TECHNOLOGY REVIEW

Sounds: The Pronunciation App

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INTRODUCTION

Computer assisted pronunciation teaching (CAPT) has the potential to provide students with high quality pronunciation instruction inside or outside the language classroom (Levis, 2007). The benefits of CAPT include the ability to provide "individualized instruction, frequent practice through listening discrimination and focused repetition exercises, and automatic visual support that demonstrates to learners how closely their own pronunciation approximates model utterances" (Levis, 2007, p. 184).

In addition, research has shown that L2 pronunciation may improve with the ability to match L2 phonemes to their corresponding IPA symbols (Lambacher et al., 2005), and CAPT technology is well-suited to provide this kind of practice. Macmillan Education's mobile application *Sounds: The Pronunciation App* is built around this principle, with activities that strengthen students' ability to match English phonemes with their corresponding IPA symbols.

DESCRIPTION

The application was first released in 2011 and was last updated in 2015. It is available for both iOS and Android OS systems (iOS Version 3.42 was used for this review). A free version with limited functionality is available, and the full version can be purchased for $5.99.

At the heart of the application is the Sound Foundations chart created by Adrian Underhill. This chart organizes the phonemes of English according to their articulatory properties (see Figure 1b and accompanying description). Users encounter this chart in various forms: they can interact with it as a standalone tool, and it serves as the keyboard for typing in IPA symbols.

The front page of the app lists six options: 'Chart,' 'Wordlist,' 'Practice,' 'Quiz,' 'Type,' 'Learn & Teach,' and 'More' (see Figure 1a). The 'Chart' option takes the user to an interactive version of the Sound Foundations chart (shown in Figure 1b). Here the user can tap a phoneme to hear how it is pronounced, or tap and hold to hear its pronunciation and an example word. There is also a 'Rotate for full screen view' function, but it did not work for the system tested (iPhone 6 iOS 11.4).
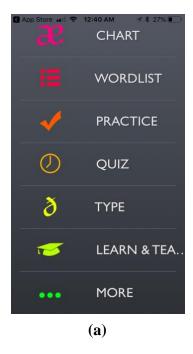
(a)   **(b)**

Figure 1(a). Front page of the application.   *Figure 1(b).* Sound foundations chart.

Note: monophthongs, diphthongs, and consonants are grouped in separate quadrants of the chart (top left, top right, and bottom, respectively). Likewise, the position of each phoneme within each quadrant corresponds to the position of the tongue (e.g., /i/ requires having the tongue at the top front section of the mouth).

The second option from the main menu page is 'Wordlist.' From here the user is prompted to select a wordlist (see Figure 2a). The paid version of the application comes with both a General British and General American wordlist, each consisting of 650 words, with additional wordlists available for purchase ($0.99 each). Unfortunately, the British wordlist, once opened, caused the application to freeze and therefore was not usable. Figure 2b displays the American wordlist. Here, users can select a word to hear it pronounced, view its definition, as well as record and listen to their own pronunciation.

The third and fourth options from the main menu, 'Practice' and 'Quiz' are very similar. Both contain 'Read,' 'Write,' and 'Listen' modes. In the 'Read' mode a word is displayed in IPA notation and the user must write it in conventional English spelling before hearing it pronounced. 'Write' mode shows normal spelling and asks the user to write the word using IPA symbols. Finally, the 'Listen' mode plays a voice recording first, which users can replay as often as they like, and asks for an IPA transcription. Quiz mode includes the same exercises as the Practice mode, but gives a limited amount of time and a maximum number of allowed mistakes, as well as saving high scores.

(a)　　　　　　　　　　　　　　　**(b)**

Figure 2(a). Front page of 'Wordlists' mode.　　　*Figure 2(b).* American word list.

The fifth option from the main menu is 'Type', which gives the user a phonetic keyboard and allows the text to be copied into other applications, such as email or text messages. The final option in the main menu is 'Learn and Teach', which provides extra resources for teachers and learners such as articles that discuss learning strategies and lesson plans that explain how to incorporate the app into classroom teaching.

EVALUATION

In this evaluation, we adopt Yoshida's (2018) four criteria for evaluating CAPT tools: 1) appropriateness to learning objectives, 2) quality and accuracy, 3) practicality of use, and 4) cost. In terms of the first criterion, the primary benefit of the application is in helping learners improve their ability to match sounds with their IPA symbols. This type of training can help students improve their pronunciation by teaching them to recognize when the same phoneme is used in different words, giving them a better understanding of the English sound system as a whole. Moreover, the application provides students with models of correct pronunciation, records their progress (e.g., in quizzes), and provides ample opportunities for independent practice (Yoshida, 2018). However, a major shortcoming of the application is that while it provides feedback on students' written input, it does not provide any feedback on their spoken input. Thus, while users of the application receive ample feedback for improving their production and recognition of IPA symbols, they must rely on their own ear to determine whether or not their spoken production matches the model pronunciation.

Another limitation for meeting users' learning objectives is the lack of focused or targeted practice. In the introductory video included in the app, phoneme chart creator Adrian Underhill asserts that, "There can't be a 'sound syllabus'. We have to have all of the sounds immediately." However, not

all pronunciation errors are equally serious (Levis, 2007), so this approach of presenting learners with all phonemes at once may not be the most effective or efficient approach.

In terms of quality and accuracy, the application is generally effective. However, a few discrepancies are worth noting. For example, when the 'American English' option is selected, one still finds non-rhotic pronunciations in some of the audio, as well as British English vowels, such as /aɪ/, in the transcriptions. Also, there is inconsistency between audio recordings their IPA transcriptions. For instance, an American pronunciation may be provided in the audio form, but the written transcription reflects the British pronunciation.

In terms of practicality, the app is relatively easy to use, and because so many students are familiar with smartphones, it seems like a useful medium for increasing their outside practice time. However, one source of difficulty may be the fact that the IPA keyboard is laid out in the same way as the Sound Foundations chart. Although this chart is logically organized, users will need time to become familiar with the location of each phoneme, and this may be a source of frustration early on. Another limitation is that the system is unforgiving of spelling mistakes. Given that IPA spellings are not standardized (one can prove this by simply typing a word such as "ability" into various IPA transcription engines and observing the discrepancies), a user could produce a perfectly defensible phonetic spelling that nevertheless is counted wrong in the application.

Finally, the cost of the application ($5.99) is quite high given the limited functionality it provides. There are many educational apps available, and many websites that can provide similar features for free. Considering those factors, it seems unlikely that a student would pay so much for a phone app unless required to do so. Also, the lack of recent upgrades may dissuade users from spending the money since the app may soon become obsolete with changes in phone technologies and operating systems.

CONCLUSION

Sounds: The Pronunciation App is generally easy to use and provides an effective way of learning to match IPA symbols with their corresponding to English sounds. This type of practice can help to improve pronunciation by helping learners to recognize when the same phoneme is used in different words and with different orthography. It can also help learners become familiar and more comfortable with English phonemes. However, for $5.99 the app offers limited functionality when compared with other software that has been developed since its initial release. The learning outcomes are limited due to its focus on phonemes within isolated words, and it does not cover important pronunciation elements such as phonemic blending or prosody. For these reasons, it may be most suitable for learners who want to improve their pronunciation at the word level, or to learn to use the phonetic alphabet.

REFERENCES

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