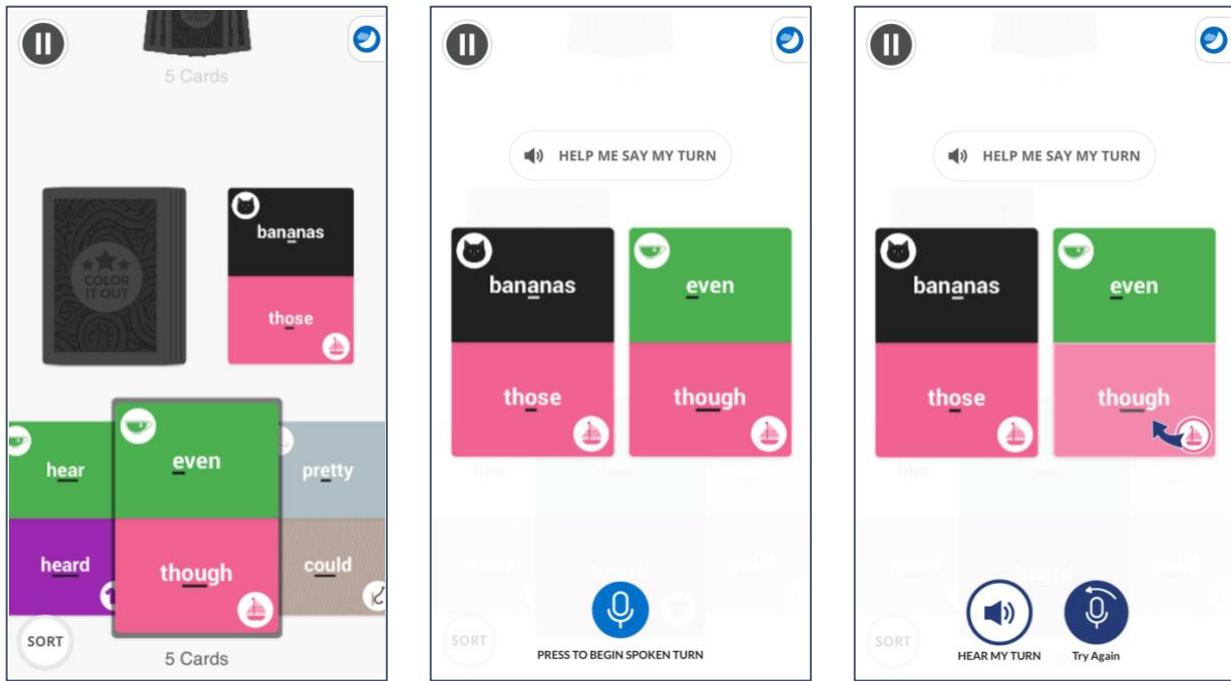


Figure 4. Images from *Color It Out* (l-r): choosing a card, speaking a turn, receiving feedback on an incorrect pronunciation.

Sort It Out

Sort It Out is a game in which users sort words into two of the color vowel phrases (e.g., *green tea* or *silver pin*). The words move down the screen and must be sorted into the correct color vowel phrase at the bottom of the screen (see Figure 5). Unlike *Color It Out*, this game has no required audio components and can be played at times when users cannot listen or record responses. At the end of a round, users can review all the words to see the correct vowel categories. This provides targeted practice with the contrast between two vowel sounds, though learners must also be able to identify the stressed syllable in each word in order to sort the words accurately.

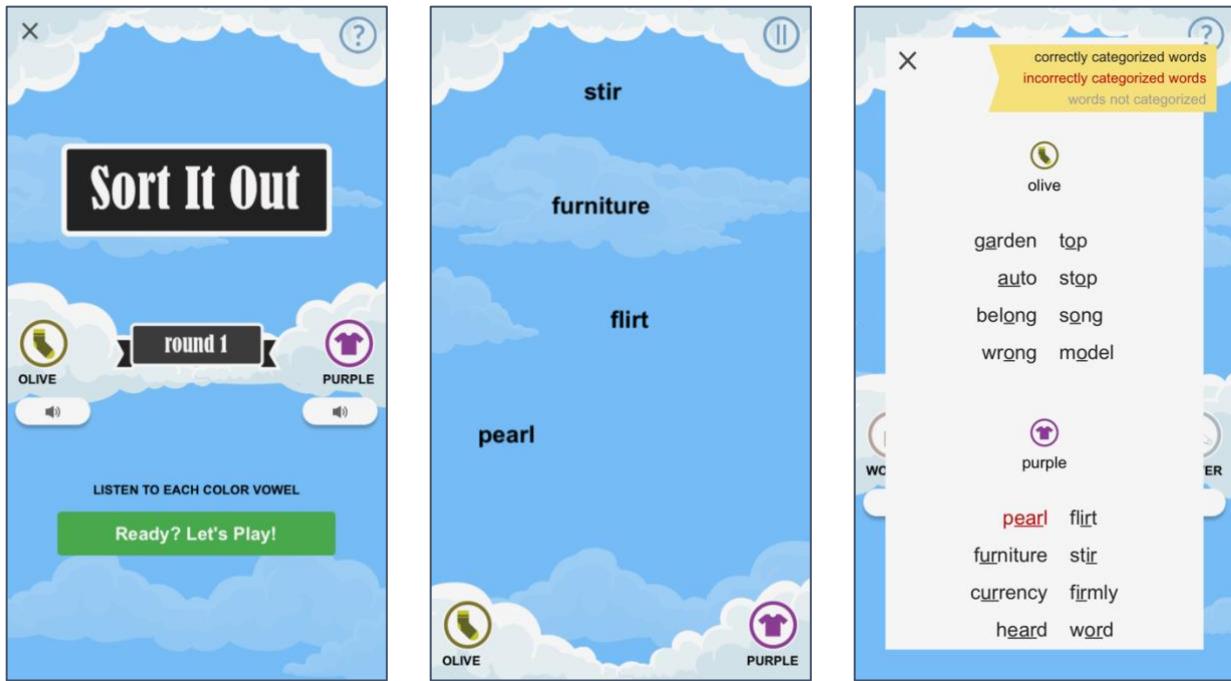


Figure 5. Images from *Sort It Out* (l-r): opening screen introducing the two vowel sounds, word sorting, review of words sorted in one round.

Pronunciation Profile

As users progress with Blue Canoe, the app keeps track of their performance in a pronunciation profile (see Figure 6). The profile tracks how often they've met their practice goals (with at least 10 minutes per day recommended), along with three pronunciation scores: overall, for words, and for sentences. The score ranges are described in terms of comprehensibility to emphasize the communicative importance of these pronunciation features. Users can also view proficiency indicators for individual color vowel sounds.

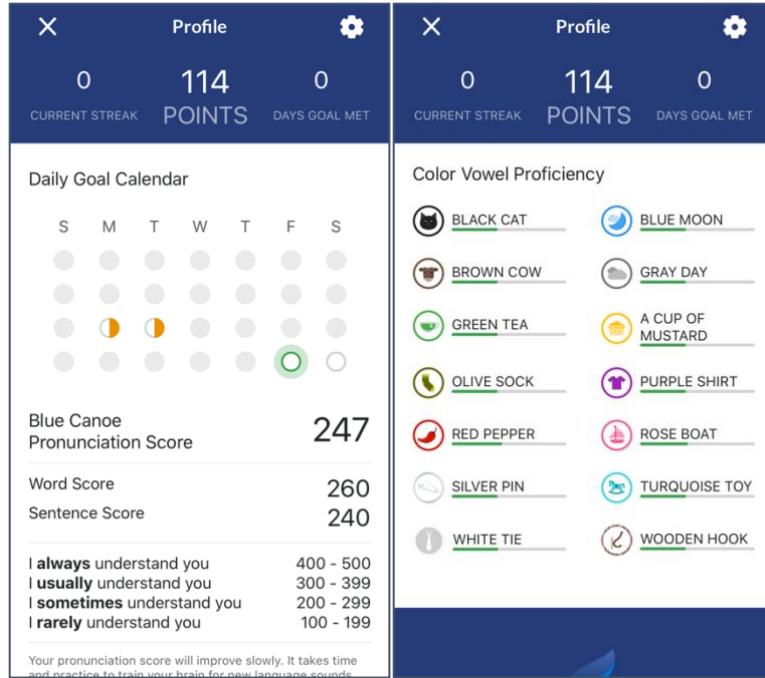


Figure 6. Pronunciation profile practice tracker and scores (left) and Color Vowel® proficiency (right).

EVALUATION

Blue Canoe is a user-friendly app that approaches pronunciation learning from a comprehensibility perspective (i.e., the ease with which the speaker can be understood, see Munro & Derwing, 1995). The content of the lessons connects directly to practical, real-world situations in which users may need to communicate in English. Individualized feedback is focused on how easily the speaker is understood, which helps learners balance concerns about maintaining their identity (as indexed by their accent) with their desire to communicate more effectively in English. The app does not assume any previous experience with the Color Vowel® system as it smoothly guides users through learning activities. Nevertheless, connecting all activities to the Color Vowel® system gives learners a concrete framework to refer to while practicing without overwhelming them with jargon or technical content. From a learner perspective, as demonstrated through online reviews, this is a fun and engaging resource that is also very useful for improving learners' confidence in their pronunciation of English.

One opportunity to strengthen this tool for users would be to include multiple talkers to model the audio content, rather than just one talker throughout. This could benefit users by providing multiple exemplars from different voices, thereby strengthening learners' perceptual categories for the various vowel sounds (Norris et al., 2003) and helping learners generalize these perceptual gains to novel talkers and/or phonetic contexts (Thomson, 2018). This is not a major limitation but nonetheless an aspect of the app that could be expanded.

For educators seeking to incorporate this tool into their classrooms, Blue Canoe provides extensive support in the form of .pdf lesson guides and YouTube videos on using the Color Vowel® approach in teaching. An additional resource is the weekly Blue Canoe teacher clinics hosted online by Karen Taylor, co-author of the Color Vowel® approach and head of education at Blue Canoe. These free sessions are designed to address teacher questions about integrating this tool into their classes. Recent topics include *Using Blue Canoe in Zoom*, *How to introduce Color Vowel to new students*, and *How to use chants to teach spoken English*. The level of support and ease with which teachers can connect with members of the Blue Canoe team are strengths of this product, making this as teacher-friendly to use as it is learner-friendly.

Beyond the classroom, Blue Canoe also has clear benefits for L2 English speakers in professional settings. Users can focus on lessons that relate to their occupational communication needs, and the 10-minute-a-day practice format can integrate into a lifestyle too busy for traditional classes. The app will issue daily practice reminders and track users' achievements to motivate learners to stick with their practice routine.

Finally, on the research side, there seems to be little publicly available empirical evidence for the effectiveness of this tool. Blue Canoe no doubt has access to a robust set of user performance data that may be analyzed internally to improve the product. Such information is unlikely to be relevant to the average learner or teacher using the app. From a pronunciation training research standpoint, however, there may be opportunity to contribute to the field through sharing some empirical findings on how this tool helps learners improve their spoken communication skills in English.

SUMMARY

Blue Canoe provides a clear, user-friendly experience for learners to build pronunciation skills, particularly in the perception and production of vowels and words stress in North American English. The app can easily be incorporated into a wider program of instruction (i.e., classroom or business communication settings) through the teacher support materials produced by Blue Canoe, though individual learners can certainly benefit from independent use of the app. With a range of meaningful content presented via interactive lessons and games, Blue Canoe serves as a strong, communication-focused pronunciation resource for learners of English.

ABOUT THE AUTHOR

Katherine (Kate) Yaw is a PhD candidate in Applied Linguistics at Northern Arizona University. She has worked in TESOL since 2007, with experience in teaching, teacher training, and program administration. Her research interests include listener attitudes, perception, and cognitive processing of L2 accented speech.

REFERENCES

- Munro, M. J., & Derwing, T. M. (1995). Processing time, accent, and comprehensibility in the perception of native and foreign-accented speech. *Language and Speech*, 38(3), 289-306.

- Norris, D., McQueen, J. M., & Cutler, A. (2003). Perceptual learning in speech. *Cognitive Psychology*, 47, 204-238. doi: 10.1016/S0010-0285(03)00006-9
- Taylor, K., Thompson, S., & Barr, R. (2016). *The Color Vowel approach: Resources for connecting pronunciation to vocabulary, reading, and spelling*. Santa Fe, NM: English Language Training Solutions.
- Taylor, K., and Thompson, S. (1999, 2019). *The Color Vowel Chart*. Santa Fe, NM: English Language Training Solutions. www.colorvowelchart.org
- Thomson, R. I. (2018). High variability [pronunciation] training (HVPT): A proven technique about which every language teacher and learner ought to know. *Journal of Second Language Pronunciation*, 4(2), 208-231. doi: 10.1075/jslp.17038.tho