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Using PowerPoint to Simulate a Speech Generating Device

Presented by:

Presented by Richard R. Hurtig, Ph.D., F-ASHA

Landing page

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Using PowerPoint to Simulate A Speech Generating Device



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AAC-LAB

Richard Hurtig, Ph.D., F-ASHA

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Disclosures

Financial:

The speaker is the founder of RH-AAClab, LLC.

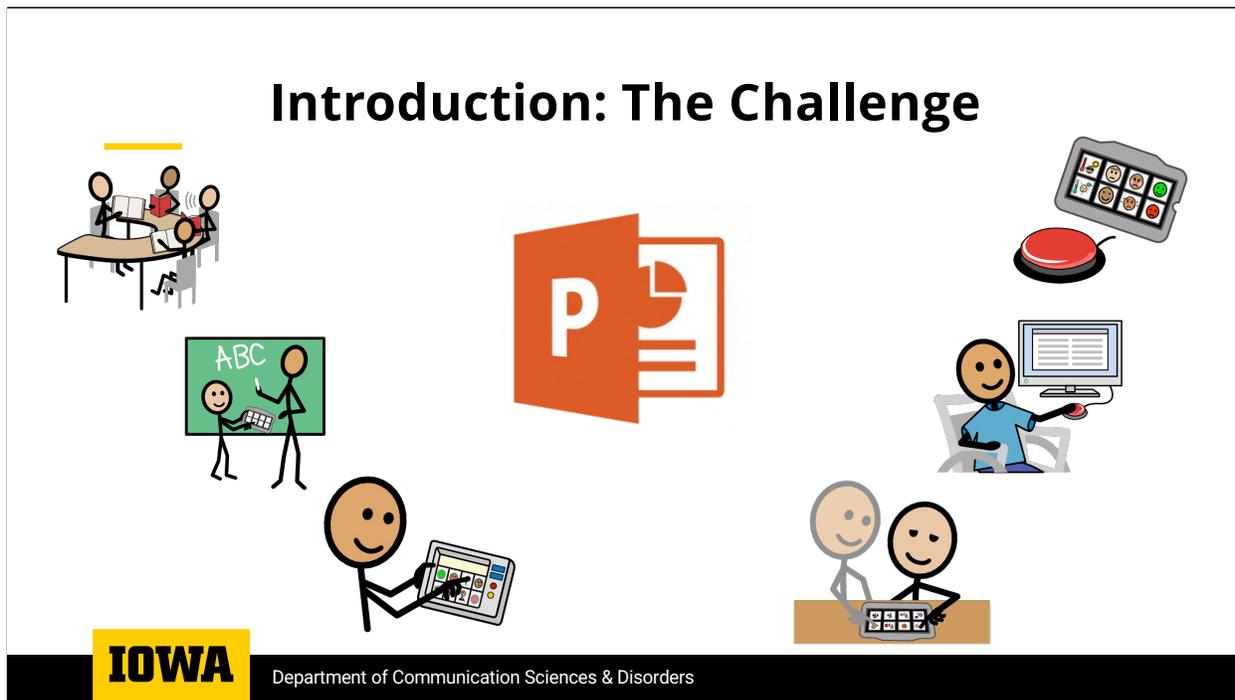
Non-financial:

The speaker is a Professor Emeritus of the Department of Communication Sciences and Disorders at the University of Iowa.

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Introduction: The Challenge



A challenge in both clinical training and clinical practice is the availability of speech generating devices. Most clinical programs do not have a sufficient inventory of SGDs to permit every student in an AAC class to have sufficient time to learn how the devices work and to get experience setting up a device and using it outside of the classroom.

Likewise, most clinics do not have a wide inventory available to easily conduct AAC evaluations with the clients who might be candidates.

Because PowerPoint is a software tool that professionals and students are very familiar with and because it can be used on a range of platforms, it is readily available and has the potential of serving both as a teaching tool and as a clinical tool. The aim of this presentation is to illustrate how PowerPoint can be used to simulate basic SGD functions and support clinical training and clinical practice.

Functionality of Speech Generating Devices

1. Displays text & symbols.
2. Supports Navigation Across Multiple Pages
3. Produces speech/audio output.
 - a. Digitized Real Speech
 - b. Text-to-Speech
4. Supports novel utterance production using an onscreen keyboard with prediction or by using a semantic compaction system
5. Supports alternative access methods.
 - a. Direct Access
 - b. Switch Scanning
 - c. Head or Eye Tracking
6. Supports environmental control
 - a. Built in IR
 - b. Use Siri or Alexa

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The SGDs that are on the market have a set of common functions.

- 1) SGDs can display icons, symbols and text
- 2) SGDs allow users to navigate across multiple content pages.
- 3) SGDs support production of audio output of either digitized real speech or synthesized text-to-speech
- 4) SGDs allow the user to produce novel utterances using an on-screen keyboard with some form of word prediction or with a semantic compaction system like Minspeak.
- 5) Most SGDs have a range of alternative access methods ranging from direct selection and switch scanning to head or eye tracking
- 6) Finally, SGDs have some form of environmental control; Either using a built in IR controller or by utilizing home automation apps like Siri and Alexa

Functionality of PowerPoint

1. Can display text & symbols.
2. Supports Navigation Across Multiple Pages/Slides
3. Can produce audio and video output.
 - a. Play recorded sound files
 - b. Play video files
4. Supports novel utterance production
 - a. With letter-by-letter spelling with on screen keyboard
 - b. With link to run 3rd party TTS programs
5. Use Siri or Alexa

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A comparison of SGDs and PowerPoint reveals a considerable overlap in their functionality.

Both are designed to display text and symbols and support navigation from one page to another.

While SGDs support the use of either digitized speech or synthesized speech created with text-to-speech algorithms, PowerPoint supports playing digitized speech as either audio and video files.

Because they use text-to-speech algorithms, SGDs support novel utterance creation by providing on screen keyboards and word prediction algorithms.

PowerPoint can provide an onscreen keyboard that can be used for partner-assisted letter-by-letter spelling to allow a limited and slow form of novel message generation.

If a patient can type, a link to a 3rd party TTS application can be built into the PowerPoint SGD simulator.

Finally, PowerPoint can support environmental control.

PowerPoint-SGD Simulation: For Clinical Training

- Introduce concept of assigning a function to designated location on the screen.
 - Buttons on a grid
- Assigning audio-visual content to a button.
 - Audio File
 - Video File
- Introduce the concept of navigation across pages.
- Support students' experiential learning- by experience using AAC strategy in real life settings.

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A PowerPoint SGD simulation makes it possible to teach students about the core functions of SGDs. PowerPoint can be used on a wide range of tablets, laptops, and desktop computers using different operating systems,

With PPT you can introduce the concept of assigning a function to designated location on the screen and set up buttons on a grid.

In PowerPoint, one can assign audio-visual content to a button by linking the button to either an audio or video file.

One can also introduce the concept of navigation across multiple content pages.

And because PowerPoint can be implemented on a range of platforms it can support students' experiential learning, by allowing them to experience using an AAC strategy in real life settings.

Brief Tutorial

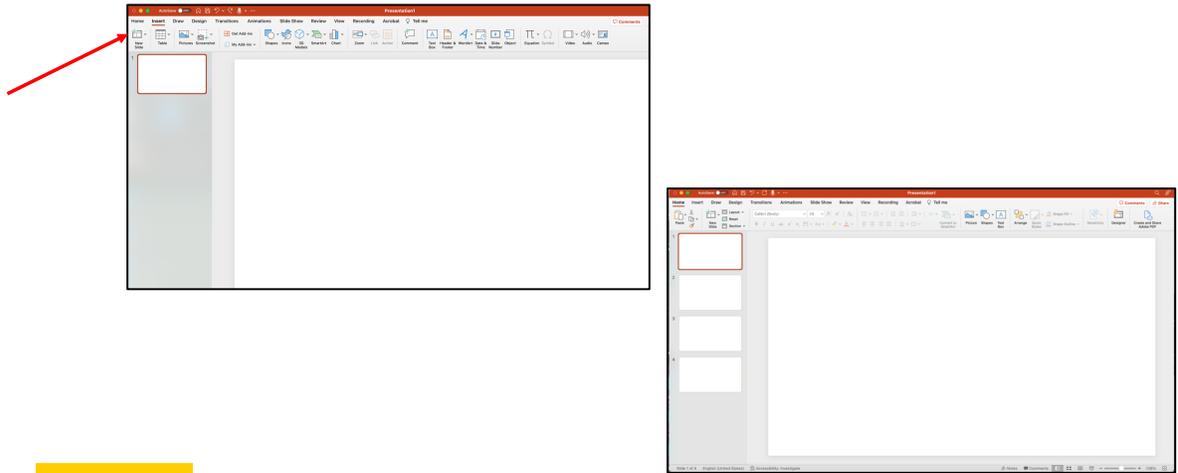


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In the next few slides, I will briefly show you how to simulate SGD functions in PowerPoint. After that I will show you a range of examples of how PowerPoint can be used as an SGD.

SGD Page = PowerPoint Slide

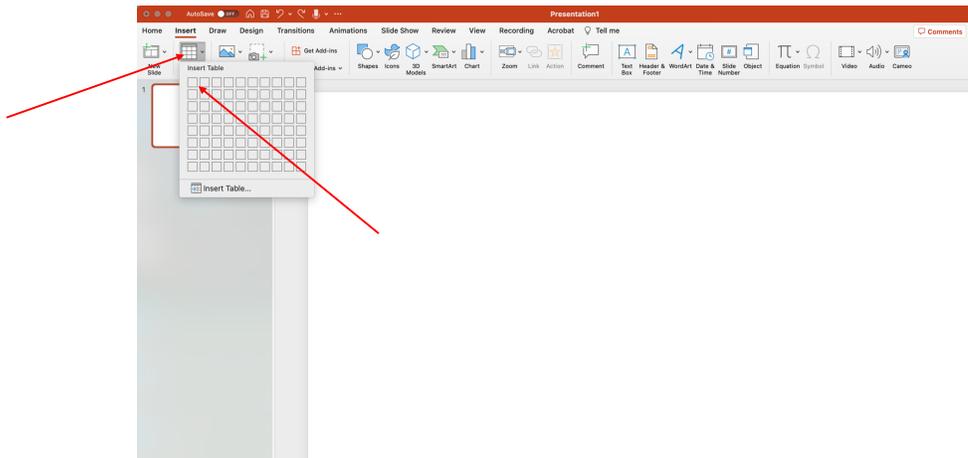


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Each Page of an SGD can be simulated as a PowerPoint slide. To start, select “New Slide” . One can start with just a single page or slide, or you create multiple pages or slides.

SGD Button Grid = PowerPoint Table

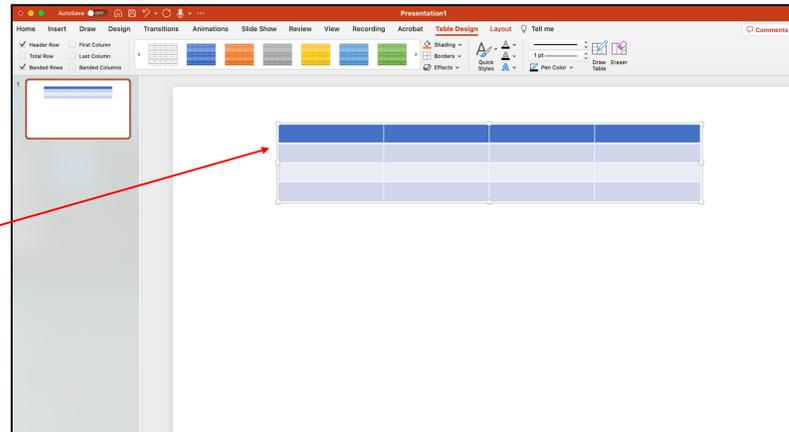


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To create an SGD Button Grid, use the "insert table" function. You can create a table with a varying number of rows and columns. Dragging across the drop-down grid allows you to select the size of the button grid you would like to create.

SGD Page = PowerPoint Slide

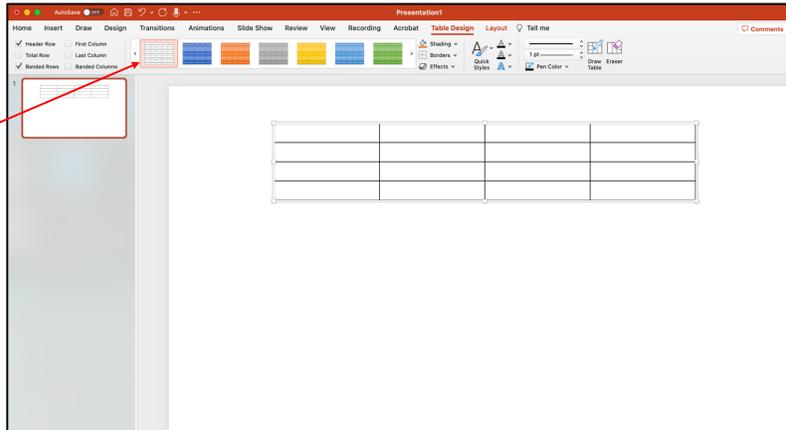


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Once you have inserted a table with a specific number rows and columns it will appear on the slide, You will then have the option to format the table.

SGD Page = PowerPoint Slide

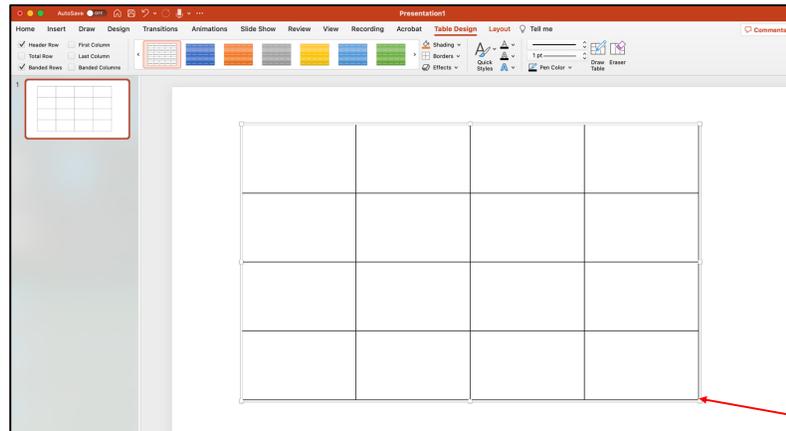


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Your next step will be to select the appropriate “Table Design”. You will want to scroll through the options and select the “No Color” option.

SGD Page = PowerPoint Slide



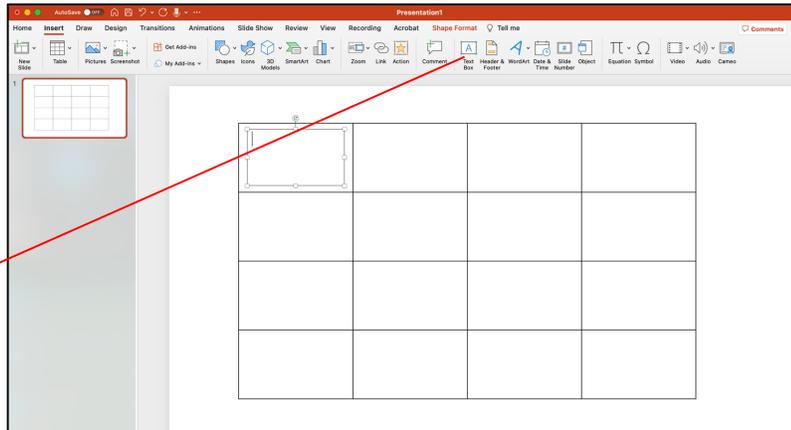
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Then you will want to size the table to fill the slide. You can do this by grabbing the corner of the table and pulling down until you have achieved the grid size you would like.

SGD Page = PowerPoint Slide

Insert Text
Box in Grid

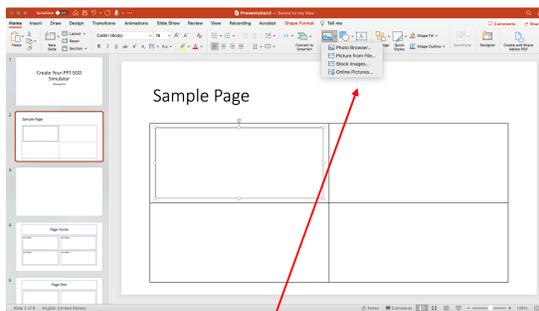


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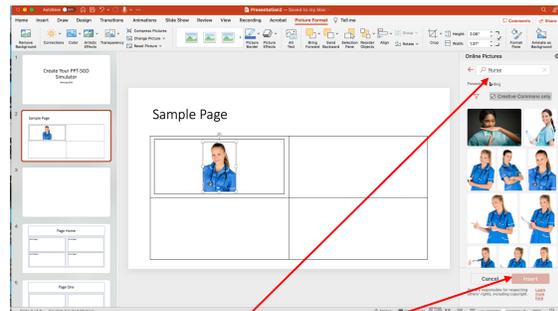
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You will then want to put a text box in each cell of the table using the "Insert Text Box" function. Then you will want to size the text box to fill table cell.

SGD Button Icon = PowerPoint Picture Content



Select Insert Picture



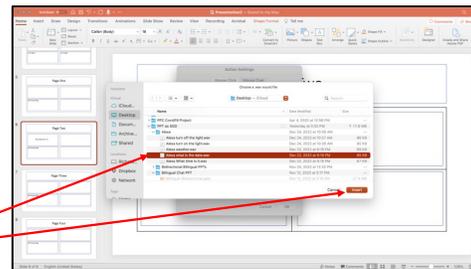
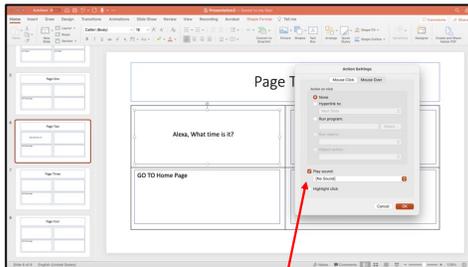
Search and Select & Insert Picture

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To put a symbol, picture or icon in a text box, click on the text box and then select “Picture” you will have the option to load a picture stored on your device or to search the internet for a symbol. Once you have found what you want select “Insert” and then position and size the object in the appropriate text box on the slide. If you have access to a symbol set, you can do a simple copy and paste and position the selected symbol in the appropriate cell in the table.

SGD Button Speak Action = PowerPoint Text Box Play Sound Action



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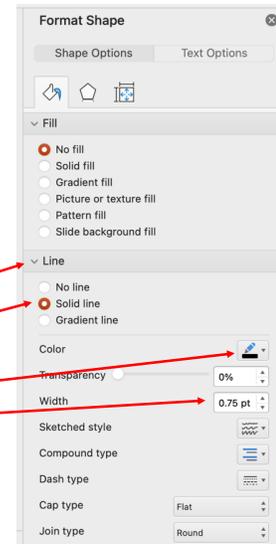
PowerPoint allows you to associate specific actions to text boxes on the screen. One such action is to play a sound or sound file.

To do this;

1. Select a Box
2. Click on the Box
3. Select Action Settings
4. Select Play Sound
5. Select Other Sound
6. Then browse to Find Sound File on your computer and select "Insert"

Then when you run the slide show selecting the particular text box will play the associated sound file.

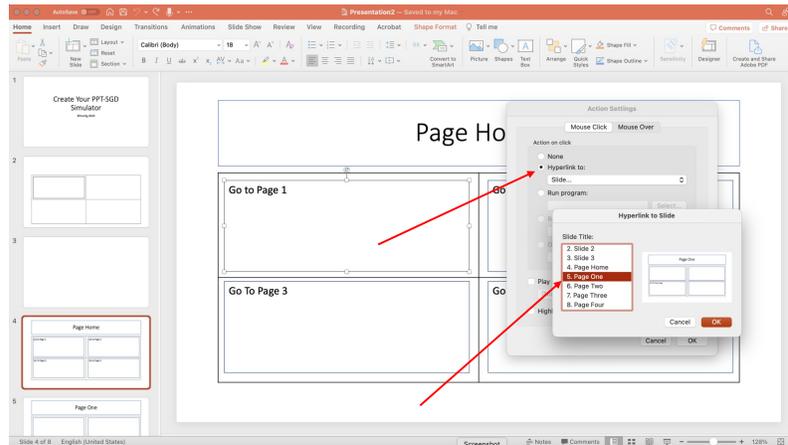
SGD/PowerPoint Button: Text, Symbol and Sound



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In this example we have inserted text and symbols in each cell of the table. You can position the text and symbol as you would like in each cell. In this case we have copied and pasted symbols from the N2Y SymbolStix symbol set. You can also give the textbox visible border by selecting the text box, then selecting "Format Shape" then selecting "Line" and "Solid Line". You can then select the color for the border and the thickness for the border.

SGD Button Navigation Action = PowerPoint Text Box Navigation Action



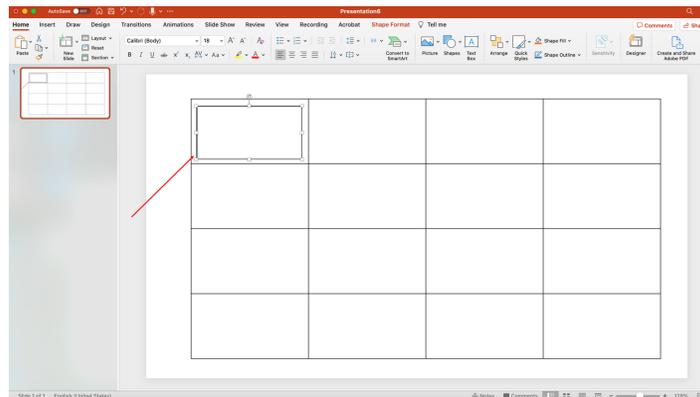
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If you are simulating a multiple page SGD, you will create a slide for each page. You can use the “Select Action” function to set up navigating from one page to another.

To do this, Select the text box that you want to assign a navigation action to. Then click on the box and then select "Action Setting" then select “Navigate to Slide” and then select the slide you want to navigate to from the pulldown menu. Then when the you run the slide show selecting the particular text box will navigate to the slide you had set.

Note on PowerPoint Text Box Action Settings: "Bring To Front"



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If you have inserted symbols and text in a particular cell of a table as well as assigned an action setting to the textbox, you need to make sure that the textbox is the active element in the table cell. To do this, Click on the text box and then select "Bring to Front". This will ensure that clicking in the textbox will execute the desired action.

Example: Single Page Communication Board

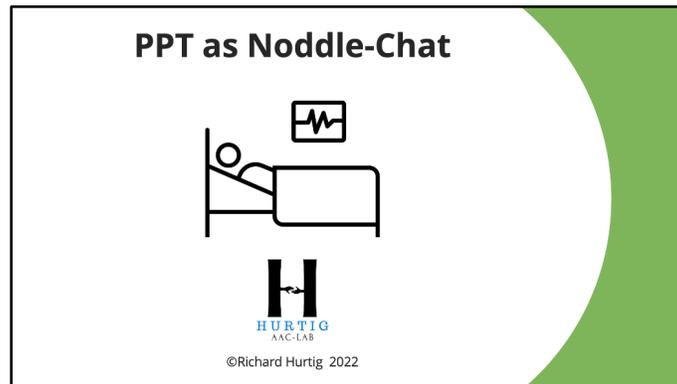
Hello. My name is Richard. I use this communication device to communicate.	I need to be repositioned. 	I am thirsty. 	I am hungry. 
I need my medicine. 	I would like to use my computer. 	Let's play Scrabble. 	Please contact my family. 
YES 	NO 	MAYBE 	LATER 

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Here is an example of a single page communication page. In this case a digitized audio file has been assigned to each of the text boxes. When the user clicks on a text box the assigned sound file will be played. Note that it is important to provide the user with the ability to respond to questions with more than just a simple yes/no response.

Example: Multiple Page Communication Tool



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In the next few slides, you can see an example of a PowerPoint simulation of a multi-page communication tool. This example contains the content of my Voxello Noddle-Chat which was originally created to run on either android or iOS devices. In this simulation I used the Speak My Text application to create synthesized voice audio files. That are then linked to text boxes.

Main Menu

How I Communicate

Feelings→	Pain→	Chat→	Medical Questions→
Help→	Room Controls & Entertainment→	Bed Controls→	TV Controls→
Nutrition→	Humor→	Personal→	Family & Friends→
YES	NO	MAYBE	LATER
Get my nurse			Spelling KEYBOARD→



This is the Main Menu Page of the simulation. At the top right is a button that plays a sound file that explains how the user uses the tool to communicate. In this example the cells with contents in blue, are links to other pages. The greyed-out cells have been disabled for this demonstration.

FEELINGS

I am OK.	I am happy	I am sad	I am scared
I feel sick.	I feel nauseous	I am anxious	I am tired
I feel hot	My leg is hot	My shoulder is hot	My head is hot
I feel cold	My leg is cold	My shoulder is cold	My head is cold
GO BACK TO MAIN MENU			



This slide depicts the messages to express feelings. The "Go back to Main Menu" text box navigates back to the main page.

Pain

I am in pain	My head hurts	My eyes hurt	My ears hurt
My throat hurts	My stomach hurts	My chest hurts	My back hurts
My arm hurts	My hand hurts	My leg hurts	My foot hurts
My mouth hurts	My nose hurts	Right side	Left side
GO BACK TO MAIN MENU		Can I have pain meds?	PAIN SCALE→



This slide depicts the messages to communicate about pain and includes a link to go to a page with a “Pain Scale”. The “Go back to Main Menu” text box navigates back to the main page.

Pain Scale

 1	2	3	4	5	6	7	8	9	 10
--	---	---	---	---	---	---	---	---	---

GO BACK TO MAIN MENU		I am in a lot of pain	My pain is better
--	--	--------------------------	-------------------



This slide depicts the pain scale and expressions about current pain. . The "Go back to Main Menu" text box navigates back to the main page.

Medical Questions

How long have I been here?	What is my diagnosis?	What is my prognosis?	How am I doing?
When can I go home?	When will I come off the ventilator?	When will the feeding tube come out?	When will the catheter come out?
When will the IV lines come out?	What is my blood pressure?	What is my temperature?	What is my blood sugar level?
What medications am I getting?	What is my pulse rate?	What is my blood oxygen level?	I don't understand that, please explain that
GO BACK TO MAIN MENU			I understand



This slide depicts the messages that allow the user to ask Medical Questions. The "Go back to Main Menu" text box navigates back to the main page.

Keyboard

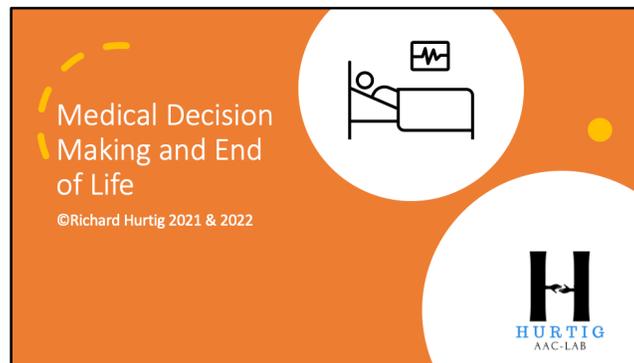
INSTRUCTIONS

Q	W	E	R	T	Y	U	I	O	P	1	2	3	4
A	S	D	F	G	H	J	K	L		5	6	7	8
Z	X	C	V	B	N	M				9	0	BACK SPACE	Delete Word
SPACE										,	.	!	?




This slide depicts the onscreen keyboard that can be used to create novel messages.. At the upper right is a button that provides a message that provides instructions on how to use partner aided communication. The button at the lower right of the slide will take you to the next demonstration.

Example: Multi-Page Medical Decision Making



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In the following slides you will see an example of a PowerPoint simulation of a multi-page communication tool. They show some of the medical decision-making content of my Voxello Noddle-Chat which runs on either android or iOS devices. In this case a digitized audio file has been assigned to each of the text boxes.

Medical Decision Making- Main Menu

Questions about Condition	General Questions	General Conversation	Emotions
Discuss Prognosis	Reaction to Prognosis	Discuss Advanced Directives	Questions about Advanced Directives
Ventilation	Dialysis	Nutrition and Hydration	Religion and Spirituality
YES	NO	Maybe	Later
			KEYBOARD



This is the Medical Decision-Making main menu page of the simulation. In this example the cells are links to other pages. The greyed-out cells have been disabled for this demonstration.

Questions About My Condition

What is my diagnosis?	What is my prognosis?	What are my options?	I am confused.
Tell me more.	What does that mean?	What happens is we do nothing?	I can't deal with this now.
Let's talk about this later.	Why can't I get better?	What happens if we do that?	I want to think about that.
Let me talk about this with my family.	Can I have an advocate present?	Will I be able to change my mind?	Let's change the subject.
GO BACK TO MAIN MENU			



This slide depicts the messages to ask questions about one's condition. The "Go back to Main Menu" text box navigates back to the main page.

Reaction to Prognosis

I would like to talk to my family?	What are my treatment options?	This is a difficult decision.	Please leave me alone	Don't leave me alone.
Please tell me more.	Is it normal to feel this way?	I have accepted my current status.	I not have accepted my current status.	I want to discuss spiritual matters.
I am ready to talk about this.	I am not ready to talk about this.	I have a positive outlook.	I am experiencing negative emotions.	I will not give up.
YES	NO	Maybe	Later	
GO BACK TO MAIN MENU				



This slide depicts the messages that express reactions to a prognosis. The "Go back to Main Menu" text box navigates back to the main page.

Questions about Advanced Directives

What will you do if my heart stops?	What will you do if I stop breathing?	What is CPR?	What can happen if you do CPR?
I want you to do everything possible to revive me.	I do not want you to do anything to revive me.	I do not want to be mechanically ventilated.	I understand that without the ventilator I would die.
I would like any device or procedure that will keep my heart going.	I do not want any invasive procedures done.	I do not want you to do chest compressions.	I do not want you to use a defibrillator on me.
If I change my mind, how will I be able to let you know?	I do not want to talk about this.	When do I have to decide what should be done?	I do not understand.
GO BACK TO MAIN MENU			



This slide depicts the messages to ask questions about advanced directives. The "Go back to Main Menu" text box navigates back to the main page.

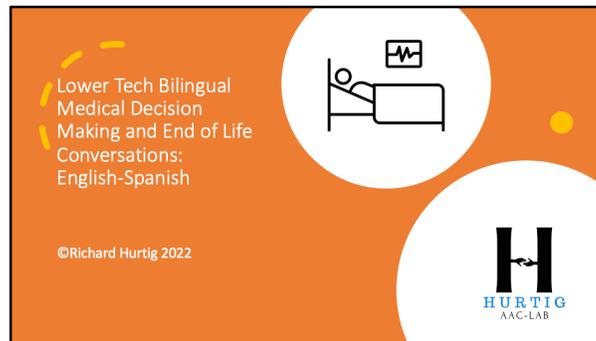
Ventilation

Why am I on a ventilator?	When will I come off the ventilator?	Can I come off the ventilator?	I want to come off the ventilator.
What happens if I am taken off the ventilator	I understand what can happen if I am taken off the ventilator.	I understand that if I wish to live that I must stay on the ventilator.	I understand that without the ventilator I would die.
I want to be taken off the ventilator.	Don't take me off the ventilator.	Can I have a ventilator at home?	Can I have a ventilator in a nursing home?
I understand.	I do not want to talk about this now.	When do I have to decide what should be done?	I don't understand.
GO BACK TO MAIN MENU			



This slide depicts the messages to ask questions and express wishes with regard to mechanical ventilation. The button at the lower right of the slide will take you to the next demonstration.

Example: Lower Tech Bilingual Medical Decision Making



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The next few slides show a PowerPoint simulation of a lower tech multi-page bilingual communication tool. In this simulation there is no audio associated with each text box, but each message is displayed in both English and Spanish. A note of caution- do not rely on translation apps like Google Translate. Always use certified translator/interpreters.

Questions About My Condition Preguntas sobre mi enfermedad

What is my diagnosis? ¿Cuál es mi diagnóstico?	What is my prognosis? ¿Cuál es mi pronóstico?	What are my options? ¿Cuáles son mis opciones?	I am confused. Estoy confundido/a.
Tell me more. Quisiera más información	What does that mean? ¿Qué significa eso?	What happens if we do nothing? ¿Qué pasa si no hacemos nada?	I can't deal with this now. No puedo lidiar con esto ahora.
Let's talk about this later. Hablemos de esto más tarde.	Why can't I get better? ¿Por qué no puedo mejorar?	What happens if we do that? ¿Qué pasa si hacemos eso?	I want to think about that. Quiero pensar en eso.
Let me talk about this with my family. Déjame hablar de esto con mi familia.	Can I have an advocate present? ¿Puedo tener un defensor presente?	Will I be able to change my mind? ¿Podré capaz de cambiar de opinión?	Let's change the subject. Cambiemos de tema.
Go back to main menu Volver al menú principal			



This slide illustrates the bilingual labels for the messages for Questions about one's condition. In this demonstration we have disabled the navigation back to the main page. The button at the lower right of the slide will take you to the next slide of this demonstration.

Reaction to Prognosis

Reacción al Pronóstico

I would like to talk to my family. Me gustaría hablar con mi familia.	What are my treatment options? Cuáles son mis opciones de tratamiento?	This is a difficult decision. Esta es una decisión difícil.	Please leave me alone. Por favor, déjame en paz.	Don't leave me alone. No me dejes solo/a.
Please tell me more. Por favor, deme más información.	Is it normal to feel this way? Es normal sentirse así?	I have accepted my current status. He aceptado mi estado actual.	I have not accepted my current status. No he aceptado mi estado actual.	I want to discuss spiritual matters. Quiero discutir asuntos espirituales.
I am ready to talk about this. Estoy listo/a para hablar de esto.	I am not ready to talk about this. No estoy listo/a para hablar de esto.	I have a positive outlook. Tengo una perspectiva positiva.	I am experiencing negative emotions. Estoy experimentando emociones negativas.	I will not give up. No me voy a dar por vencido/a.
Go back to main menu Volver al menú principal				



This slide illustrates the bilingual labels for the messages for reactions to one's prognosis. In this demonstration we have disabled the navigation back to the main page. The button at the lower right of the slide will take you to the next slide of this demonstration.

Questions about Advanced Directives Preguntas sobre Voiluntades Anticipadas

<p>What will you do if my heart stops? ¿Qué harás si mi corazón se detiene?</p>	<p>What will you do if I stop breathing? ¿Qué harás si deajo de respirar?</p>	<p>What is CPR? ¿Qué es la RCP?</p>	<p>What can happen if you do CPR? ¿Qué puede pasar si hacen RCP?</p>
<p>I want you to do everything possible to revive me. Quiero que hagan todo lo posible para reanimarme.</p>	<p>I do not want you to do anything to revive me. No quiero que hagas nada para reanimarme.</p>	<p>I do not want to be mechanically ventilated. No quiero recibir ventilación mecánica.</p>	<p>I understand that without the ventilator I would die. Entiendo que sin el respirador me moriría.</p>
<p>I would like any device or procedure that will keep my heart going. Me gustaría que se utilice todo dispositivo o procedimiento que mantenga mi corazón latiendo.</p>	<p>I do not want any invasive procedures done. No quiero que me hagan ningún procedimiento invasivo.</p>	<p>I do not want you to do chest compressions. No quiero que hagan compresiones torácicas.</p>	<p>I do not want you to use a defibrillator on me. No quiero que usen un desfibrilador conmigo.</p>
<p>If I change my mind, how will I be able to let you know? Si cambio de opinión, ¿cómo puedo avisarle?</p>	<p>I do not want to talk about this. No quiero hablar de esto.</p>	<p>When do I have to decide what should be done? ¿Cuándo tengo que decidir qué hacer?</p>	<p>I do not understand. No entiendo.</p>
<p>Go back to main menu Volver al menú principal</p>		<p>Will I be able to change my mind? ¿Podré cambiar de opinión?</p>	▶

This slide illustrates the bilingual labels for the messages for questions about one's advanced directives. In this demonstration we have disabled the navigation back to the main page. The button at the lower right of the slide will take you to the next slide of this demonstration.

Ventilation

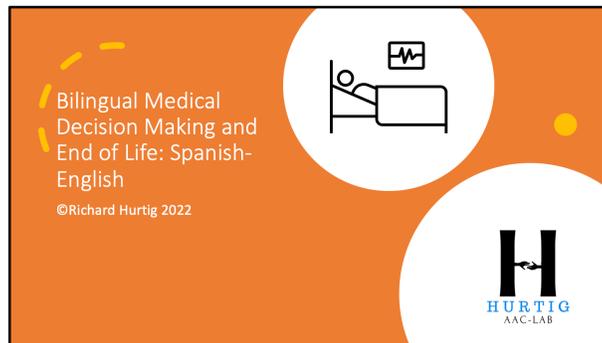
Ventilación mecánica

<p>Why am I on a ventilator? ¿Por qué estoy conectada a un respirador?</p>	<p>When will I come off the ventilator? ¿Cuándo me pueden desconectar del respirador?</p>	<p>Can I come off the ventilator? ¿Me pueden desconectar del respirador?</p>	<p>I want to come off the ventilator. Quiero que me desconecten del respirador.</p>
<p>What happens if I am taken off the ventilator? ¿Qué pasa si me desconectan del respirador?</p>	<p>I understand what can happen if I am taken off the ventilator. Comprendo lo que pasaría si me desconectan del respirador.</p>	<p>I understand that if I wish to live that I must stay on the ventilator. Entiendo que, si deseo vivir, debo seguir conectada al respirador.</p>	<p>I understand that without the ventilator I would die. Entiendo que sin el respirador me moriría.</p>
<p>I want to be taken off the ventilator. Quiero que me desconecten del respirador.</p>	<p>Don't take me off the ventilator. No me desconecten del respirador.</p>	<p>Can I have a ventilator at home? ¿Puedo tener un respirador en casa?</p>	<p>Can I have a ventilator in a nursing home? ¿Puedo tener un respirador en una residencia/hogar de ancianos?</p>
<p>I understand. Entiendo.</p>	<p>I do not want to talk about this now. No quiero hablar de esto ahora.</p>	<p>When do I have to decide what should be done? ¿Cuándo tengo que decidir qué hacer?</p>	<p>I don't understand. No entiendo.</p>
<p>Go back to main menu Volver al menú principal</p>		<p>Will I be able to change my mind? ¿Podré capaz de cambiar de opinión?</p>	



This slide illustrates the bilingual labels for the messages about mechanical ventilation. In this demonstration we have disabled the navigation back to the main page. The button at the lower right of the slide will take you to the next demonstration.

Example: Bilingual Communication Tool For ICU Bedside Communication



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Hear is an example of a PowerPoint simulation of a bilingual communication tool that allows patients with limited English proficiency to communicate with their English-speaking nurses.

This simulation is based on the Bilingual Noddle-chat that I developed for android and iOS devices utilizing the underlying Saltillo Chat software.

Vitals	Position	Cares	Feelings	Food	Care Management	Family	Entertainment
I am going to check your vitals.		I am going to test your blood sugar.		I am going to take your temperature.		I am going to draw some blood.	
I am going to give you an injection.		I am going to give you some medicine.		Would you like some ice chips?		Are you having any pain?	
It is high.		It is normal.		It is low.			

Página del paciente		DOLOR	
---------------------	--	-------	--

Quiero un intérprete	Escriba un mensaje	Gracias / Thank You	Si / Yes	No / No	Tal Vez / Maybe	Luego / Later	I will get an interpreter
----------------------	--------------------	---------------------	----------	---------	-----------------	---------------	---------------------------



In this case simulation “patient” buttons are labeled in Spanish and when selected produce the official translation in English, The “nurse” buttons are labeled in English and when selected produce the official translation in Spanish. This slide illustrates the nurse messages about “vitals” .

Let me reiterate that one must use certified translator or interpreters. Tools like this are not meant to eliminate the need for hospitals to have interpreters available. As you will see the patient has a button to request an interpreter and the nurse can let the patient know that an interpreter has been summoned.

The button at the lower right of the slide will take you to the next slide of this demonstration.

Vitales	Posición	Cuidados	Sentimientos	Comida	Administración de cuidados	Familia	Entretención
¿Cuáles son mis signos vitales?			¿Cuál es mi temperatura?				
Quiero algunas astillas de hielo.			Tengo Dolor.				
			DOLOR				Nurse Page
Quiero un intérprete	Escriba un mensaje	Gracias / Thank You	Si / Yes	No / No	Tal Vez / Maybe	Luego / Later	I will get an interpreter



This slide illustrates the patient messages about “vitals”. When the patient selects one, the corresponding English translation is produced. The button at the lower right of the slide will take you to the next slide of this demonstration.

Vitales	Posición	Cuidados	Sentimientos	Comida	Administración de cuidados	Familia	Entretenimiento
¿Puedes por favor levantar mi cama?	¿Puedes bajar mi cama?	¿Puedes por favor levantarme los pies?	¿Puede usted por favor bajar mis pies?				
¿Puedes levantar mi cabeza?	¿Puedes bajar mi cabeza?	¿Puedes por favor ajustar mis almohadas?	¿Puedes por favor ajustar mi manta?				

	DOLOR	Nurse Page
--	-------	------------

Quiero un intérprete	Escriba un mensaje	Gracias / Thank You	Si / Yes	No / No	Tal Vez / Maybe	Luego / Later	I will get an interpreter
----------------------	--------------------	---------------------	----------	---------	-----------------	---------------	---------------------------



This slide illustrates the patient messages about “positioning”. The button at the lower right of the slide will take you to the next slide of this demonstration.

Vitals	Position	Cares	Feelings	Food	Care Management	Family	Entertainment
Would you like your bed raised?	Would you like your bed lowered?	Would you like your feet raised?	Would you like your feet lowered?				
Would you like your head raised?	Would you like your head lowered?	Would you like me to adjust your pillows?	Would you like me to adjust the blanket?				
Página del paciente		DOLOR					
Quiero un intérprete	Escriba un mensaje	Gracias / Thank You	Si / Yes	No / No	Tal Vez / Maybe	Luego / Later	I will get an interpreter



This slide illustrates the nurse messages about “positioning”. The button at the lower right of the slide will take you to the next slide.

Embedding video for patients who use sign to communicate

Patient 	Nurse 
<p>I am in pain.</p> 	<p>Are you in pain?</p> 

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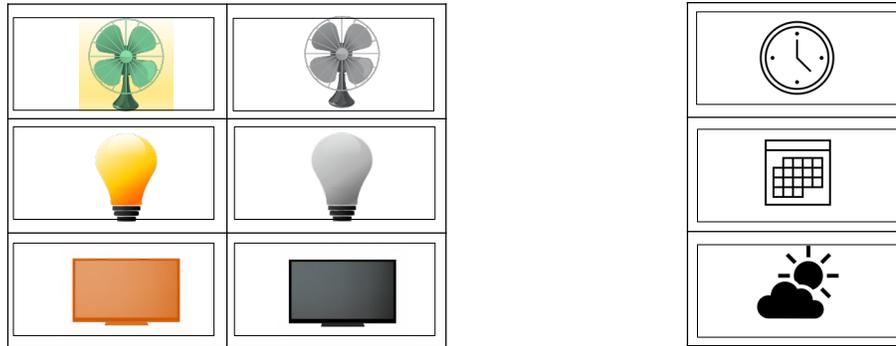
Here is an example of how you can embed a video file on a PowerPoint slide. This is an example of the bilingual bidirectional communication tool I am developing for patients who communicate using sign language- in this case ASL. Each video clip also voices the corresponding English phrase.

To insert video files

1. Select a Box
2. Copy a video file from your device onto the PowerPoint slide
3. Size the Video as needed
4. Click on Video
5. Select Action Settings
6. Select Object Action
7. Select Play

Then when the you run the slide show clicking on a video will play the video.

Using SIRI for Environmental Control & Information



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By assigning messages to text boxes one can include commands for SIRI and Alexa. These can include commands for home automation as well as to solicit information. When you record messages for Siri or use digitized text-to-speech, it is wise to leave a bit of silence before the message and leave a pause after “hey Siri” before the particular command.

Using Alexa for Environmental Control & Information



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Here is a comparable page for using Alexa to solicit information and control devices in the environment. If you are setting up home automation for someone who needs an SGD and has limited mobility, it is possible to give the individual a wide range of environmental control options that can include electronic door locks, smart thermostats and power window shades and making calls.

Summary: Comparing SGD and PPT Functionality

	Display Text and Symbols	Navigation across pages	Speech Output	Novel Utterance Creation	Environmental Control	Alternate Access Modes	Word Prediction or Semantic Compaction
Commercial SGD	✓	✓	✓	✓	✓	✓	✓
PowerPoint SGD Simulation	✓	✓	✓	✓	✓	✗	✗

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In terms of critical SGD functions, PowerPoint can provide comparable functionality for people who have sufficient motor control to allow them to use a device/tablet keyboard.

Of course, commercial SGDs are optimized to allow clinicians to set up a range of communication strategies and access modalities including switch scanning, as well as head or eye tracking.

Finally, Commercial SGDs also incorporate word prediction algorithms or semantic compaction that can facilitate users' novel utterance creation.

PowerPoint-SGD Simulation: Clinical Applications

- **Demonstrate** SGD functionality without needing a proprietary SGD or AAC app.
- **Allow** for extended trial of a particular SGD functionality when trials of commercial SGDs are not possible.
- **Facilitate** client/patient involvement in content selection without access to proprietary AAC devices or software.

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As I mentioned at the beginning, many outpatient clinics and school assistive technology programs do not have a wide inventory available to easily conduct AAC evaluations with the clients who might be candidates.

PowerPoint allows clinicians to **Demonstrate** a wide range of the SGD functionality without having a proprietary SGD or AAC app when the client is in the clinic. Because PowerPoint can be run on a wide range of devices, no specialized hardware would be required.

Because most clients will require some form of third-party payment to obtain an SGD, the clinic will need to arrange for one or more SGD trials to demonstrate that the client would be able to effectively use the SGD. Having a PowerPoint SGD simulation available, can **Allow** for extended trials of a particular SGD functionality when extended trials of commercial SGDs are not possible.

For individuals with developmental disorders or acquired language disorders, the challenge during the SGD trial compounds learning to use augmentative and alternative communication strategies with learning how to use the physical device. The PowerPoint SGD Simulation can allow for sufficiently long trials to satisfy the requirements of third-party payers that the user can be shown to effectively communicate across settings.

For individuals whose linguistic skills are intact but who cannot speak, the challenge is to provide the client with ample opportunities to utilize the SGD

across settings and adjust the vocabulary/messages to fit the client's needs. The PowerPoint SGD simulation can **Facilitate** client/patient involvement in content selection without needing access to proprietary AAC devices or software.

PowerPoint-SGD Simulation: Clinical Applications

Emergency Preparedness

Provides an alternative or back-up when a user's SGD is;

- Being repaired
- Lost or damaged
- Inaccessible



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As we have sadly learned over a number natural and manmade disasters, SGD users can find themselves unable to use their devices because of loss, damage or lack of power. Hurricanes, Tornadoes, Wildfires and Earthquakes unfortunately have had an added impact on individuals with disabilities, who can be left with no means to communicate. Having access to PowerPoint SGD simulation, can provide a temporary solution when a user's SGD is lost or damaged, being repaired or just inaccessible because of the displacement caused by the disaster. Clinicians can also use PowerPoint to prepare printouts of individual PowerPoint slides that can serve as low tech communication backups that can be kept in SGD users' **Emergency Go Bags**.

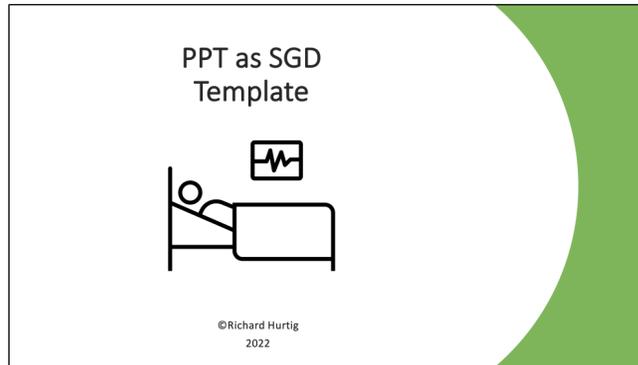
During the Covid-19 pandemic, there were cases in which individuals who use SGDs were unable to have them with them in the ICUs. To address the needs of such individuals as well as individuals who were intubated and unable to speak, The Patient Provider Communication Network in collaboration with USSAAC developed and distributed free downloadable low-tech communication tools that could be easily printed and utilized in the Covid-19 isolation units. As of June 2022, over 105,000 unique users from 191 countries downloaded the communication tools. The PPCN task force members used PowerPoint to create the low-tech communication tools. It was that experience that triggered the idea of using PowerPoint as an SGD. With iPads and Android tablets being ubiquitous in medical settings, it should be easier to distribute and implement higher-tech communication strategies utilizing PowerPoint to address the communication barriers during medical encounters.

The experience of needing to develop and deploy free downloadable communication tools to meet the needs of patients with Covid-19, has made it possible to quickly pull

together communication tools to address the linguistic barriers faced by pediatric and adult patients fleeing war torn Ukraine. Shortly after the war broke out many adult and pediatric patients in Ukrainian hospitals were being evacuated to hospitals in countries across Europe. While some of the patients were evacuated with family members who were fluent in the languages spoken at the host facilities, many, including children, found themselves alone and even more isolated by linguistic barriers.

While the carnage of Russia's war on Ukraine, has killed and maimed many Ukrainian children and adults, the European medical community has stepped up to treat these victims of war. It is some solace that the bilingual communication tools developed with PowerPoint have helped patient-provider communication in these cases.

Think Ahead and Prepare a Template to Create PPT-SGD



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While more and more people know how to use PowerPoint and as I have hopefully shown, PowerPoint can be quickly utilized to simulate SGDs. Nevertheless, putting a complex set of messages together takes time, so I recommend creating some templates that can be quickly filled in.

Main Menu

How I Communicate

<input type="checkbox"/> Page 1→	<input type="checkbox"/> Page 2→	<input type="checkbox"/> Page 3→	<input type="checkbox"/> Page 4→
<input type="checkbox"/> Page 5→	<input type="checkbox"/> Page 6→	<input type="checkbox"/> Page 7→	<input type="checkbox"/> Page 8→
<input type="checkbox"/> Page 9→	<input type="checkbox"/> Page 10→	<input type="checkbox"/> Page 11→	<input type="checkbox"/> Page 12→
 YES	 NO	 MAYBE	 LATER
			 KEYBOARD→





Here is an example of what a multipage template can look like, I have prepopulated the “How I communicate button as well as the keyboard.

Page 1

<input type="checkbox"/> Message	<input type="checkbox"/> Message	<input type="checkbox"/> Message	<input type="checkbox"/> Message
<input type="checkbox"/> Message	<input type="checkbox"/> Message	<input type="checkbox"/> Message	<input type="checkbox"/> Message
<input type="checkbox"/> Message	<input type="checkbox"/> Message	<input type="checkbox"/> Message	<input type="checkbox"/> Message
<input type="checkbox"/> Message	<input type="checkbox"/> Message	<input type="checkbox"/> Message	<input type="checkbox"/> Message
GO BACK TO MAIN MENU			



Here is the template for a page. Along with a button to return to the main page.

Keyboard

INSTRUCTIONS

Q	W	E	R	T	Y	U	I	O	P	1	2	3	4
A	S	D	F	G	H	J	K	L		5	6	7	8
Z	X	C	V	B	N	M				9	0	BACK SPACE	Delete Word
SPACE										,	.	!	?




Here is the template for the on-screen keyboard along with the instructions button and button to go back to the main page. Click on the button on the lower right to go to the next slide in the presentation.

Cost: Shopping List

PowerPoint

PowerPoint- Microsoft 365*
(\$6.99/Month)

iOS or Android tablet (\$300-\$600)

TTS Software- "Speak My Text" (\$4.99)

Digital sound recording and editing
software "Audacity" (Free)

Symbol/Icon Library*

N2Y SymbolStix Prime
(\$154.99/year)

Boardmaker 7 (\$99-\$199/Year)

* Free student versions are available.

Home Automation

Alexa Dot (\$39.99)

Apple Home Pod mini (\$99.99)

SmartPlug (4 pack-\$24.99)

SmartBulb: LOHAS Smart Light Bulb Work
with Alexa, Google Home & Siri, A19 WiFi LED
Bulb Daylight 5000K, 9W 60W Equivalent,
Dimmable, 850LM (4 pack \$30.99)

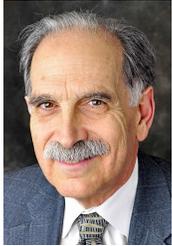
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In times when academic and clinic budgets are tight, implementing a PowerPoint SGD simulation program can be relatively inexpensive by comparison to the costs of having to carry an inventory of commercial SGDs.

Here are some of the prices associated with components I have referenced in this presentation.

But finally, a simulation is just a tool and in **NO WAY** should what I have talked about today be taken to suggest that we don't need commercial SGDs or AAC apps.



- Richard Hurtig, Ph.D., F-ASHA
- Professor Emeritus
- richard-hurtig@uiowa.edu



For more information on my work in AAC check out my website.

<http://www.hurtig-aac-lab.net>

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Thank you for taking the time to listen to my presentation. I would be,, happy to address any questions you might have. You can also communicate with me at the email listed on the slide and you can find more information about my work on AAC at my website.

I will be posting a brief tutorial and the template on the website.