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## Using Video Modeling to Teach Play Skills in Children with Autism, presented in partnership with Cincinnati Children's

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### About me: Heather Reffitt

- I have a MS in Communication Disorders from Miami University, Oxford Ohio.
- I have worked at Cincinnati Children's for 13 years.
- Specialize in children with ASD, severe behavior, CAS.
- Routinely deliver therapy in a co-treatment setting with OT.

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## Learner Outcomes

- As a result of this course, participants will be able to:
  - Identify appropriate clients to trial the use of video modeling.
  - List the steps for filming a video model sample for therapeutic use.
  - Describe the appropriate filming perspective for use with clients based on their needs.

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## Background: How I came to know video modeling.

- I have a caseload heavily comprised of young patients (2-9 years) with ASD and/or severe behavior dx. Additionally, a high percentage of my therapy is delivered in a co-treat setting.
- During co-treat sessions, we noticed some children would attend to iPad when they would not attend to therapist.



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## Background continued....

- Recorded simple activities on iPad and observed that children were more willing to engage. (potato head, line drawing, etc)
- Accepted for participation in POCS program and began exploring video-based modeling

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## POCS program

- A program offered at CCHMC (Point of Care Scholar Program): Time protected program focused on EBP and research.
- Develop PICO question related to treatment or material of interest
- Perform comprehensive literature search/review/critical appraisal
- Develop a BESt statement based on findings.

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## Clinical Issues

- Currently, there is variation among speech language pathologists treatment delivery techniques in treating children with ASD.
  - Current therapy approaches include but are not limited to: individual speech therapy, in-vivo modeling (live modeling), ABA, discrete trial training, TEACCH, pivotal response training, co-treatments, visual supports, augmentative communication, video modeling, and group therapy.
- Rate of autism is increasing, thus more children need our services.

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## Clinical Issues Continued

- Call for cost-effective, evidence-based interventions
- Video modeling increasingly studied in education but not widely used in speech therapies
- Following extensive literature search, a BESt statement was written on the use of video modeling to target play skills in patients with Autism.

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## BES<sup>t</sup> statement

- What is a BES<sup>t</sup> statement
  - At CCHCMC Evidence-Based Care Recommendations are based on the best available evidence and expert opinion.
  - Care recommendations are produced as Best Evidence Statements (BES<sup>t</sup>) and Care Guidelines.
  - The scope of a BES<sup>t</sup> is smaller than a clinical practice guideline. A BES<sup>t</sup> contains clinical recommendations based on best evidence on a limited topic or single clinical question. The BES<sup>t</sup> also depends more on synthesized evidence, such as published guidelines and other systematic reviews when available, than on primary research.

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## Research and Evidence

- Why do we need to do this?
  - Cause of ASD not known and therapies and materials continue to evolve as “fixes” that have not gone through the rigor or EBP.
  - Research sample sizes within the ASD population can be difficult to match based on developmental/chronological age for statistical relevance.
  - Need to ensure the methods we are implementing are in the best practices and interests of patients/families and therapists.

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## Theory and Background Info

- What we know about autism and why video modeling could help.

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## Autism, Play and Language

- Ability to acquire spoken language predicts developmental outcomes:
  - Joint Attention
  - Play Skills
  - Social Interaction
  - Autism: Frequent deficits in independent or functional play

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## Research: Language Development

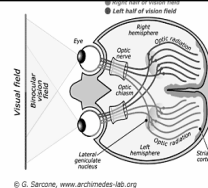
- Mundy et al. found correlations between:
  - Measures of joint attention and language acquisition in children with ASD
  - Response to joint attention attempts and receptive/expressive language scores
  - Initiation of joint attention scores and receptive language measures in children with autism.

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## Visual Attention and ASD



- Visual attending patterns of individuals with ASD varies from those of typically developing peers.
- Cardon and Azuma (2012)
  - All children had increased visual attention to video compared to live puppet show
  - Children with autism > typical peers

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## Video Modeling

- Video modeling targets four core learning components:
  - Attention
  - Retention
  - Production
  - Motivation

Cardon, 2011

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## Evidence Supporting Intervention

- The Proof

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## Select Examples: Mason 2012

- Design:
  - Meta-analysis
  - Outcomes included
    - Play
    - Social Communication
    - Independent Living
- Results:
  - VM was highly effective for all outcomes.
  - The impact on play skills > than for the other skills

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## Select Examples: MacDonald 2009

- Design:
  - Multiple-probe design across three play sets
- Results:
  - All children developed sequences of scripted verbalizations and play actions quickly and sustained performance
  - Increase in mean # of unscripted verbalizations, reciprocal verbal interactions, & cooperative play

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## Evidence Summary

- **Language and Play**
  - 14 articles
  - DX of autism
  - Ages 20 months-11 years
- **Limitations included**
  - Small sample size
  - Lack of inferential statistics
  - Absence of valid and reliable methods of measurement

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## Evidence Summary continued...

- Despite statistical limitations, Clinically significant results were reported specific to play skills:
  - 10 studies: Increase in imaginative play
  - 3 studies: Increase in functional play skills
  - 9 studies: Increase in the use of scripted verbalizations
  - 3 studies: Decrease in unscripted verbalizations \*\*

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## Evidence Synthesis

- A moderate grade of evidence was found to support the use of video modeling based interventions for children with autism to target
  - Play skills and related scripted language skills
  - Engagement in daily living activities

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## Recommendation

- BESt statement on the use of VM
  - *It is recommended that speech-language pathologists working with children with autism spectrum disorder incorporate the use of video based modeling into treatment plans to target either functional or imaginative play skills*

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## PLAY

- Have you ever considered all of the stages and evolution involved in the development of play skills?
- When play doesn't come natural, there many components to play that can be difficult.



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## Do you know play?

- Why is it important to be aware of the play stages?
  - Need to be able to identify the level of play deficits to develop appropriate goals and treatment approaches.

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## The development of play

- Indiscriminate Actions: all objects treated the same (mouthed, banging, dropped)
- Discriminate Actions: discriminates among typical uses for objects, while keeping their main use (pulls beads apart, pats a baby doll)
- Takes apart Combinations: Separates parts of objects (takes puzzle pieces out)
- Presentation Combinations: makes objects look like their original presentation (shapes in shape sorter, nesting cups, gears)
- General Combinations: puts objects together outside of their designated containers (put beads into a cup, put blocks into a bucket, etc).
- Pretend self: play objects related to self and with functional purpose (use appropriate toys to pretend to take a bite/drink, comb hair, etc).

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## Review of Play development.....

- Specific combinations-Physical Attributes: keeps physical attributes in tact (string beads on string)
- Child as agent: using a doll as a playmate for functional task (give doll a drink/bite, change diaper, etc)
- Specific Combinations-Conventional Attributes: Places objects where they typically belong (puts toys back on specific shelves, cups with plates, etc).
- Single Scheme Sequences: Uses more than one "partner" for a play scheme. Gives doll, cow, person a pretend drink.
- Substitutions with objects: Uses one object to represent another object (block/phone, bowl/hat, shoe/car)
- Substitutions without object: imaginative play with object not in play space (pretend to stir a bowl and spoon, pretend to strum a guitar, etc).

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## Review of Play development.....

- Doll as agent: uses doll as character in play as if doll were doing things (move doll to open door and sit in car, doll hold crayon and color)
- Multischeme Sequences: functional play schemes (feed doll, clean doll, bathe doll)
- Sociodramatic play: acting out familiar routines (doctor/school/housework) routines in play
- Thematic Fantasy Play: acts out fantasy characters (princesses, superheroes)

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## Video Modeling in Therapy

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## Video Modeling Scope



In a recently released tutorial on video modeling and speech therapy it was found that based on the existing literature, video modeling is: a promising intervention for addressing the following goal areas in the SLP's scope of practice:

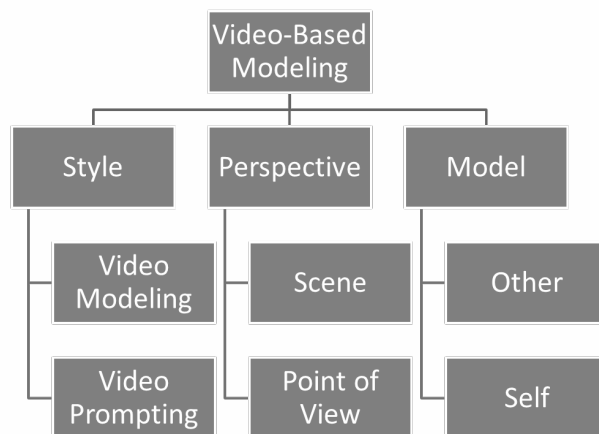
- play
- (individual and reciprocal), perspective taking (e.g., responding correctly to theory-of-mind tasks, assuming the role of another person/character),
- conversation/greetings,
- adaptive/ functional skills (e.g., cleaning, purchasing),
- social
- initiation (Ayres & Langone, 2005; Bellini & Akullian, 2007; Shukla-Mehta et al., 2010).

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## Video Modeling: Filming Perspectives



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## Video Modeling: Filming Perspectives

- Video modeling of other: recording an adult or peer acting out a script completing the targeted skill. Focus is on the person and materials, and background stimuli is limited.
- Video self- modeling: recording the targeted individual/patient's performance of a skill
- Point- of -view modeling: recording the model from the perspective of the model. This involves recording the entire scene, the camera may be placed at the model's shoulder level, recording only the model's hands completing a task
- Scene: recording adults or peers acting out a script where the entire environment is displayed.

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## Video Modeling Process

- As detailed by Katlin Wilson, 2013, VM is a 5 phase process
  1. Preparation
  2. Recording the VM
  3. Implementation of VM intervention
  4. Monitoring the individuals response
  5. Planning next steps

Incorporating Video Modeling Into a School-Based Intervention for Students with Autism Spectrum Disorder Kaitlyn Wilson *Lang Speech Hear Serv Sch* 2013;44:105-117; originally published online Oct 19, 2012  
<http://lshss.asha.org/cgi/content/full/44/1/105>

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## Preparation

- What does the video need to look like?
- What equipment do you need?
- Where are you going to film?
  - Noise?
  - Distracting backgrounds?
- Consider preparation worksheet

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## Implementation

- Auditory cues from video or from therapist?
  - Try both!
- How many times should child view video?
  - Often we will show multiple times before expecting a response- allows time to process.
  - If child is motivated by watching, then use 1:1
- Other tips:
  - Lock iPad
  - Child push button

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## Creating and Maintaining

- Saved on shared drive
- YouTube
- How to import

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## Whoa. Did you see that?

- Examples in Session

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## Examples in session

- Prior to examples, I want to reiterate many of the children I work with are 2-4 years of age. The play skills my videos focus on often target imitation, joint attention, cause/effect type play.
  - Also, foundational skills prior to play can be targeted (direction following, taking turns, trading, etc).
  - This does not mean that VM can not be used for more advanced play scripts.

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## Where do I start?

- Consider motor planning and language processing skills before play.
  - What are the abilities? Can the patient follow simple one step directions (put on/in, up).
  - Can patient play without physical prompts, or is prompt dependence noted?
  - Very important that the correct play skill/level is addressed.

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## Video Modeling in use

- As a clinician “in the trenches” it is often difficult for me to record patients while actively using video modeling.
- I use VM with a variety of cognitive levels, ages and goals.
- In addition to language and play, VM is helpful with gross motor/sensory equipment play.

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Oh man---motor planning

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## Example of in-vivo/live modeling

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## Same skill with VM instruction

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VM that was provided to the patient

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Directive following VM

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## Stacking Blocks

- Observe changes to play and language before/after video
- Observe patient attention/compliance

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## Block Play example 1

Note patient attention, imitation, language

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## Block Play—4 months later

- Background: getting ready to work, he saw block bin and said “I want to play blocks”.
  - I had to honor that request! 😊
  - You will see how the rest unfolds.

## Block Play—4 months later

## Block Play 2

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## Simple game play

- What do I do? How do I even start to play?
- Motor planning, motor planning, motor planning...
- Setting up the game is difficult
- Think of direction following during the game and variations of game that neurotypical peer would be expected to complete at this stage

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Let's get started

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I'm trying to play and talk!

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## Playing, talking and answering

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## A few from our video library

- Example of pre-made videos

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## Simple matching games/tasks

- Examples include:
  - Barnyard bingo 1 color with voicing
  - Potato head
  - Block Building
  - Schedule Check

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## Barnyard Bingo: 1 color with picture matching

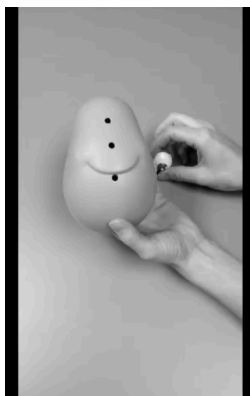


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## POV Potato Head

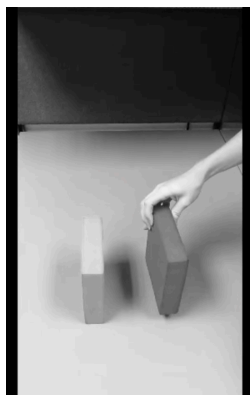


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## Block Building



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## Co-Treat Schedule



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## Pretend/Imaginative Play

- Can be used with or without voicing
- Used without voicing to target object manipulation/imitation
- Examples:
  - Barn
  - Baby



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## Farm Animal Eating

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## Stove Play

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## Additional Options

- Pre-made video products
- iPad apps

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## Your Turn

- CASE STUDIES

Case # 1	
<b>Story</b>	You are attempting to have a child engage in a puzzle completion activity. The child picks up the pieces but engages in non-purposeful play, often spinning the pieces and requiring hand-over-hand assistance to place pieces in the board. The child has the motor-planning skills necessary to complete the task.
<b>Perspective</b>	
<b>Materials</b>	Puzzle
<b>Goals</b>	OT Goal: motor-planning, visual-perception Speech goal: object identification/ matching, following a point if necessary

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## Your Turn....

Case # 2	
<b>Story</b>	You are running a social skills group with three children. During the Candyland game, two of the children are appropriately taking their turns while one child consistently requires hand over hand assistance to complete the task. They also require prompts for appropriate social exchanges.
<b>Perspective</b>	
<b>Materials</b>	Candyland game
<b>Goal</b>	Turn-taking Positive comments Winning and losing

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## Changing the Outcome

- Real life success story

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## Conclusion & Take Home Message

- There is a moderate level of evidence to support the use of video modeling to address language and play skills as well as engagement in daily living activities.
- With appropriate planning and consideration for barriers and supports, video modeling is a feasible intervention to implement in many settings.
- Video modeling could prove particularly valuable to assist with generalization and carryover in the home environment

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## Questions

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