Supporting Language and Cognition for Adults with Chronic Aphasia through Pictures: What we know and what we don’t

Jessica Brown, Ph.D., CCC-SLP
University of Minnesota
brow4565@umn.edu
Supports for Individuals with Aphasia

• **What do we know?**
  - How do images help? What types of images are there?
  - What can people with aphasia gain?

• **Images used as:**
  - Cognitive cues
  - Auditory and reading comprehension supports
  - Oral expression supports

• **Perceptions and preferences of individuals with aphasia**

• **What don’t we know?**
  - What is the best image to use?
  - How important is personalization really?

• **Recommendations for selection and implementation of images**
CURRENT KNOWLEDGE
What do we know?

• 25 - 40% of people with aphasia experience chronic impairments
• Impairments limit communication
• Reliance on AAC to meet life participation needs
• Because of the “symbolic processing” deficits, images may be a good option (also may be the best or only option)
What do we know?

Challenges:

• Images must be transparent and meaningful
• We must find ways to depict abstract ideas
• Clinicians rely mainly on experience when selecting images to use as supports
• Clinicians don’t have a great deal of time to manipulate and create supports
What do we know?

Challenges:

• Training caregivers to provide the support
• Finding already made materials appropriate for the language levels of adults with aphasia
• Teaching clients the benefit of accessing and using images during conversations
• Teaching clients how to create their own images for later use
IMAGE OPTIONS
What do we know?

What are our image options?

- Inclusion of people or animals – vs. – a plain scene
- Camera engaged – vs. – camera disengaged
- Task engaged – vs. – task disengaged
- Image type
- Amount of content/context
- Layout
What do we know?

People/animals vs. Blank scene
What do we know?

Camera engaged vs. camera disengaged
What do we know?

Task engaged vs. Task disengaged
What do we know?

Image Type

- Line drawing
- Colored Icon
- Isolated Image
- Contextually Rich Image
What do we know?

Content AND Context = no, low, high

No context
• White or plain background
• No identifying information
• No idea about location
• No pieces of content
• Very little information
What do we know?

Content AND Context = no, low, high

Low context
• A few pieces of background information
• Some identifying information
• Some idea relating to location
• Less than five pieces of content
• A little more information overall...
What do we know?

Content AND Context = no, low, high

High context
• Multiple objects in the background
• Information comes together to build a scene/location
• Greater than 5 pieces of content
• Overall, more information to learn from and use
What do we know?

Image layout options – Visual Scenes vs. Grids
What do we know?

Images – the wave of the future

• Easy and accessible way to capture, store, and share life events
• Advancements in computer graphics, memory, and processing capabilities
• In the past,
  • photographs recorded major life events (e.g., weddings)
  • Were put into albums for future generations
• NOW....
  • Capture major and minor life events
  • Can be shared instantly
  • Used in face-to-face and online environments
What do we know?

How do images help?

• Relative benefit varies with image type
• Potential to provide support for main concepts or details when reading or participating in conversations
• Potential to convey information about situations, activities, experiences, relationships that the person with aphasia cannot
• May be ideal for communicating large amounts of information
What do we know?

What can people with aphasia gain from images?

The same information as adults without aphasia!!!

NOTE: Be careful of this interpretation – aphasia at its core is a “symbolic” processing disorder
HOW ARE IMAGES HELPFUL?
Images used as...

**Cognitive Cues**

- Engagement in visual scenes can result in a guiding effect to areas of interest that may not be focused upon without the cue.

- Without engagement, people tend to focus heavily on human figures and just search the background with limited purpose to their search.
Auditory Comprehension Supports

• What information can individuals with aphasia gain from high-context images?

• How accurate are individuals with aphasia at identifying main action, background details, and inferential information within images?

Images used as....

**Auditory Comprehension Supports**

- Comprehending inferential information is difficult for people with aphasia – even with the image
- But, they perform well above chance
- AND, understanding detailed information from images is possible
- Images support comprehension

Images used as....

Reading Comprehension Supports

• Does the presence of an image enhance reading comprehension for adults with aphasia?

• Which type of image is most beneficial?

**Reading Comprehension Supports**

- Significantly increased reading comprehension when a visuographic support is available
- Image type didn’t always matter
- All participants felt pictures were helpful
- All participants thought reading ease increased when pictures were present

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<thead>
<tr>
<th>Participant</th>
<th>High-context</th>
<th>Low-context</th>
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Oral Expression Supports – Shared Communication

• Can the presence of a visual scene change the communication efficiency and content of a person with aphasia?

• How does the presence of a visual scene alter the quality of the communicative interaction?

• What are the perceptions of the person with aphasia and listener when a visual scene is present?

**Oral Expression Supports – Shared Communication Space**

- More conversational turns
- Higher complexity of utterances
- Greatest # content units shared
- Perceptions of person with aphasia and communication partner are high in shared condition

![Figure 3. Mean number of conversational turns split by experimental condition.](image)

Images used as....

Oral Expression Supports – Image Capture for Communication

• What types of images do adults with aphasia take to use for later conversation?

• How helpful are these images in aiding recall and expressive language effectiveness?

Ulmer, E., Hux, K., & Brown, J. – in progress
Images used as....

Oral Expression Supports – Image Capture for Communication

• Not all participants took pictures
• Not all participants referenced images
• Produced longer conversations with more complex content (nouns and verbs) when images were present

Ulmer, E., Hux, K., & Brown, J. – in progress
Researcher: **Tell me what you saw this morning.**

P1: **Ok. Two. One. Two.**

Researcher: **You saw two people.**

P1: **Yes. Oh. Look at this.**

Researcher: **She’s listening to his pulse.**
Researcher: **Tell me what you saw this morning.**

P1: [swipes iPad and points to two people in image] **Ok. Two. One** [points to first person]. **Two** [points to second person].

Researcher: **You saw two people.**

P1: **Yes** [swipes to next picture]. **Oh** [points to stethoscope in picture]. **Look at this** [traces stethoscope in picture from ears to neck of other person]

Researcher: **She’s listening to his pulse.**
PREFERENCES AND TRAININGS
Perceptions and Preferences

What pictures do individuals with aphasia prefer?

• What type of image would participants with aphasia choose to support their reading?

• What is the rationale for this selection?

High Context, High Content

- “It says all it needs to say, it’s a medal for excellence and the flag represents America.”
- “…he’s…excited. He’s…feeling great…He’s the Olympics. He won…It has everything in this…He went to the USA.”
- “Right here [pointing to laughing face in picture]. I love that. That is very, very good. “

High Context, Low Content

- “He is so real - going places [arms in swimming stroke].”
- “Because it shows Phelps water…you know US [points to flag on swim cap].”
I don’t like that one... It’s just a plain old picture.”
“IT doesn’t say anything.”
“Nothing.”
“This one is terrible.”

That’s stupid.”
“Cause I don’t know who it is... Is it a girl? Is it a boy?
It doesn’t really tell what it is.”
“Hard.”
Can we train clients and family members?

• Ideally clients should select their own image supports

• It may be worthwhile to perform extensive training to clients and caregivers

• However, MOST (if not all) of their previously captured photos will break the “rules”

• Train to take new photographs for use in communication
Image Personalization

- Adults with aphasia prefer personally-relevant images to represent their intended words
- Adults with aphasia are more accurate at matching words to images when personally-relevant images are shown
- Individual may spend a great deal of time telling you how the generic image is different than their own story

CLINICAL RECOMMENDATIONS
CLINICAL RECOMMENDATIONS

The reality...

• Clinicians in any setting have a short amount of time with a patient
• Pre-packaged generalized photos are easier to find
• Many devices or communication books are already programmed with images to select
• Anything will do
If I had to pick one...

- High context, high content
- Inclusion of people and animals
- Person(s) task-engaged
- Colored, photographic image
-Personally-relevant
- Addition of text if available
  (within an app, device, or handwritten)
CLINICAL RECOMMENDATIONS

What we can improve on clinically:

• Train rehab professionals
  • The image you use matters

• Utilize resources at our fingertips
  • Internet databases, cameras within devices, apps

• Train caregivers and patients from the start
  • This will be about creating NEW images rather than selecting from their old

• Think of images as your go-to support
What we still don’t know ...

• Best way to display images (study underway)
• We know images help, but to what extent?
• What are the “must haves” to include in an image
• Best ways to train caregivers and clients regarding image capture and use
Thank you!!!
Resources


