

Unlocking AAC Potential:

AI-Centered
Customization Strategies

Lingraphica[®]



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Financial Disclosure

Speakers A’Niyah, Karline, and Sarah are employees of Lingraphica and therefore receive financial compensation from Lingraphica.

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Non-Financial Disclosure

A’Niyah, Sarah, and Karline are members of the American Speech-Language-Hearing Association.

A’Niyah is a member of NBASLH

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Sarah is a member of BIAA

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Content Disclosure

This course explores a variety of information related to the use of AI, AAC device customization, and case studies.

All case studies contain de-identified client information to maintain confidentiality and adhere to HIPAA compliance protocols and non-disclosed standards.

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Learning Objectives

Participants will be able to

- List the different AAC types, members of the AAC customization team, and considerations for effective customization.
- Identify common barriers experienced by caregivers and professionals when customizing AAC devices.
- Apply practical skills to integrate AI tools into AAC device customization.
- Explain the use of AI in AAC to reduce misconceptions and increase confidence in its application.
- Evaluate ethical considerations and equitable practices involved in AI-driven AAC customization.

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Agenda

Let's get started

- Introduction to AAC, AI in AAC customizations and session goals.
- AI's role in enhancing device use, barriers, and solutions, including case studies.
- Hands-on activity: Designing an AI-based customization for a sample AAC case.
- Closing remarks and resources

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Introduction to AAC

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Types of AAC

AAC (Augmentative and Alternative Communication) can be categorized into two main types:

Unaided AAC



Aided AAC



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Unaided AAC

This type of AAC does not require external tools and relies on the individual's body for communication.

Examples include:

- Gestures
- Sign language
- Facial expressions
- Body language
- Vocalizations and speech approximations

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Aided AAC

This involves the use of external tools, which can be low-tech or high-tech.

- Communication boards
- Picture Exchange Communication System (PECS)
- Writing/drawing tools
- Object-based communication
- Speech-Generating Devices (SGDs)
- AAC apps on tablets & smartphones
- Text-to-Speech (TTS) devices
- Eye-tracking or switch-access devices



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AAC Device Customizers

- Speech-Language Pathologists (SLPs)
- AAC Specialists
- Occupational Therapists (OTs)
- Assistive Technology (AT) Specialists
- Special Education Teachers
- Parents & Caregivers
- AAC Users Themselves

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Effective AAC Customization

Effective AAC customization is:

- User-driven
 - Personalized and tailored to the individual's needs and goals (Formica et al., 2024)
- Dynamic
 - An evolving process that adapts over time (Beukelman & Mirenda, 2012; Beukelman et al., 2007)
- Culturally Responsive
 - Tailored AAC to reflect the user's identity, language, and values

“AAC is my bridge to the world, and a window for the world to see the real me. It supported me in moving from frustration to communication, and from isolation to relationships.”

— McNaughton, Light, Beukelman et al., 2019

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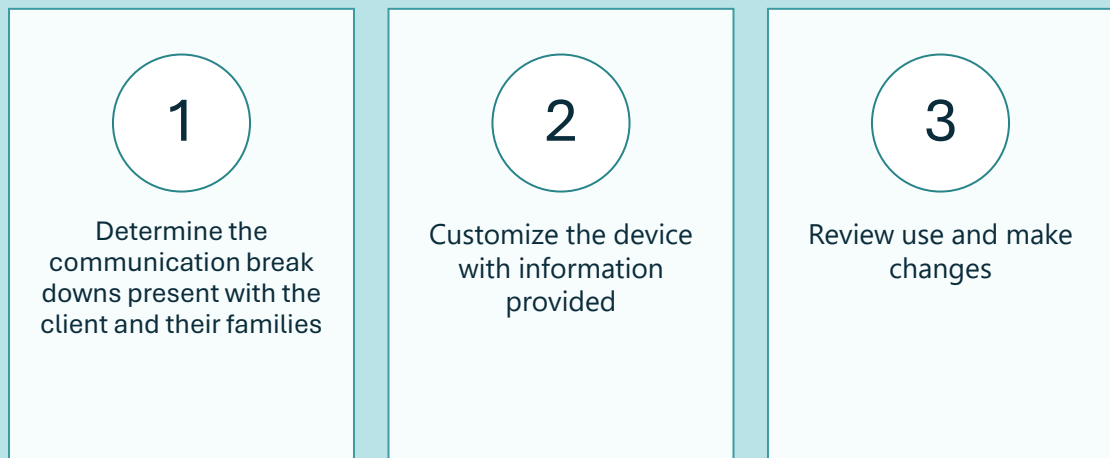
Effective AAC Customization: Considerations

Effective AAC customization starts with assessment and considers the user, the environment, and the system.

- **AAC Assessment**
Understanding the user's abilities, needs, and environment (Beukelman et al., 2007)
- **Participation Model**
Assesses participation patterns and communication needs, opportunity barriers, and access barrier to plan intervention for today and tomorrow. (Beukelman & Mirenda, 2012)
- **Feature Matching**
Aligning device features with the user's skills and communication goals (Beukelman et al., 2007; Light et al., 2019)
- **Light's Model of Communication Competence**
Supporting linguistic, operational, social, and strategic competence (Light et al., 2019)
- **Partner Training**
Effective AAC use often depends on training and support for communication partners (Beukelman et al., 2007; Light et al., 2019)

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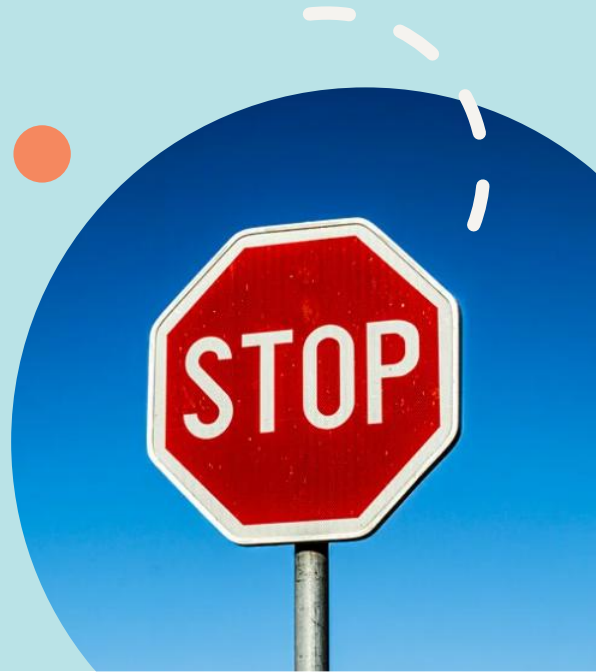
Current Customization Approach



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Barriers to Customization

- Time constraints with customization process
- Lack of personalization for diverse users
- Lack of information provided due to limited education on use of AAC in the home or community setting
- Expensive and resource-intensive customization

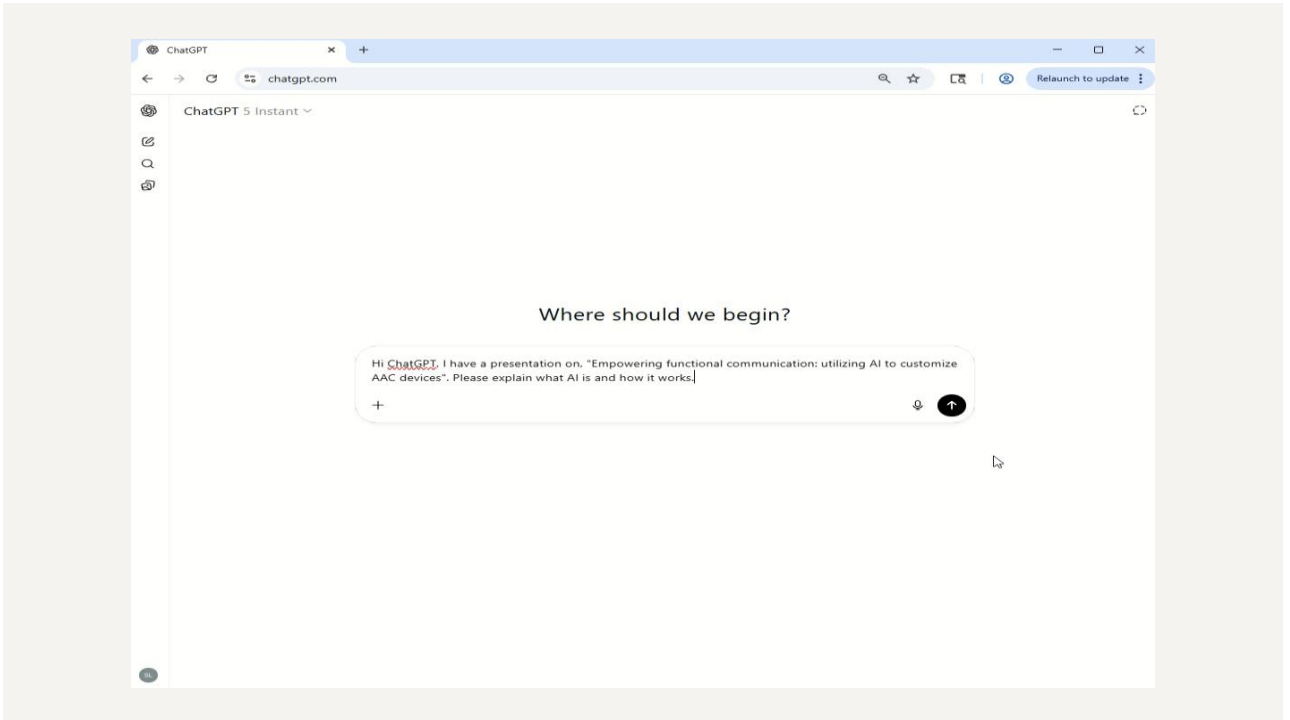


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Introduction to AI

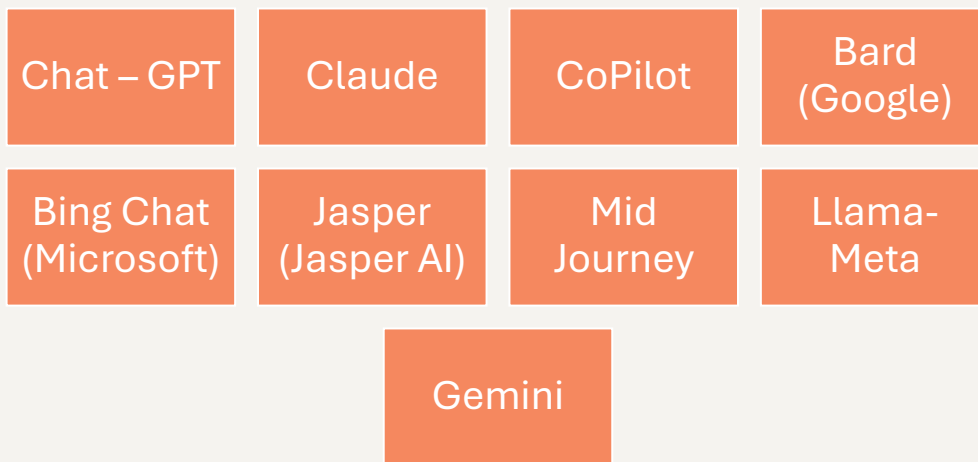


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AI Systems



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Solutions

AI can analyze:

- a user's communication profile and suggest relevant words or phrases.
- language models to include regional dialects, cultural phrases, or specialized terminology.

AI-driven tools can:

- help users independently create custom vocabularies.
- identify preferred verbiage across varying generations (generational language)

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What are you working on?

Please give me suggestions on how to edit or create icons for an AAC device related to a pet dog

+ Tools



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Absolutely! Here's a list of **AAC customization ideas for someone who loves or owns dogs**—these can be used for both functional communication and to build connection and personality into the device.

Core Categories to Add or Modify:

1. Dog Care

- Feed the dog
- Give water
- Go for a walk
- Give medicine
- Brush the dog
- Clean up poop

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ChatGPT ▾

What can I help with?

Help me create AAC customization edits for an Autistic client who has a golden retriever. The golden retriever is his service dog. He supports him with seizure activities. Help create a folder and cards that would be functional for the client to communicate to the dog.



Search



Reason



Create image



Get advice



Surprise me



Make a plan



Analyze data



More

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Folder: About My Dog

Cards:

- His name is [Name]
- He is a golden retriever
- He is my service dog
- He helps me when I have seizures
- Please don't pet him
- He is working
- He makes me feel safe
- He is trained to get help

You could add a photo of the dog and a voice output button like: "This is my service dog."

Folder: Seizure Support

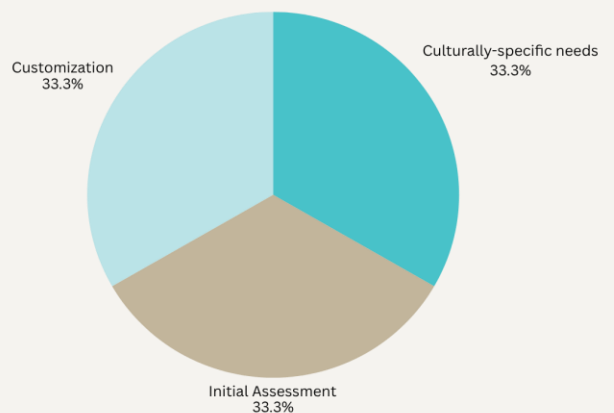
Cards:

- I feel a seizure coming
- I need to sit down
- My dog will help me
- Please don't separate me from my dog

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Utilizing AI-driven Customization Clinically

- Initial Assessment and Data Collection (NO PHI)
- Customization Based on Communication Needs
- Addressing Diverse and Culturally Specific Needs



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Limitations

- Ethical Concerns & Implicit Bias
- Privacy & Data Security Risks
- Cultural & Linguistic Limitations
- Training & Accessibility Gaps for Non-Tech Users

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Which is why it's
important to REVIEW

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Case Examples of Successful Customization

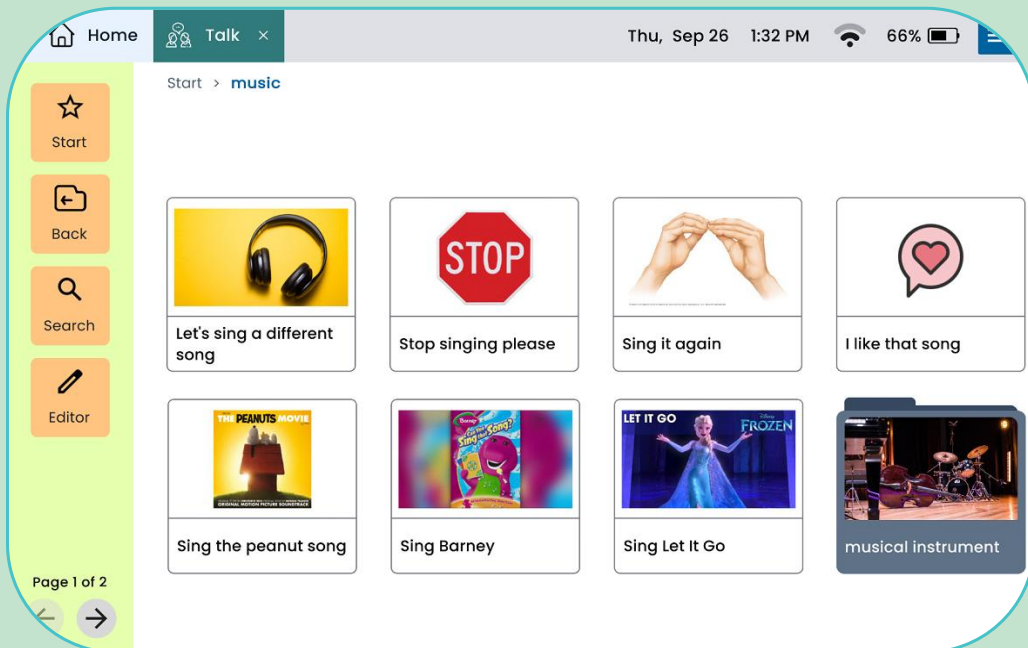
Participant info

16-year-old
 ASD DX
 Limited verbal output, inconsistent 1 word expression
 Uses gestures to communicate (shake head yes/no)
 Able to answer simple yes/no questions
 Able to follow 3 step directions with moderate repetition
 Answers who, what, why, where, when, how questions

Functional conversation Topic

- Likes to play video games

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Case Examples of Successful Customization

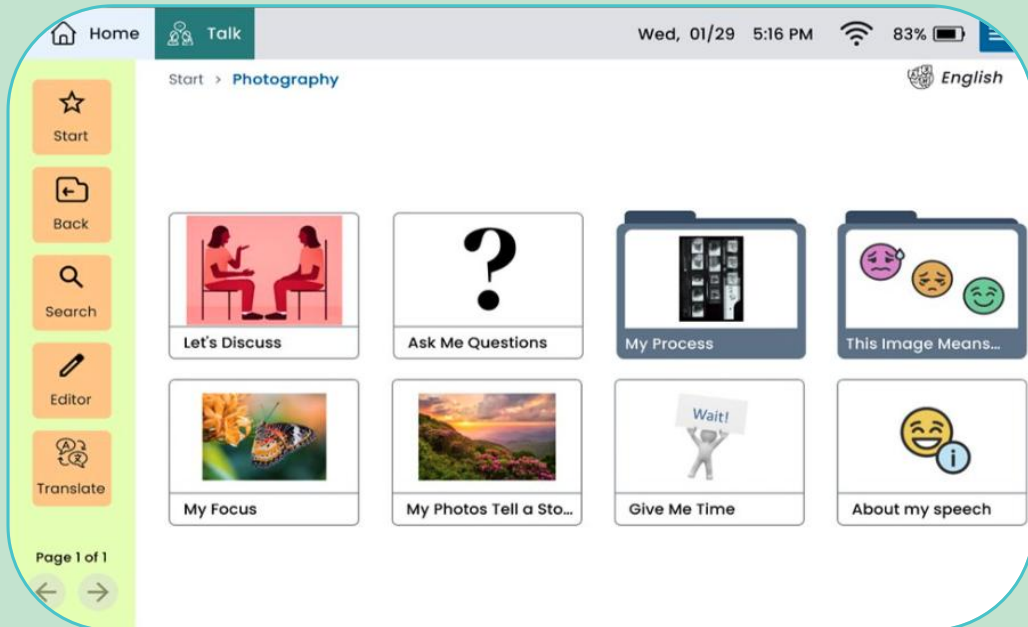
Participant info

- 76-year-old female
- Suspected Primary Progressive Apraxia/Aphasia
- Moderate to Severe Motor Speech, Anomia, and Agraphia
- Highly intelligible at the word level, 60-75% intelligible in conversations.
- Very motivated and independent

Functional conversation Topic

- Professional Photographer
- Speaks at conferences
- Wants to be able explain her process and photo series to colleagues, students, and friends.

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Case Examples of Successful Customization

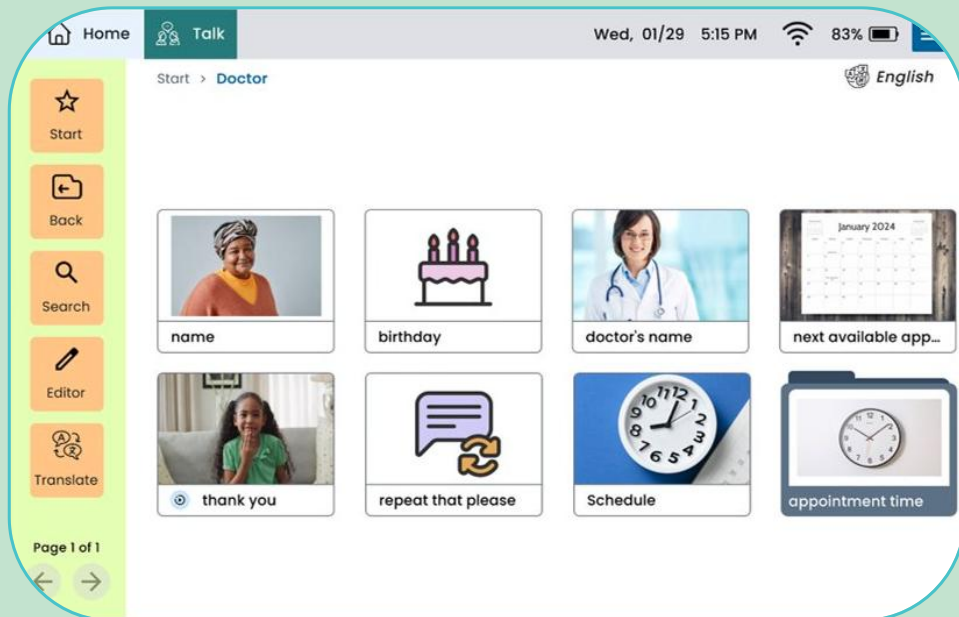
Participant info

- 71-year-old female
- Primary Progressive Apraxia
- Pick's disease
- Severe Dysarthria
- 40% intelligibility
- Independent with ADLs

Functional conversation Topic

- Scheduling an appointment via phone with doctors office

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Speech Acts for AAC ChatGPT Prompts



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Empowering Functional Communication: Utilizing AI to Customize AAC Devices

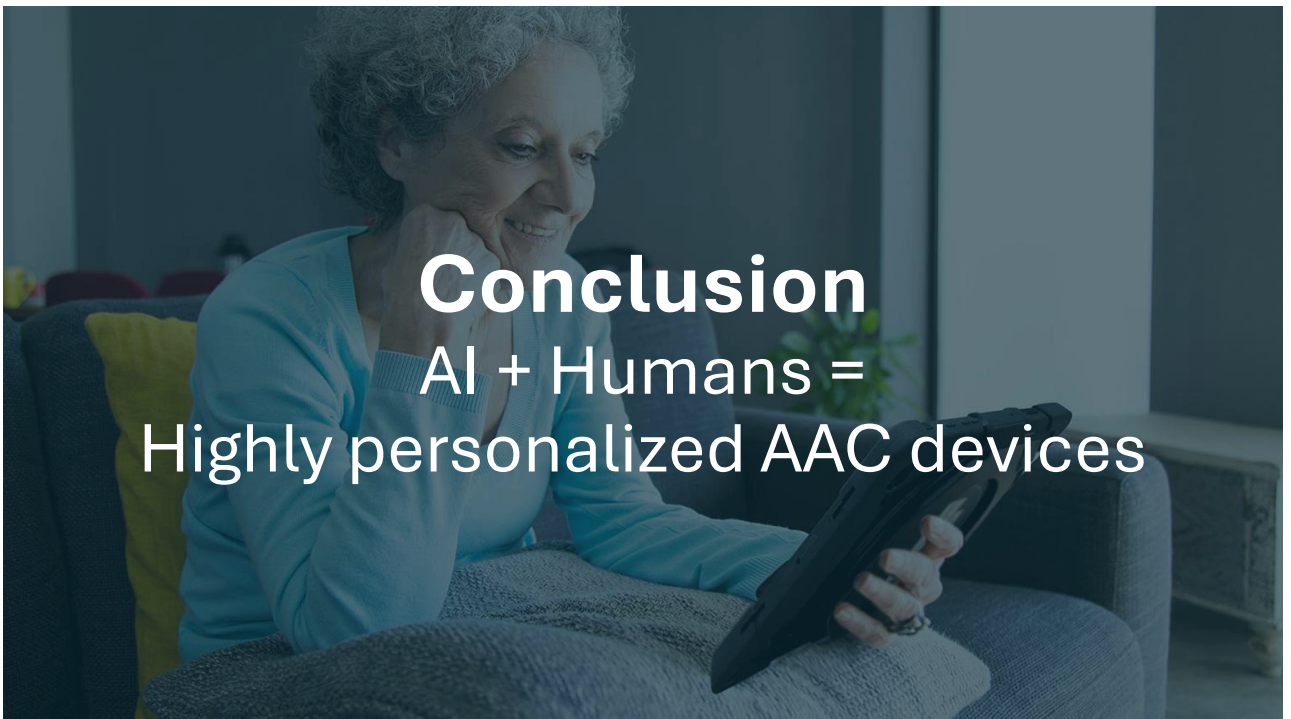
- Prompt the AI
 - Write a concise prompt that explains the type of AAC customization needed based on steps 1-4.
- Review AI output
 - Assess the generated content to ensure it aligns with the user's needs.
- Refine as needed
 - Adjust the prompt or AI output for improved relevance and accuracy.
- Have FUN

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Empowering Functional Communication: Utilizing AI to Customize AAC Devices

- Gather information
 - Collect the communication goals and preferences of the AAC user.
- Describe the folder or card
 - Clearly define the content or category for the folder or card you want to create.
- Specify customization details
 - Include language, tone, or specific symbols needed for personalization.
- Incorporate user preferences
 - Tailor the customization to the user's interests, age, and cultural context.

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Example Client: Maya

Child with Autism Spectrum Disorder

- Profile: Maya, 9, is non-verbal with Autism. She uses AAC for basic needs but struggles with social interactions in loud environments.
 - Customization Request: Develop a folder for music genres and instruments so Maya can express her preferences during music class.

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Example Client: Leila

Stroke Survivor with Aphasia

- Profile: Leila, 60, has aphasia after a stroke and struggles with finding words but understands language well.
 - Customization Request: Design folders for travel-related conversations, as she enjoys talking about past vacations.

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Resources and Tools

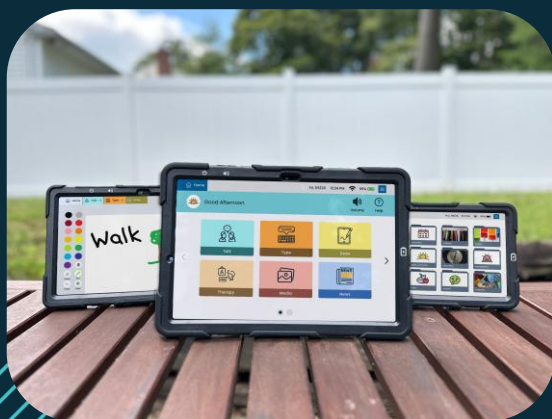


Helpful Resources
<https://advancingaccess.my.canva.site/>



Download course handouts
<https://lingraphica.com/asha-2025/>

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Questions & Answers

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