Apps for Access: Bridging Deaf-Hearing Communication, in partnership with RIT/National Technical Institute for the Deaf

Presenter: Bonnie Bastian, MS, CCC-SLP

Thanks everyone for joining us today on Apps for Bridging Deaf and Hearing Communication present in partnership with Rochester Institute of Technology national and Technical Institute for the Deaf. I'm excited to introduce our speaker today, Bonnie Bastian. She is a speech language pathologist and educator at the Rochester Institute of Technology National Technical Institute for the deaf. Since 2009, she has partnered with deaf and hard of hearing college students to enhance their academic, personal and professional communication strategies, skills and successes. If you'd like to learn more about our presenter, additional information and bios are on the course registration page.

With that welcome Bonnie. We're so excited to have you with us today. At this time I will hand over the mic to you. Thank you Farzana after this course. My goal for you today is that you'll be able to describe how ADA and HIPAA laws protect deaf communicators regardless of their preferred communication modality.

And I'd like you to be able to listen two applications or more that can be used to augment communication accessibility between deaf and hearing communication partners and be able to explain at least two ethical considerations that should guide your use of automatic speech recognition tools within various communication environments. Other than letting you know, I'm a paid employee from Rochester Institute of Technology's National Technical Institute for the Deaf, with which we have a nice partnership going right now and to bring you these courses, I have no other relevant information or relationships to disclose.

One thing I did want to mention in addition to the general limitations and risks as technology today is expected to continually and rapidly evolve, I do particularly advise you to remain well versed in your institution's guidelines for technology use with your clientele. Before I dive into our main content, I want to give you a brief introduction to ntid. This will help set the stage for the commentary I'll offer today, which is based on my experiences here within NTID's deaf community. One of nine colleges at RIT,

NTID was established in 1965 by the U.S. congress to provide higher education opportunities and promote employment for deaf and hard of hearing individuals.

It's so important for you to know that if you have met one deaf individual, you have met one deaf individual. And just as with any other human, we should never assume that the next person we meet from a community is going to be the same. There is great communication diversity within deaf communities and NTIDs. Communication demographics among our students reflects this. Some of our students use listening technologies, some do not.

Some of our students use American Sign Language to communicate and others are accustomed to using solely listening and spoken language and some use a combination of all of the above.

At NCID, our team of ASHA certified audiologists and SLPs is fluent in ASL and we strive to match each individual student or client's language and communication modality during both our clinical and classroom instruction. So I do invite you to click on our department's website to see more of who we are and what we do.

We do run full service clinics within our on campus department and you can read a sampling here of the services that we provide. We also have a brochure for you and your handouts where you can read more about ncid. So we at NCID are excited to be partnering with continued to bring a handful of courses to you, including this one today. So let's dive into our topic. I'm starting with a disclaimer that the apps and the tools we're going to review today are in no way meant to replace the level of access that a professional, qualified interpreter or human captionist can provide.

Especially in high stakes conversations such as medical appointments, court or legal scenarios, job interviews, the communication access solution must match the deaf individual's preferred and most reliable communication modality. That being said, sometimes a deaf communicator may prefer these

apps. Sometimes when the stakes are lower, these apps may pleasantly suffice and sometimes an emergency strikes and there's simply not enough time to wait for a higher level solution solution and so on. So I do believe it's worth our time to familiarize ourselves with these resources. We have them ready in our back pockets.

So where and when might you use these tools that we'll be exploring today? If you're working with someone who does not prefer, does not know American Sign Language, then there are a lot of auto captioning tools that will be an excellent resource. Specifically, if you're an audiologist, you're working in an audiology clinic, think about how often during hearing aid programming or cochlear implant mapping when your client's listening devices are offline as you're making adjustments to them. Also, think about your clients who do not use amplification and you know their access to spoken conversations during the appointment is going to be compromised.

And when you make a phone call, perhaps to a hearing aid or cochlear implant manufacturer on behalf of your client when they're in the room with you, perhaps you can put those phone conversations on speakerphone and then allow that conversation that's being had about them to be made accessible so that they can read along with auto captions in real time during speech, language sessions. I myself is a speech language pathologist. I love to explore these apps with my students. I practice with them how to introduce their preferred app to a new communication partner. For example, we practice what to say, how to advocate for accessible conversations with others, and some of my students even enjoy practicing their speech intelligibility and testing their phones to see hey, can Siri understand me when I say this target phrase I've been practicing?

And if and when Siri misunderstands then we can analyze what parts of the spoken production matched and which characteristics did not and why. It can actually be some good real time feedback for speech intelligibility practice.

If you're in the classroom or giving lectures, you can add live captions right into your slides. You can augment access to audio content that may not have captioning. Or you can use these tools to help small groups better connect as they interact and have dialogues when their communication modalities aren't a match. Of course, life is full of communication opportunities everywhere we go, so I do invite you to imagine additional scenarios where the tools we look at today could help supplement that communication access.

So I do briefly want to highlight some legal applications. See what I did there applications. So this is really important to know that ADA law provides legal protection with individuals who have a disability, which includes deaf individuals. So for example, if you have a deaf client who uses sign language and you do not, there's a communication barrier. But that communication barrier cannot is not a justifiable reason to go ahead and cancel their appointment for them.

They have legal rights to an appropriately accessible solution. So it's important to know the law. In addition, HIPAA law exists to protect our health information, right? So anytime we're using technology or an app, we really need to take time to understand the privacy settings, the data usage, the permission settings within each tool before we go ahead and use them in HIPAA protected environments. So in your resource handout, I've shared several ADA and HIPAA related resource links that I really encourage you to review throughout the slides.

Anytime you see an asterisk, that means I've given you a related resource link that can be found in your handout. So please read on.

The American with Disabilities act or ADA declares that we must match our communication solution to the person that and the circumstance. This includes considering the needs of individual's companion as well. So perhaps you have a student you're working with who's hearing, but their caregiver who's going to be present is deaf. So this covers the caregiver who will be present as well. So we need to know

what communication dynamics we're working with and make everything accessible.

Remember NTID's communication diversity. We can't also, we can never expect that a one size fits all solution is going to work. Not all deaf individuals communicate the same. So that means no one solution is going to be a consistent, legally appropriate answer. So how in the world do we know which solution is going to be best?

We have to ask and involve that deaf individual every time. And we have to learn about and explore the tools that do exist so that we're familiar ourselves with what the options are that we could even offer.

And personally, it's something I advocate for a lot. I just, I believe that taking these action steps to become familiar ourselves. I applaud you for being here today. This helps us display that cultural sensitivity that we should be. We should be showing and prepares us to satisfy expectations of the law.

When we grow our own understanding, we can help remove an undue burden that often falls. I'm a deaf individual where they need to be the ones to teach us about the available resources and remind us what the law is about. And so that's just a nice thing to do. The right thing to do is to alleviate that burden on them. And the possibilities for bridging communication and connecting across languages and cultures through the tech that's available today and all the tech yet to come is so very exciting.

So, so I'm really glad you're here to learn about this today. With any app that we discuss today, we have to ask ourselves, how can our patient, client or student's protected health information remain protected? So if you're using an app that's collecting audio files, if it's saving transcripts of private conversations, if it's gathering user specific vocabulary and learning becoming familiar with that person, this can pose a privacy dilemma for sure. So yes, get excited about the accessibility technology today, but also please make the time to read the fine print and understand when that data that we're offering up is being processed on our device itself versus if it's being sent up into the cloud to be processed and

think about what that means. So if that content is staying on the device, in some ways that might feel safer.

But then if you lose that device or it's stolen, all of that data is on the device. Right. If it's up in the cloud, it may not be living on the physical device, but then hackers might be able to get to it there as well. So there is a lot of risk. I don't want to scare you away from using these resources.

I just want you to keep all these things in mind so that when you do opt to use them or your student or your communication partner decides to use them, you're not going in unaware. So it's also really important to maintain trust and to establish trust with communication partners. So I do a lot of teaching and guiding with my students to again, practice introducing an app, explaining what's it for, why it's useful, explaining to the communication partner like, oh, this is, by the way, is going to save a transcript of our conversation. That's going to help me to remember the important details I need to follow up on later, like notes for myself. If a tool is going to be saving the voice recording along with that transcript, wouldn't you like to know if your voice is being recorded and saved?

So we talk through those things and then practice introducing the app, explaining briefly how it works to somebody who's unfamiliar with it, and then gaining that okay, sounds good, and then proceed to using the app when you have that mutual understanding. Okay, so after we get that consent and understand how these apps are working and we need to be aware that the accuracy of tools such as automatic speech recognition and our auto captions are not going to equal 100% accuracy. So we need to keep an eye on that and monitor it. We don't want really important information to be misunderstood because it was miscaptioned. It's also wise to know that each speech recognition company and product has a different predetermined word error rate that they deem as acceptable.

So they might have 80% accuracy in their product and say 80%, that's great, that's good enough. It passes, go ahead and use it. Someone else might be having their set to 90% or higher. So just know

that not all tools are created equal and expect there to be errors. So whenever you do use it, don't ever rely on it 100%.

Keep tabs on it during those conversations. So now that I've gotten you thinking, hopefully not afraid to use these tools, let's dive into some demonstrations. So there are many third party apps that use automatic speech recognition or ASR, and there's so many more apps that are probably being created right now, as I'm speaking, that are not on the market yet. For the sake of time and also just having a central sense of the topics that we're going to cover, I'm just going to focus on where ASR is showing up in tools that should be readily accessible to you already on your phone or on your computer, laptop, tablet, device, at no cost. And to fit into these categories of captioning on phone calls during presentations, within your browser or within your operating systems, within your computers as well.

So our first tool is called Live Captions on iPhone and this one I had to make a video to play for you because Apple designed this tool to not be screen shareable or recordable for privacy reasons. So the tool will not save a transcript of the conversation and Apple decided they don't want any copy of these personal conversations in their own database. So you'll see these appear on the screen and then they're gone. So these are for in the moment captioning and I'm going to play this video for you.

So within the Settings app in your iPhone you're going to scroll to the accessibility section and then find the hearing subsection and you're going to turn on Live captions.

You can turn them on for FaceTime calls as well or see how this icon appears on your phone when you turn live captions on or off.

So that speech text bubble, if you see that floating on your screen, you know they're on. You have settings within Live captions to adjust the size of the font.

You could modify the text color and the background color as well.

You can move that icon around the screen and you'll see in the drop down you have two options. Microphone and iPhone. Audio. Now the tool is listening to speech happening around the phone through the phone's microphone. You can also pair a Bluetooth microphone to your phone and the captions can be picked up.

That way I can make the caption window full screen if I want to be able to follow a longer stream or to be able to scroll backwards to review.

Notice how much or how little punctuation is being added to the stream of captioning. Punctuation can really be helpful for the reader to be able to follow along.

Also notice how there are no speaker identification markers.

This means that if multiple people are joining in on this conversation, the people following the captioning won't have any indication of who said which sentence. That's something to keep in mind, but this is definitely a helpful tool to add in some captioning when that is something that will enhance the conversation.

I can change the audio input and change it from the phone's microphone and to the iPhone audio. This means any sound that's coming through the phone itself, such as through a YouTube video or even a phone call. I can tell the captions to go ahead and run and show me the captions on my screen for that phone audio. Instead, I'm going to switch to iPhone audio input now and show you a short video clip through YouTube so you can see what that looks like.

Hello. Did you know we have free speech, language and audiology services right here on campus? Follow me.

So that is an example of how you can use this for fill in captions when content on your phone or that you're watching or listening to on your phone may not be accessible.

Now I want to show you how you can set up accessibility shortcuts. So, on your iPhone, you have a way to set a triple click of your side button to pull up a list of accessibility features that you choose in settings. Under accessibility, you scroll until you see accessibility shortcut.

And here you can see a giant list of a variety of accessible features that come with the iPhone today. So whichever ones you click will be added to that easy reach. Triple click on your slide button. I find that to be the easiest way to activate the live captions when I want them so that that icon doesn't cover up my home screen.

So now we're going to take a look at Live Transcribe, which is a similar feature that's available on Android phones. And this I have a video for as well. So this is a demo of Live Transcribe. This is available on most Android phones and Android tablets, either as a native app, meaning it's built right into the phone or device when you receive it, or as I have here, I had downloaded this as a separate app through Google Play onto my Android tablet. So let's take a look at this.

This is what it looks like again, similar to the iPhone live captions. But hopefully you'll notice that this does have more punctuation. It's a little more readable, similar to the iPhone setting options in Live Transcribe, you can change the size of the font you can for this one. How it's different is you can actually save the transcription history. It'll default to deleting after a day, or you can tell it to save for three days.

Either way, this Live Transcribe does allow you to make a copy of your transcript, and you can export that to a Word Doc or somewhere else if you want to keep a record of the conversation. This also includes sound notifications where the app will alert you to different audible sounds in your environment through like a vibration or notification on your device. Right now I have that turned off because I'm just demoing mainly the speech recognition portion of this app today. Something that's important to know as well is that this one does a great job at capturing sounds in the environment, not just for notifications, but also right here in the conversation. So for example, if there's a knock at my door, you'll see here a notification bubble pop up, says, oh, there's knocking happening in the environment.

Or if I laugh. That's hilarious. What a great joke.

It has to be more genuine of a laugh I suppose, but it'll work. So those are neat features too is when you're having a conversation. Those noises and sounds are very common in conversations. So also give you a heads up as to how loud the speech or sound in the environment is by this bubble moving up in the top corner. Okay, so that was Live Transcribe on the Android phone.

And next I also want to point out a HIPAA related disclaimer tied to this app that I happened to notice that Google shared with Open Transparency. So following the related link in your handout for Live Transcribe, you'll arrive at this info page I'm opening for you now. Okay, so once you get to this support page, I want you to notice what Google listed on the very bottom. It's explaining how to use Live Transcribe. But then look at this use limitations.

Google does not intend uses of Live Transcribe to create obligations under the Health Insurance Portability and Accountability act as amended hipaa. Google makes no representation that Live Transcribe satisfies HIPAA requirements. So this company chose to be transparent and tell us right up front that they don't claim to be HIPAA compliant. So take note of this and when other products that you're using or apps companies, if they don't mention whether they're HIPAA compliant or not, they

probably still are. Not many are not, most are not.

So I just thought it was really great that they put that out there so that we're aware. It's another reminder that it's important. I think that's an area that needs more research and delving into as the technology has rapidly advanced and become available. It's an area that I think people are still figuring out.

So continuing on with Android phones, you'll notice again the phrase or the name Live caption so although the same name is used for many different companies tools Live caption these are actually made maintained by different companies and they're going to have different features and different feels. So you do have links available in your handout Again to read more about Android version of Live caption but ultimately it's quite similar to what you saw on the iPhone demo.

You can also set up similarly accessibility shortcuts on your phone so that you can jump to live captions easily rather than digging into your accessibility settings every time you want to turn them on. And one specific tool or feature available in Android 14 and more recent is something called Expressive Captions. This is a new captioning setting. It's unique to Android and I think it's really a promising effort to to enhance the effectiveness of captions. You can see how some captions today still don't really include enough punctuation to make them palatable to read, especially for long amounts of time.

So when you turn on this expressive caption setting, notice in my example, my sub bullet there, it's in quotes. Let's give it up for the technology that's available today. Applause these resources are amazing. So live captions really amplifies the context for the meaning. If somebody is shouting or hooting and hollering or clapping in the background, the captions with this feature turned on will be including those applause or those sound effects and capitalizing words that are emphasized and adding in that intonation, which I think is incredible.

So I look forward to other companies following suit. I would predict that they probably will, but I think that's an awesome setting. So if you have an Android phone, check it out. Moving on to a hidden feature you may not know about, let's uncover what accessibility gem Google Chrome has for us in its browser setting. Okay, so within the Google Chrome browser, you're going to go to your more dropdown and go into settings.

Over on the left you're going to scroll down and click on Accessibility and the very first option is called Live Caption. You'll also see other accessibility options in here. Caption preferences, language choices, translation. So it's great to see all of the things again. Today we're focusing mostly on the auto captioning.

So when you toggle this on, you'll have the option to add languages filter profanity. So it defaults to English for me, so I'll leave that alone. One note about profanity and filtering profanity. I was privy to a really great conversation with a group of deaf individuals and hearing individuals alike where they were talking about turning on profanity filters in these speech recognition tools. Now, when I'm in the classroom teaching my students, I run auto captions, often up on my slides.

And as a teacher, I know that I don't intend to curse while I'm instructing. So when ASR was rather new. A lot of the data that was fed into ASR that people were playing with happened to be profanity. So if there was a word that I said that was less than clear, a lot of times the speech recognition data would process and say, my best guess is this. And I didn't want those curse words appearing in my transcript because then I would lose the attention of the class.

They'd be giggling and think it was funny. And I'd have to clarify I didn't say that. So for me as an educator, in that moment, I wanted those off. I wanted to hide the profanity because I knew I did not intend to say any. But in a conversation with a deaf individual, I learned, I learned a lesson.

I learned something in a day to day conversation. You know, his input was don't filter conversations that are happening around me on my behalf. Like if somebody is cursing, I have a right to overhear that and to know that that's happening. So I was like, ooh, that's a really good point. So in my classroom, classroom use case where I knew that wouldn't be a part of the vernacular, I definitely wanted to filter it.

But be careful because I think I would have probably, um, had I not been a part of this conversation, I probably would have default to saying like, yes, always hide profanity. Um, but we don't, we don't have that right to decide for other people what words that they are or are not allowed to hear, if you will. So let me show you now what this looks like when I have live caption on and I'm going back to my department's website. Appointments and services are available to you all, RIT and ntid, deaf and hard of hearing students for free. Appointments are available on campus or online.

So if you're away on co op, no problem.

All of our instructors here are able to match your preferred communication in asl. Okay, so this caption box, I can move, I can make it larger and that's going to pop up right away. If you have that turned on, you leave it on anytime you go back to the Internet or YouTube if there's an ad that has audio in it, sometimes it scares me. The window pops up and the captions are running without me having to click them on again. So that's a really great tool.

It's built into your Google Chrome browser settings. All right. And I have a screenshot here to highlight those areas that I clicked in case you forgot. But again, the directions are hyperlinked in your handout resources it's also cool to know that you can adjust the settings and actually allow an external microphone, such as a Bluetooth mic that you sync with your PC or your Mac that would actually allow you to use this Google Chrome live captions for in person conversations happening with you in the room. If you tell Chrome to listen to that external mic, it's going to capture conversations in real time in the room, which is great.

So within your Windows 11 operating system they have live captions as an option. And the quickest way for me to get to this is to actually click on the battery icon in the bottom right corner of your desktop screen and that will open up a window. You'll be able to click on a box that says Accessibility and then toggle live captions on and you'll see what looks like this gray box in the screenshot on the desktop here. That's where your captions will appear and you have options again to change the color, font style, font size. And you can also similarly, similarly to Google Chrome, you could also tell it to go ahead and include microphone audio if you desire.

So this will capture either or both conversations happening live around you in the room, or any of that media audio coming from media that you're streaming or watching or listening to on the computer itself. That's built in. Really easy to find once you know where to look. So go ahead and explore that one.

Mac users, you don't have to worry about being left out. Mac operating systems also have live captions. Again, if you know where to look, you can find those. They are free, they are built in, and they're ready to go. Notes about the Mac OS it actually processes the live captions on the device itself.

It does not send anything to the cloud. Currently this is available for English in US or Canadian and as a system language only. So if you have your you have your Mac software set to a different language or an accented language and you're not seeing this option pop up. But that's why currently it's limited to English in the US and Canada. So this can also listen for audio happening through an external mic to conversations happening in the room.

Or it can be sending you all of that audio information as captions for media that you're streaming or watching or listening to on your device.

Similarly, if you go into the Apple menu in the System Settings and Accessibility options, you can also add accessibility shortcuts for your Mac desktop as well, so that you can find those live captions without having to click on multiple spots.

Okay. ASR is also available in are Google Slides and Microsoft 365 and PowerPoint. That's the cloud based version of PowerPoint. Something I want to mention is that, you know, when you have a presentation to share with a class or an audience, these captioning options are built in. They're not all the same.

So anytime you're using captions, consider readability. I know I've mentioned that a few times, but it's really important if you're going to be fatigued, if you're going to be expecting somebody to be reading these captions for an extended amount of time. Punctuation helps. The size is important. The size of the font, the color can be varied per user.

A lot of deaf individuals may also have visual things compromised and that could include color. So the number of lines that captions show at a time also makes a difference. You want to see a block of text or do you want to see one line, one sentence at a time? And that might differ per reader per user. So it's great to ask and have those conversations.

For captioning preferences, think about the pace of the captions. Sometimes if I'm presenting or speaking or signing and my deaf students are watching me and then they look over at my slides after I'm done lecturing and saying all my words, finding all my words, the captions might be gone if the pacing of the captions is too fast. So we want them to linger and stay up there so that we have they have opportunities to look everywhere in the room that they need to and still have the captions there when they're ready to shift their visual attention to the captions. Also, the lag time is important. If there's a long time in between when I say something captions are processed, then they appear.

Conversation has moved on and our deaf students are falling behind. They can't keep up with a conversation if that lag time is too great. So keep those things in mind while I show you a quick comparison of the captions available in Google Slides versus the Microsoft 365 live presentations.

Okay, this is Google Slides and when you start your slideshow and hover over the left bottom corner, you're going to click on Captions Preferences. You can also use Control Shift C to toggle the captions on. Then when you speak, the captions will be appearing at the bottom of the screen. You can also move the captions up to the top, which is usually not the preferred location, but it's an option and you can modify the size of the text.

I don't See a lot of punctuation. And I feel like in general these captions tend to disappear rather quickly, especially if you have the font size large enough to be viewed from the back of the room. Notice how quickly those words disappear.

But they're there and they're definitely useful. That's Google Slides Live captions. And now I'm flipping over to Microsoft 365's live presentations in PowerPoint. So here in Microsoft 365, when you're in live presentation mode, you're going to get there. I mean, under the present drop down, you have the option here, present live.

And this is the option I want you to check. Check this out. You can actually have your audience members follow along with your slides and transcript on their own mobile device or a laptop. What this does is it creates a join code. I won't have you join it right now, but they would scan that or enter in the website.

And then when I turn on subtitles as the presenter, these subtitles will now appear. If I'm projecting the screen, my students can see this. If they joined on their own device, they're also seeing those slides right on their own phone or laptop. A little bit more punctuation. I like how these captions linger a little

bit longer and make that a little easier to read.

But this has been really helpful. When I one semester had a classroom with some students who had low vision, so they were able to bring my presentation slides right in front of them on their own device. So this is a fantastic solution that helps with that. Also, I've had students go ahead and translate my slides and the captioning as I'm presenting in class into a language. If ASL or English were not their first languages, then they're here as an international student.

For example, their first semester of college and they wanted to read in their L1, their first language from home, they were able to experiment with this and actually have a personally translated version that only they could see on their device. So this is a fantastic tool. If you are a Microsoft school or you're in an organization where you have enterprise higher level paid Microsoft 365 accounts, this is an option that you have access to. There are also video calls and phone calls that might need higher level accessibility. So do know that there are still landline caption phones that are available for free to deaf and hard of hearing communicators.

If they're a qualifying user, there's no cost to them. So there are companies that will provide them a landline phone that uses either ASR or human captioning or a mixture of the two. Many of those landline companies also do have an app version now, not just the landline phones. So outside of those physical phone and phone company devices that are out there also there are options within Google Meet, Microsoft Teams and Zoom, which you've probably seen these already. We have a lot of video phone video calls and video podcasts and things that are happening now.

So they all do look a little bit different. And something that we need to remember though that again, anytime a call includes high stakes content, we still need to know that we need to be employing a qualified interpreter or human captionist, that whatever modality and language matches an individual's preferred and most reliable communication modality. So even though these auto captions are available,

that doesn't mean it's always the number one choice or the number one legal choice to give that equal accessibility. So they are there and they're definitely helpful, but they still do not replace humans on our video calls. Okay, so these I won't demo, but I do have screenshots here for you to see what these auto captions look like within Google Meet and kind of where to click.

Here's a look at what they look like within Microsoft Teams. When you're in a call, if you have access to the setting and it's turned on by the administrator, you should be able to see in your dropdown settings, language and speech option where you click on show live captions and then you'd have options to modify and customize the caption size and styles and colors. If you don't see this within your Microsoft Teams video calls, contact your administrator and ask if this feature is enabled for the users within your organization, it might just be on their end that they have to activate it.

And many of us are familiar with Zoom. Sometimes if you don't see the option to turn closed captions on in your Zoom setting, it could be that the individual account that's hosting your call might not have it activated. And again this, this one should be easy to do. But if you are hosting a call and you've never activated this caption setting to allow it, that might be the only step you need to take is to go on, turn it on one time and it'll stay active for your account.

So to boost accuracy for automatic speech recognition, we can do a handful of things. So no matter what tool you're using or you find out there, the better quality microphone and the closer the microphone is to the speaker, it's going to enhance the accuracy of your speech recognition. A well monitored speaking pace will also help. Getting rid of or reducing background noise that might interfere with what that microphone is able to capture is going to be a huge help for the tools that are processing the speech and then sending that data back down as captions. You really need a reliable Internet connection so that processing can happen and report back quickly.

Again, I mentioned the profanity filters. Many tools have those. But don't just assume we should always filter things, have those conversations with the stake users. So to look for within any ASR tool, which I mentioned a bit with some of the different things we looked at, look for how much punctuation is being included. Is the pace readable?

Does it offer the ability to scroll back through and save a transcript? Yes or no? Do you want it to for privacy or not? Do you want it to for having notes? There's pros and cons both ways.

And some tools do have speaker identification markers where if different speakers are involved in the same conversation, they have the indicators say, oh, this, this was said by this person. It's way easier to follow a group conversation if everybody's tagged with who said what. And then there's something to be said today for all of the AI and ways that people are getting really creative with how to use these tools in really helpful ways. So one idea I had or one thought I had is sometimes it might take either a report or an article and we might have a need to modify the language, whether that be to translate it into a different language, that somebody's L1 or stronger language, or to convert the reading level and say, hey, summarize this and make it easy for, I don't know, a sixth grader to understand, that's a great way to do some reading comprehension checks or just to summarize documents for individuals anytime we're using anything in this way. So if you're going to take a report, for example, and it has protected health information, patient identification information in there, I really advise you to remove all of those patient identification details before you go ahead and copy paste and submit that content into these large language models.

Reason being you don't know where they're going. So anything we're feeding into these large language models with AI today, we're giving it more data. And when we're actually feeding it real patient information, we don't know where that's going. This is too new and it's not a safe thing to do. So remove those identifiers before you copy paste.

If something has information you want to Protect. And then one tool in particular, if you don't know about it, is Microsoft Immersive Reader. And this could be used in clinic sessions or when you want to modify the language in a report or whatnot. And this is freely available within the Microsoft Edge browser. So let me share my screen and show you what this looks like really quickly.

So when you're at a website that has text and you're in Microsoft Edge as your web browser, if you don't see anything up here that looks like an Immersive Reader symbol, try this out, grab some text, highlight it, right click, and then notice open selection in Immersive Reader. Go ahead and click on Immersive Reader. And now you have all these options. You have read Aloud, text preferences, Reading Preferences. If you want to simplify somebody's reading experience and say, okay, just pay attention to one line at a time or two lines or three lines.

If you want to translate it into an accessible language, you can give that a try.

And the text preferences, again, you can change the spacing to make it more readable. You can change the font, the column width, and the themes, the color themes. So I find these to be really helpful as well. Immersive Reader is a great tool, so you can right click on any content that you find within the Edge browser. Sometimes a page, though, will automatically have the Immersive Reader available.

So if you're up here in this browser search bar, you click on more when you see that if there's a dropdown, it says Immersive Reader, you can click on that or push F9 and that will just grab the whole website. So just this is web design. So if something is designed to look like an article, then Immersive Reader can grab the text. If it doesn't have that emblem there for you to click on, you can copy, highlight, copy, paste anything on any website and get to this free Immersive Reader tool. Okay, so hopefully I've given you many things to explore.

What are your next steps? What are our next steps? Explore, explore, explore. And then explore some more. Technology is not going to stop.

There are going to be new resources available today, tomorrow, next week, next year. So try to keep, keep on the lookout. Have conversations with your colleagues and with your patients, your students, your clientele. Ask them what they know about and just share this information also. Again, if you're working with students in particular or with your clients in the clinics, equip them.

If you see that there's an app out there or a resource you think is going to be beneficial to augmenting their communication experiences. Hopefully you have time to explain, explore those with those individuals and help them to know what all of their options are and determine which scenarios they want to use which resource and then practice how to introduce and get permission for using these accessibility tools with an unfamiliar or new conversation partner so that it's a seamless, no big deal part of the process like hey, I use this and it's going to augment our communication and help us with to go smoothly for the both of us. Have those conversations so it becomes routine and not a burden on either party and then enhance There are tools out there, so many and I don't know that any of them are perfect. But as you're using them or your clientele is using these, if there are ideas or frustrations or bugs or ideas for how things could be better, get in touch with developers. Had really great responses from developers who are in the accessibility industry, if you will.

Many of them do care and they want that feedback and they want to make their products better and more usable and effective. So reach out, send an email and see what happens.

Looking forward to the future. I do want to recognize today I really heavily focused on ASR and captioning. This is because that's where tech has evolved and thrived in recent years. And these are the resources that are currently pretty ready. But more diverse communication access options are definitely on their way.

And when these other tools are ready, deaf and hard of hearing communicators are going to have even more options to make these great connections. I have a link for you about some research hubs that are here within our college ntid. They're doing some great work. It's not only happening here though. So one thing that I do want to mention is representation matters.

So I'm hearing. I'm a speech pathologist. I happen to be a tech nerd who loves this stuff and tries to stay aware of what's out there. But I'm not deaf or hard of hearing, so I don't have that same experience as I use these apps as my deaf and hard of hearing students do. So many of them are now at the head in the helm of research projects developing some really cool technology for their community.

So when you find a new tool, that's usually my first step is I go to see who's making it and who's on the team, whose voices, if you will, are going into this development. It really does make a difference. Some things that are coming down the pike are augmented reality glasses that you can see what's going on around you, but you can stream in a remote interpreter if the person wants to communicate face to face with somebody, but have an interpreter in the screen at the same time to make the conversation accessible. Same thing goes for having the automatic captions pull up within their field of vision as they're wearing these goggles. There's also sign language recognition software products being worked on.

Very cool. And also haptics, which is when you're wearing something such as a bracelet that is listening to the speech signals around you and providing vibrotactile feedback, buzzing if you will, vibrations in response to either environmental sounds or speech that's happening around you. So some really cool stuff and I'm excited to see what'll be out there in the years to come.

So while I will never promise to have all of the answers, I do promise to always welcome opportunities to learn and explore accessibility solutions, something I really care about and I'm excited about. So you

are definitely welcome to connect with me through my email address listed here. So if you have questions for me, go ahead and send them to the Q and A and I'll gladly answer some of those questions as they come through.

I do see one question in there already asked, so I'll start with that one, but I welcome more. So, okay, so what about privacy for other people in the room? Does a person using transcription that can be saved need to disclose that to their communication partners? What about privacy of individuals speaking up in the room or in the classroom? Yes.

Okay, so that's a great question. And transparency is always a good rule of thumb, right? So when, if you're using captioning or automatic speech type captioning, if other people's voices are being overheard by the captioning, but they're not an active part of that conversation, best practice would be to try to relocate the conversation just so that that is not becoming a distraction into, you know, extra, extraneous captions showing up when we don't know who said it or what the context is. If it's not supposed to be in that conversation, you can have those, you know, and try to take care of the environmental parameters as much as you can. If you're having a conversation that should be private, if you're phone or device microphone is overhearing other people, it's probably not a private setting.

Right? So any type of communication environment, we should just be thinking about who's there. Is the content relevant to everybody? Are they all part of the conversation? So those are factors to keep in mind if it's in the middle of a classroom and you have people you know chiming in.

And if there are opportunities to disclose, that's always a best practice thing to keep in mind.

So I do Any other questions, send them my way. I do want to mention, too, that I was going back and forth when I was demoing some of the captioning, and I was like, ooh. There was one time when I was showing the video of my department, for example, and saying how we provide free services for our deaf

and hard of hearing college students. Free appointments. And the captioning chimed in when the audio started halfway through the word appointment.

So the captioning, if maybe you noticed the error, suggested that my department offers free ointments, not appointments. I'm like, not at all the case. But that is an example, too, of I'm like, ooh, I was on the fence. I wanted the captioning to be perfect and I wanted it to be too great and I wanted everything to run so smoothly for you as I'm demoing. But case in point, we have to always be keeping an eye on those captions and just know that we can't trust them fully.

It's a fantastic resource to use, but we have to keep monitoring that so that we don't spread false information.

Okay, I'm not seeing any other questions coming through, so thank you so much for your time. And please remember to complete the exam after this event is over. It will be available in about 10 to 15 minutes after the conclusion of this event so you can log into your account, go into your pending courses, choose to take the exam, and then complete that exam within seven days to get that live credit completion. All right, thank you so much. I hope you learned a lot today, and I appreciate your time and attention to what I feel is a really important topic.

Take care.