

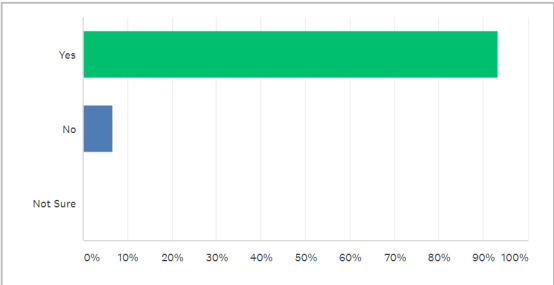
NATIONAL SPASMODIC DYSPHONIA ASSOCIATION

Review of Text-to-Speech Applications for People with a Voice Disorder

The National Spasmodic Dysphonia Association invited the community to participate in an online evaluation of text-to-speech applications and provide feedback based on the guidelines provided. We thank all who shared their experiences.

This article reviews the use of apps that support text-to-speech for those with voice disorders. It is not an exhaustive list and only covers the apps evaluated in the survey. The information included is accurate at time of printing.

The overwhelming number of responses believed that text-to-speech apps are good for casual, quick short sentences, but that once they were used in a one-to-one conversation, the app was less helpful because typing for the speech engine was slower than a regular conversation. Most believed that the solutions could be used in any type of situation, but individual tools rated better or worse depending on the situation.

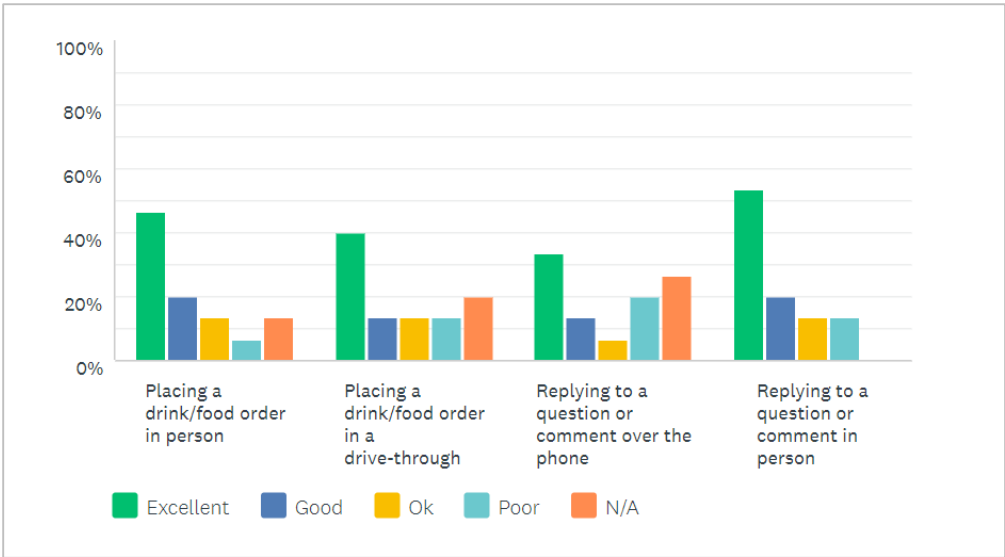


Use for casual quick short sentences

In general, most of the apps are free to download, but require an in-app purchase in order to add functionality or remove ads. The use of ads was prevalent in all apps except for Speech Assistant AAC. Their funding was achieved by reducing the in-app feature set. Included is an overview of the apps that were tested.

Use of the Apps in Various Scenarios

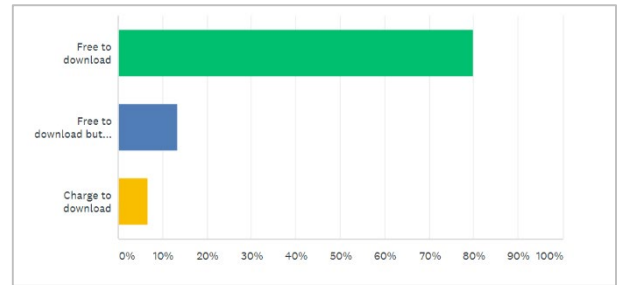
Most believed that the solutions could be used in any type of situation, but individual tools rated better or worse depending on the situation.



Cost

In general, most of the apps are free to download, but require an in-app purchase in order to add functionality or remove annoying ads.

The use of ads was prevalent in all apps except for Speech Assistant AAC. Their funding was achieved by reducing the in-app feature set.



Summary of the Apps Tested

App Name	Voice Output	Different Voices	Vocabulary	Create and Save Phrases	Cost	Platform Supported
TouchChat	X	X	X	X (with upgrade)	\$149.99 \$300 to quickly create and save sentences	iOS
TexttoSpeech	X	X		X Limited to 5000 characters	FREE	Android (Samsung Galaxy, Google Pixel, Amazon Kindle) and iOS
Speak4Me	X	X		X Limited Capacity unless you pay	FREE to download, 0.99 cents to remove ads and get storage for saved phrases	Android (Samsung Galaxy, Google Pixel, Amazon Kindle) and iOS
Speak	X	X		X	FREE to download, \$1.99 purchase required to remove ads	iOS
Speech Assistant AAC	X	X (Different voices must be downloaded)	X	X	FREE to download but \$7.00 to get full functionality. (\$14.99 for iOS)	Android (Samsung Galaxy, Google Pixel, Amazon Kindle) and iOS
Natural Reader	X	X			FREE to download plus a monthly fee of up to \$18.99	Android (Samsung Galaxy, Google Pixel, Amazon Kindle) and iOS
Aloud! Text-to-Speech	X				FREE	iOS
Talk for Me	X	X (different voices must be downloaded)	X	X	FREE	iOS
Translate All	X				FREE to download with lots of ads, \$1.99 per item to upgrade.	Android (Samsung Galaxy, Google Pixel, Amazon Kindle)

Summary and Feedback Regarding each App

TouchChat

TouchChat is a full-featured communication solution for individuals who have difficulty using their natural voice. It's an assistive technology known as Augmentative and Alternative Communication (AAC) and includes features that were previously only available in much more expensive dedicated devices. Words, phrases and messages are spoken with a built-in voice synthesizer or by playing a recorded message. TouchChat HD for iPad® / iPod® / iPhone® is available for \$149.99 USD. There is an enhanced version that comes with a feature called WordChat for \$300. This feature allows users to create sentences quickly and on the fly.

Testers commented on how easy it is to use this technology noting that you can save as many phrases as you want. However, it takes some time to set up the system, but once done, it is an excellent tool. "You can set up your food or drink order ahead of time and with the optional WordChat feature, you can create customized screens for the doctor's office, church, dining and other social settings."

Text-to-Speech

This free app can be downloaded from the app store. It is rated best for a quick casual conversation and users seemed to like the ease of use. It was rated better when it was used for in-person situations and not when used for the drive-through or on the phone because it wasn't loud enough. Users thought the voice sounded very natural and that the accents were fun to use, commenting that it had a "good voice sound with a choice of 36 different voices." One user thought that it took too long to type in a phrase when having a conversation where an immediate response was required.

"I'm not sure that this or any app would be good in a fluid conversation, but it is good in a small group encounter and would be best in an environment without a lot of background noise." One user commented that they aren't comfortable with apps like this but can really see an advantage for those with severe SD. The app limits you to 5000 characters. <Needs explaining - does it mean, like a text message - you can type 5000 keystrokes before doing 'Send' - or something else? If it does mean that, perhaps say 5000 characters you can type per each text field of conversation?> Another user complained that the voice produced was not loud enough for use in a restaurant or at a drive-through, but they could use it at home in a one-on-one conversation.

Speak4Me

Speak4Me is an iOS-enabled app from the same developer that created Text-to-Speech. It speaks the words typed onto the text field. The app is available for free, but you will get ads; to avoid the ads and have larger storage for saved sentences you can pay 99 cents. It is good for quick short sentences and it is fun because you can change the sounds. You can convert the phrases to an audio file to share via text message. The online reviews of this app are consistent; they claim that saving and replaying files is buggy, but for those with voice disorders, the reviews are very positive. One of the testers of this app felt like it was very easy to use, the voice seemed realistic and they would recommend this as a text to speech app.

Speak

This text-to-speech app has over 1600 reviews, many of which are from people with voice disorders. It is a flexible system, allowing users to adjust accents, volume, pitch and speed of the voice. Phrases that are entered are automatically saved in the recent list, which can fill up space quickly, but users can create a list of favorite phrases as well. This app can be connected to a Bluetooth speaker to broadcast even further. An internet connection is not required to use the app, making it a good option when using an iPad. To eliminate ads, you will have to pay for an upgrade.

Testers of this app felt like it was easy to use and fast. One tester stated that the app did not have any instructions and as a result was difficult to get started. They also felt like the app did not work well for phone conversations. "It's least helpful in social situations where conversations tend to evolve quickly, so even though I'm a fairly quick typist, comments typed in are often too late to be relevant to what people have just said. As with my actual voice, the amount of ambient noise affects its usefulness. It's very helpful that the listener can hold the phone up to their ear, though."

Speech Assistant AAC

Unlike most of the other apps reviewed, this one was designed for people who are speech-impaired. Users can create categories and organize saved phrases which are placed on buttons. This way they can be searched, and quickly and easily reused. You can also type right onto the keyboard. Users can choose large fonts and saved recordings of common phrases. This system is also set up to be used for phone, FaceTime and Skype calls. The speech output is audible for the other person on the phone. The user can also adjust the rate and pitch of the speech and can connect to Bluetooth speakers.

This app has won an innovation award called the Vodafone Mobile for Good Challenge in the category Smart Accessibility and does not require an internet connection to use, making it perfect when using a tablet. It includes 90 voice choices.

One app reviewer commented that it is amazing how people pay close attention when he uses the app to speak. Another reviewer said they use it for medical situations and "it's inexpensive for full use (though twice as expensive for Apple products than for Android), and so far has done everything I have needed it for, and has plenty of options for other uses I might want it for." Another reviewer commented, "I use it often, and find it extremely helpful, especially if I don't want to drag my tablet along, or find myself in an unexpected situation where I need it."

Natural Reader

This app is designed to read text, PDFs, webpages and eBooks aloud. It includes over 50 voice choices. However, it is not designed to add your own text and have it say the text aloud unless you download a document with your phrases included. Users rated this as a poor option for text to speech in all situations because it does not include free text fields.

Aloud! Text-to-Speech

This app is designed to read text, PDFs, webpages and eBooks aloud. It includes over 50 voice choices. However, it is not designed to add your own text and have it say the text aloud unless you download a text message. The app is free to download but has levels of upgrades available depending on functionality.

Talk for Me

This app was designed and engineered by someone with a speech disorder. You simply type into the main text area and the device will talk. You can set up custom phrases and save into an archive database. This is great for saving partial sentences, then you swipe left and the partial sentence appears in the test window. This improves the speed of correspondence. The system includes keyboard shortcuts, predictive text and custom phrases. No active internet connection is required. The system also is punctuation aware and will not say the word period and will pause at the end of a sentence. The app comes standard with computer voices and to add a voice it must be downloaded, adding a level of complexity.

“The app is great for the drive-through. I have my Starbucks order loaded, so I can automatically play the recording.” However, the user noted that they did not think the technology was great for in-person conversations where there is a back and forth.

Translate All

This app is intended to translate one language into another. However, it does have the ability to type text and have it say the words. It is a very basic app in the voice to text space. Online users rate this app lower due to the number of ads; apparently an ad appears after every action. The cost per item for upgrades is \$1.99.

The user testing this app stated “I wish it would translate the speech a little slower so the other person can catch all the words”. The system was poor for phone calls and only marginal for placing a drive through order or placing an order in person.