

A Visual Smorgasbord: Unique uses of visuals to expand language abilities for individuals with ASD

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A Visual Smorgasbord: Unique uses of visuals to expand language abilities for individuals with ASD

DECLARATION OF INTEREST STATEMENT:
THIS AUTHOR DISCLOSES THAT THERE IS NO
FINANCIAL OR OTHER INTEREST IN OBJECTS
OR ENTITIES MENTIONED IN THIS PAPER



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**Augmentative Communication
Program at Boston Children's Hospital**

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Outline

- Intro
- Rationale for using visuals
- Overview of communication/language
- A review of strategies and tools that can be used to promote a variety of communicative functions
- Questions and answers

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Intro

- **Autism is an increasingly pervasive problem**
 - 1 in 88 children between age 3-17 affected (the CDC - Centers for Disease Control and Prevention - the national public health institute of the United States 2012)
 - 1 in 68 as of March this year!
- **Language impairment is one of three core diagnostic characteristics in the DSM-IV**
 - Estimated 1/3 - 1/2 of population with Autism have non-functional speech (Miranda, 2003)
 - Deficits in both receptive language (Boddaert et al., 2003) and expressive language (Wetherby & Prizant, 2000; Lord et al., 1997)
 - Better understanding of nouns (both spoken and visually) (Schlosser & Sigafos, 2002)
 - Difficulty with verbs, prepositions and descriptors (and other linguistic constructions) (Schlosser & Sigafos, 2002) – leads to difficulty following novel or complex directives.

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Intro

Focus at Boston Children's Hospital:

- Use **visuals** to support communication, enhance language development, and improve instruction for individuals with ASD
- Take advantage of **technology** when possible
 - Ease the burden associated with creation, storage and access of visual supports
 - Improve the quality and effectiveness of visual supports
- Approach communication and language development in a **comprehensive** manner

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Let's take a step back

What is language?

In the Autism Language Program, we have outlined 7 pragmatic functions for which all competent communicators use language:



- 1) Protests
- 2) Requests
- 3) Commenting/Labeling
- 4) Directives
- 5) Questions
- 6) Transitioning and Organization
- 7) Social Pragmatics



Let's take a step back

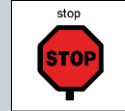
What is Language:

A socially shared code or conventional system for representing concepts through the **use of arbitrary symbols and rule-governed combinations** of those symbols.

(Owens, 2005, p.7)



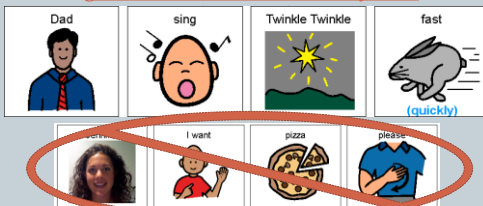
“Stop”



Let's take a step back

What is Language:

A socially shared code or conventional system for representing concepts through the **use of arbitrary symbols and rule-governed combinations of those symbols.**



Let's take a step back

What Language Allows:

To discuss items not available in the immediate environment

When language is not readily or sufficiently available, behavioral forms of communication are often used to supplement or replace symbolic forms of communication

Let's take a step back



Least Symbolic ↓ Most symbolic		3-d photographs and object proxies
		2-d photographs with backgrounds removed
		2-d photographs with backgrounds
		Picture symbols
		Line drawings
		Text

Rationale for using visuals:

- **Capitalize on relative natural strengths and preferences**
 - Visual processing (e.g., Althaus, de Sonneville, Minderaa, Hensen & Tl 1996)
 - Attraction to visual input – electronic screen media (ESM) (Shane & Albert 2008)
 - Visually-based intervention strategies have been proven beneficial (e.g., Pierce & Schreibman, 1994)
- **Provide a sustained referent**
 - Capture and sustain attention
 - Reduce load on memory to support overall processing
- **Provide a concrete representation of abstract and difficult language**
- **Visual supports used for the purpose of:** (Gosnell, 2010)
 - Expanding utterances
 - Organizing expressive language
 - Providing a means for functional communication
 - Expanding pragmatic functions

Rationale for using visuals:

- Visual cues used for the purpose of comprehension, which are imposed as an alternative to, or in conjunction with, speech.
- We must focus on comprehension prior to, and/or in conjunction with expression

We cannot expect learners to use complex language for various functions without exposure to, and explicit teaching of, abstract language (e.g., verbs, prepositions; semantic relations; syntactic structures)

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Directives

Important Skills:

- Follow familiar 1-step directives (e.g., come here, sit down)
- Follow novel directives
- Follow multi-step directives

Ability to follow novel and/or multi-step directives supports an individual's ability to be independent (e.g., within classroom instruction, ADLs, etc.)

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Directives

- Video Modeling / Dynamic Scene Cues
- Static Scene Cues
- Noun Element Cues
- Language Element Cues

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Directives

- Video Modeling / Dynamic Scene Cues
 - Importance of imitation for learning
 - Master's Thesis Study
 - * Accuracy in face-to-face conditions: ~20%
 - * Accuracy in video modeling condition: ~80%



Body Movements



Imitation with 1 object



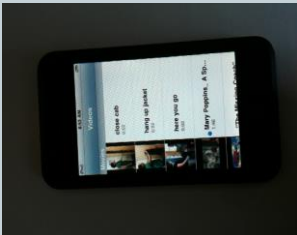
Imitation with 2 objects

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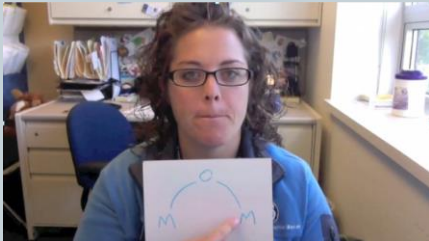
Directives

Functional Example of a Dynamic Scene Cue / Video Modeling



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Now, let's combine what we know and target speech



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Directives

Following Multi-Step Directives through the use of **Static Scene Cues**

Same principles apply



Organize scene cues to promote success:

- Use Photo Albums
- Use scheduling apps such as:
 - First/Then Visual Schedule HD (by Good Karma Apps)

Directives

Noun Elements Cues



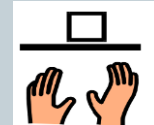
Directives

Functional Example:
Pack your lunch (week 1!)



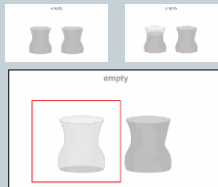
Directives

Teaching Specific Concepts Example of Current Graphics



Directives

ALP Animated Graphics



Directives

Language Element Cues

Language Element Cues allow for the generative combination of words to create and express an infinite amount of thoughts



Directives

Language Element Cues in a Mixed Display to support learning



Expressive Directives

Think about the difference between:

“I want a sandwich”
and
“Mom, make me a sandwich (please)”

Expressive Directives

Topic Displays



- Visual element displays
- Depict vocabulary pertaining to a specific topic
- Elements placed in columns
- Elements organized in modified Fitzgerald Key Format and are color-coded by part of speech
- Left-to-right orientation reflecting English syntax

Expressive Directives

Topic Displays



- Build language form and content
- Include multiple parts of speech (not just nouns)
- Allow use of semantic relations and syntactic constructions
 - Receptive
 - Expressive

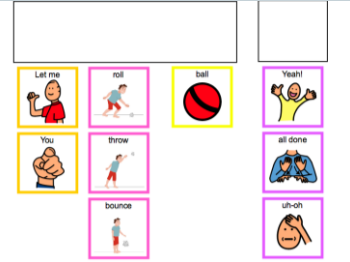
Expressive Directives

Topic Displays



Engage in Interactive Activities!

Topic Display – Ball (simplified)



Engage in Interactive Activities!

Topic Display – Ball (expanded)

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Engage in Interactive Activities!

Topic Displays – My PlayHome app

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Now, let's combine even more to promote speech!

Video modeling may also be organized within communication displays to promote speech, as well as learner-choice and initiation.

Patient:
8 years at the time
Uses a Tobii C8; functionally non-speaking
Mr. Potato Head Display within Boardmaker SDP, utilizing video modeling

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Questions

- Interrogative sentences, phrases, or gestures that are spoken or written
- Questions are directed to someone in order to receive information in reply. *As such, they could be considered the foundation to conversation.*
- Questions have both a receptive and an expressive component
- When an individual does not speak, there is a natural tendency to provide a disproportionately high number of questions to that individual
- Comprehension of yes/no questions is not typically observed until language approaches that of a two-year old age equivalency (Chapman, 1981).

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Questions

- Yes/No Questions in the Visual Immersion System can occur with one of three question forms:
 - Factual (e.g., Is this a _____?)
 - Informative (e.g., Do you have the _____?)
 - Preferential (e.g., Do you want a _____?)

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Questions

Teaching Yes/No using computer-based activities

Make sure to change the order in which you present questions!

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Questions

- Target **comprehension of yes/no** with a tool like this by taking advantage of the immediacy of reinforcement

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Questions

- Teach Yes/No through **video modeling** using apps with visual scene display and video options such as GoTalkNOW

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Questions

- MODEL, MODEL, MODEL!**
 - Two-tier learning model
 - Again - make sure to change the order!

Aided Language Stimulation (Goossens', Crain and Elder, 1992)

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Wh-Questions

where

Level 1:

- Multiple choice responses contain 3 same-class responses

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where

Wh-Questions

where

Level 2:

- Multiple choice responses contain 2-same-class responses and 1 foil response. Color coding is provided throughout the task

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where






Wh-Questions

where




Level 3:






- Multiple choice responses contain 2-same-class responses and 1 foil response. Color coding is provided on an as-needed basis to scaffold comprehension of the targeted concept

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where

where

Social Pragmatics

No Quick Fix!

**If you want to work on social interactions,
work on SOCIAL INTERACTIONS**



Look In My Eyes!?











Conversational building apps (e.g., Conversation Builder) do exist for practice – yet make sure you target generalization



Social Pragmatics

Turn Taking

• Turn taking is challenging – as the desired toy may seemingly go into an abyss!

My turn	Your turn	My turn	Your turn	My turn	Your turn	My turn	Your turn
							

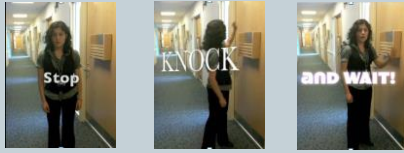
Never say "my turn" and take a toy away – it violates trust

Social Pragmatics

Video Modeling

Thank you
Hi – What's your name?
Excuse me
Hi - Can I play with you?

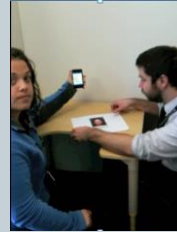


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Social Pragmatics

Video Modeling Sharing Pictures



Sharing Pictures

- 1) Ask your friend if they want to see the pictures
 - Hey want to see my photos?
 - Can I show you my pictures from my vacation?
- 2) Tell your friend about each picture
- 3) Give your friend time to look at the picture
- 4) Turn the page
- 5) Then say something so that your friend will keep looking!
 - This is my favorite one!
 - Want to see some more?
 - I can't wait to tell you all about this one!
 - Look at this one! It's awesome!

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Social Pragmatics

Sharing Pictures

Build conversation around sharing picture

<p>question</p>	<p>comments</p>	<p>your pictures listen ask a question listen comment</p>
<p>my pictures comment listen to the question respond to the question listen</p>		

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Social Pragmatics

Maintaining Conversations

Talk about

When I'm talking, I need to:

- Stay still! Do not move my body.
- Look at my friend's face.
- Talk about 1 topic.

Do you like...? (Do you like...?)
What's your favorite...? (What's your favorite...?)
Have you ever...? (Have you ever...?)
What's that? (What's that?)
Do you like...? (Do you like...?)
What's that? (What's that?)

When I listen, I need to:

- I really like the... (I really like the...)
- Wow, that's... (Wow, that's...)
- That's nice! (That's nice!)

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Social Pragmatics

Maintaining Conversations

Image Spinner (\$0.99)

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Social Pragmatics

Learning social norms Social stories and Story Previews are wonderful!

If I feel mad, here are some things I can do:

- 1) I can take 10 deep breaths.
- 2) I can ask my mom to go on a walk.
- 3) I can say, "Great job, friend!"

Microsoft Word, Pictello, My Pictures Talk, Kid in Story

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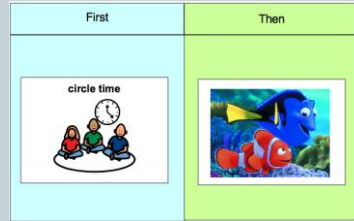
Transitions and Organization

Imagine you thought this talk was 10 minutes long...

Timers, Countdowns, First/Then Displays can help make tangible the highly abstract fourth dimension that is time!

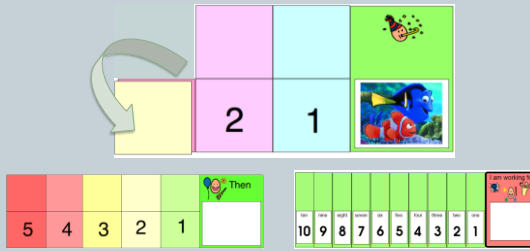
Transitions and Organization

First/Then Displays



Transitions and Organization

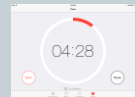
Countdown Displays



Transitions and Organization

Visual Timers

- The new iOS 7 clock is a great free resource
 - (free; iOS)
 - N.B.: No seconds and alerts are limited
- Time Timer Application
 - (varies; iOS and Droid)
 - Can repeat, change alert, save many timers, etc
- Online egg timer
 - (free; computer)
 - www.online-stopwatch.com/eggtimer-countdown



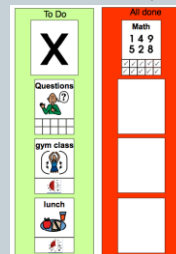
Transitions and Organization

First/Then Displays with Embedded Countdowns and Timers



Transitions and Organization

Activity or Daily Schedules



- Low-tech
- First/Then Visual Schedule (HD)
 - 9.99; 14.99
- Autismate
 - 149.99
- Visual Routine
 - 4.99

Transitions and Organization

Social Stories or Book Previews

Prepare individuals for what is to be expected

I don't give shots!



Transitions and Organization

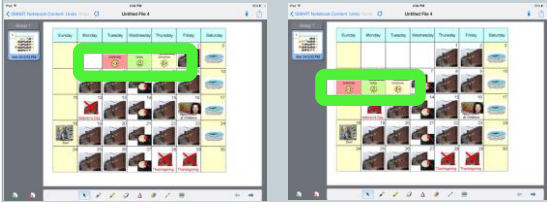
Temporal Concepts

Sliding Template Display



Transitions and Organization

Temporal Concepts Sliding Template Display



Labeling and Commenting

- Labeling is the precursor to commenting
- Highly dependent upon joint attention
- Compare success of using a distal point to draw attention to something in the environment vs. how well kids with ASD often attend to electronic screen media....



Labeling and Commenting

- What makes us comment or label?
Put a fork in their t-shirt drawer!

SURPRISES

**UNEXPECTED
OCCURENCES**

NOVELTIES

Labeling and Commenting

- Think about task demands and vocabulary
 - "I see + a paperclip" "I hear + a drum"
 - vs.
 - "RATS!"
 - "Yucky!"
 - "That's silly!"

Remember that they're just KIDS! Have fun and goof around!

- Also, once again – model, model, model!

Labeling and Commenting

- Topic Displays can be incredibly useful to support commenting, as well
 - Supports modeling
 - Provides relevant vocabulary

“Matthew eats cookies”
 “Mom pours the milk”



Labeling and Commenting

Emotions:

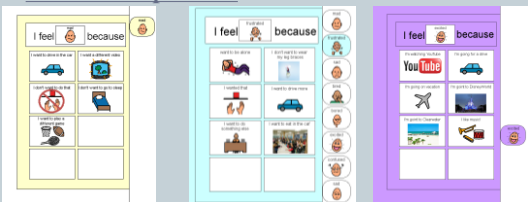
Emotions are highly abstract:

- Just because someone can frown when they're asked to be 'sad' does not mean that they've internalized what it means to be sad

The emotion itself is often more difficult to identify than is the cause of the emotional experience

Labeling and Commenting

Emotions: The emotion itself is often more difficult to identify than is the cause of the emotional experience



Take home

I have provided copies of various templates and the wh-questions here:



<http://bit.ly/1rnXGka>

Questions/Comments

Contact:

jennifer.abramson@childrens.harvard.edu

Thank You!