

Part 1: Introduction

[Open End]

In a full sentence or two, tell us – what works *well for you* when it comes to voice technology (speaking to, dictating a message, or commanding your device to do something)? (P1, Q2)

**qualitative lists in order of rough frequency*

FUNCTIONS THAT WORK WELL

- Making phone calls (n=6)
- Sending text messages (incl. responding to, sending brief text messages) (n=6)
- Setting alarms, reminders, or timers (n=5)
- Simple commands, general (n=5)
- General information searches (n=5)
- Dictating in my notes app/memos (n=5)
- Asking for the weather (n=2)
- Playing music (n=2)

One-off mentions: getting directions, turning lights on and off, connecting my phone to bluetooth, everything listed in the prompt.

IT WORKS WELL WHEN I...

One-off mentions: speak in full, clear sentences; don't use slang; speak loudly; speak into the microphone; use a keyword like 'weather'

[Open End]

In a full sentence or two, tell us – what *doesn't work well for you* when it comes to voice technology (speaking to, dictating a message, or commanding your device to do something)? (P1, Q3)

**qualitative lists in order of rough frequency*

FUNCTIONS THAT DON'T WORK WELL

- Dictating text messages (esp. longer messages) (n=6)
- Sending text messages (esp. by name) (n=2)
- Placing calls (esp. by name) (n=2)
- Home automation (incl. setting thermostat) (n=2)

One-off mentions: getting directions, playing music, creating calendar events, dictating social media posts, understanding complex commands.

IT DOESN'T UNDERSTAND...

- Names, including music artists (n=3)

One-off mentions: quotation marks, my accent, slang, abbreviations, shorthand, certain words, if I use a low voice, if I speak too fast, if I don't speak into the microphone, non-standard American English.

[Open End]

In a few full sentences, tell us about when and why you modify the way you talk to get different results when using voice technology. (P1, Q26)

**n=28 scouts, qualitative lists in order of rough frequency; quotes representative of responses provided*

WHEN	WHY	HOW
<ul style="list-style-type: none">• It doesn't understand me: mis-transcribes or asks me to repeat (n=8)• It might not understand me: my query is complex, or I'm using a topic, word or phrase it might not know (n=5)• I'm dictating something, like a message (n=3)• Oftentimes or every time (n=5)	<ul style="list-style-type: none">• So that it will interpret correctly (n=10)• Because it doesn't understand my voice, accent, or slang (n=8) <p><i>One-off mentions: It doesn't pick up on acronyms, it's programmed for a certain way of speaking.</i></p>	<ul style="list-style-type: none">• I speak more slowly (n=11)• I speak more clearly or enunciate (10)• I use proper English (n=6)• I speak with a monotone, without emotion (n=2) <p><i>One-off mentions: adjust volume, adjust how I articulate syllables, speak higher, say one word at a time, speak in an American way, imitate the technology, make accommodations for punctuation.</i></p>

[Open End]

You indicated in the previous question that the technology works better for people who are not like you. In your opinion, who does the technology work better for? (P1, Q29)

**n=14 scouts, qualitative lists in order of rough frequency; quotes representative of responses provided*

- White people (n=5)
- People without an accent (n=5)
- People with an American accent (n=2)
- People who use correct, standard American English (n=2)
- People with cleaner, more precise grammar (n=2)
- People who don't use slang (n=3)

One-off mentions: people who speak like the technology, people without speech issues, people who speak slowly, people without tone variation.

Part 2: Voice Technology Reflections

n=94 entries

[Open End]

What voice technology moment is this entry about? Describe it in a few words. (P2, Q1)

**qualitative lists in order of rough frequency*

SATISFIED MOMENTS (n=72 entries)

- Sending, replying to, or dictating a message (incl. voice message) (n=18)
- Setting an alarm, timer, or reminder (n=9)
- Playing music (n=7)
- Searching on Google (n=6)
- Looking for a movie, changing the channel, or turning on the TV (n=5)
- Placing a call (n=5)
- Making or typing up a note (n=5)
- Making a purchase/shopping (n=3)
- Getting or sending directions (n=3)
- Checking the weather (n=2)
- Checking hours of a local business (n=2)

One-off mentions: finding a recipe, finding my device, connecting to bluetooth, getting a news report, adding to my grocery list, rating a purchase on Amazon, creating a calendar event, writing an email, checking the pronunciation of a word.

UNSATISFIED OR NEUTRAL MOMENTS (n=22 entries)

- Sending, replying to, or dictating a message (incl. group text) (n=7)
- Playing music (n=3)
- Sending or reading emails (n=3)
- Checking sports scores or events (n=2)
- Setting a timer or reminder (n=2)
- Calling a contact or a business (n=2)

One-off mentions: searching on Google, getting directions, filling out a survey.

[Open End]

In a full sentence or two, explain why you chose to use voice technology in this moment.

Why did you choose voice technology over other options for this task? (P2, Q4)

**qualitative lists in order of rough frequency*

- Because it was easier or faster than doing it manually (n=35)
- Because I was driving (n=13)
- Because my hands were full or occupied (n=12)
- Because my phone was not nearby or available (n=12)
- Because the message was too lengthy to type (n=7)
- Because my hands were dirty or wet (n=6)
- Because I always use voice technology for this particular action (n=6)
- Because I was walking, running, or biking (n=4)

Two mentions: Because I didn't know how to spell a word, because I was in the shower, because I was working, because it's the only option for this command, because I was in bed.

One-off mentions: Because I was multitasking, because I was in the next room, because the whole household needed the function, because I needed to hear how a word was pronounced, because I couldn't find what I was looking for manually, because my phone wasn't in my hand, because it prompted me, just to try it out..

[Video]

In a 60-second selfie-style video, sum up this voice technology moment! Why did you use voice technology in this way, and why are or aren't you satisfied with the results that you got? (P2, Q6)

**qualitative lists in order of rough frequency*

**WHY SCOUTS ARE SATISFIED
(n=72 entries)**

- It was quick, easy, and/or convenient (n=26)
- It helped me stay on track or accomplish my goal (n=12)
- It got the job done adequately (12)
- I was able to multitask or keep focus on something else (11)
- There were no issues; it worked flawlessly (n=10)
- I got great results (6)

One-off mentions: it worked better than the last time I tried.

**WHY SCOUTS AREN'T SATISFIED
(n=22 entries)**

- It gave me incorrect results, or something other than what I wanted or expected (n=8)
- It didn't understand my command, or part of my command (n=7)
- I ended up having to do the task manually (n=7)
- It transcribed a message incorrectly (incl. transcribing a profanity) (n=6)
- I still had to proofread or edit (n=4)
- It didn't pick up on slang (n=1)

One-off mentions: it didn't pick up on my accent, it didn't understand something I've tried to teach her, I couldn't speak naturally, multiple devices activated.

Part 3: Voice Technology Deep Dive

[Open End]

What negative voice technology moment is this entry about? Describe it in a few words. (P3, Q1)

**qualitative lists in order of rough frequency*

FUNCTIONS

- Messaging (esp. in work context) (n=12)
- Calling (n=6)
- Playing music (n=4)
- Dictating notes (n=2)

One-off mentions: Searching on Google, changing the channel.

ERRORS

- Mis-transcribing (n=13)
- Experiencing a connection error or lag (n=9)
- Delivering incorrect results (n=8)

One-off mentions: having to repeat myself, failing to execute a command.

[Open End]

What prompted you to use voice technology in this moment? (P3, Q3)

**qualitative lists in order of rough frequency*

- My hands were busy or occupied (n=8)
- I was driving (n=7)
- I expected it to be easier than doing it manually (n=6)
- I wanted to speak freely without having to type (esp. when message is lengthy) (n=4)
- I often use voice technology for this function (n=3)

One-off mentions: I didn't feel like typing, my nails were too long to type, I didn't want to break focus.

[Open End]

In a full sentence or two, tell us about why you were not completely satisfied with this voice technology moment. Describe any challenges, errors, or failures you came across in this moment. What happened? (P3, Q4)

**qualitative lists in order of rough frequency*

- Mistranscribed a message, changing its meaning (n=8)
- Mistranscribed names (n=6)
- Mistranscribed a message, putting in incorrect words (n=6)
- Executed the wrong command, including calling the wrong person (n=6)
- Delivered incorrect or offbase results (n=5)
- Voice technology would not activate (n=3)
- Couldn't perform a task after multiple tries (n=2)
- Was not able to complete the request (n=2)

One-off mentions: Mistranscribed a note making me lose my work, cancelled my message, lagged, only caught part of what I wanted to say, sent a message prematurely.

[Open End]

In a full sentence or two, **why do you think this challenge, failure, or error occurred? (P3, Q5)**

**qualitative lists in order of rough frequency*

- The technology wasn't designed to or can't pick up on accents or slang (n=9)
- The technology didn't/doesn't understand me or my speech patterns, or natural speaking patterns (n=6)
- It was the way I spoke, or I misspoke (incl. too fast) (n=5)
- The technology assumed I meant something I didn't (n=4)
- The technology is not familiar with/not programmed to understand the words, phrases, or names I used, esp. ethnic names (n=3)
- It wasn't programmed to perform the function I wanted (n=2)
- The technology didn't hear me correctly (n=2)
- I don't know why it happened (n=3)

One-off mentions: The tech is out of date, it was a glitch, the tech is too sensitive, it was due to background noise, it was a copyright issue, the tech is racially insensitive, I was too far from the phone, it hasn't learned my voice yet.

Part 4: Deep Dive Reflections

[Open End]

Tell us about your previous answer. How did this differ from the experience you told us about in Part 3? (P4, Q5)

**qualitative lists in order of rough frequency; quotes representative of responses provided*

***Note: only 21/30 scouts answered this question*

- There were fewer mistakes, or part of the command was correct (n=4)
- I worded things a little differently (n=3)
- The technology gave me a few options to choose from (n=2)
- There were no mistakes (n=2)
- There were more mistakes (n=1)
- I used a different device (n=1)
- I gave a slightly different command (n=1)
- There was an element I wasn't able to recreate (background noise, etc) (n=3)

One-off mentions: The technology simply couldn't perform the task, it did understand after a few tries, it didn't read the message back to me.

Part 6: Final Reflections

[Open End]

Imagine that you could speak directly to a company that designs voice technology. If you could wave a magic wand, what would you ask this company to change in order to improve the voice technology experience for yourself? *Respond in a sentence or two.* You'll tell us more about this response in the next question. (P6, Q1)

**qualitative lists in order of rough frequency*

- Program the technology to understand slang, accents, dialects, abbreviations, and/or ethnic names (n=9)
- Use my voice and speech patterns to train the voice technology on my phone (n=6)
- Make the tech sound more human, less robotic (n=5)
- Do more testing, with a greater variety of voices and scenarios (n=3)
- Provide choices when the tech can't understand (incl. drop down options for names) (n=2)
- Have it repeat back my command before submitting (n=2)

One-off mentions: Bring in people from different backgrounds to evolve the technology, make it more inclusive and functional, have it correct my grammar, allow me to reset it.

[Video]

In a 60-second selfie-style video, imagine that you are speaking directly to a company that designs voice technology. Expand on your previous answer. What would you ask this company to change in order to improve the voice technology experience for yourself, and why? Why do you think that this needs to be changed? Start your video with "Dear voice technology company...." (P6, Q2)

**qualitative lists in order of rough frequency*

- It would help you accomplish your task more effectively and efficiently, with less errors and need for correction (n=15)
- It would make it so more people can use it; make the tech more inclusive (n=13)
- It would make it more user friendly (n=7)
- It would make it more useful (n=3)
- It would make it feel more human (n=3)

One-off mentions: It would make it so I don't have to repeat myself, it would make me feel confident things are being done correctly, it would feel more personalized.

[Open End]

In a few full sentences, tell us about *when and why* you are or aren't willing to share personal information – like a voice sample and/or information about your gender, geographic location, and race – in order to improve voice technology experiences. How, if at all, does your willingness change in order to improve your own experience vs. black users' experiences? (P6, Q9)

**qualitative lists in order of rough frequency; quotes representative of responses provided*

WHY I WOULD SHARE INFO

- I'm open to sharing information that would improve my experience (n=12)
- If it will help the Black community, I am happy to contribute (n=7)
- All factors listed contribute to voice differences, so I would share them all (n=7)
- I'm happy to improve the experience for others, in general (n=5)
- All factors are low stakes (n=4)
- It would help developers see the differences amongst users (n=3)

One-off mentions: I already feel like I don't have much control over that information.

WHY I WOULD NOT SHARE INFO

- It doesn't sit well with me from a safety perspective (n=6)
- I should only have to share my voice, not race/gender/location, to improve the technology (n=6)
- I don't want assumptions made about me, or to be treated differently, as a Black user (n=3)
- I'm not sure it would benefit me or my community (n=2)

One-off mentions: I can't speak for all Black users, standard English is more helpful.