



**ASD-Tech:
Implementation of Evidence-based Practices for People
with Autism Spectrum Disorders via Mobile Technology**




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Ganz, J. B. & Hong, E. R. (2014). Naturalistic aided AAC instruction. In J. B. Ganz, Aided
augmentative and alternative communication for people with ASD (pp. 55-78). In J. Matson (series
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Agenda

- Broad Overview of Naturalistic Behavioral Instructional Techniques
- Implementation of Behavioral Techniques via Technology:
 - Low-tech
 - High-tech
- Apps we used in this Presentation



Naturalistic Behavioral Instructional Techniques

- Technology ≠ Magic





Intro: Naturalistic Behavioral Instruction

A structured form of naturalistic teaching with these main components:

- Instructor sets up the environment to be appealing to the target individual
- Client initiates interaction
- There is a consequence to a client's initiation by elaborating on or prompting the client's interaction
- Instructor ends the exchange on a positive note


(Hart & Risley, 1978)



Key Components of Naturalistic Instruction

- Plan for generalization early:
 - Implemented in all settings in which the skill would naturally be used
 - Natural communication partners implement the intervention

(Ogletree, Davis, Hambrecht, & Phillips, 2012; Binger & Light, 2007; Reichle, Drager, & Davis, 2002; King & Fahsi, 2012)



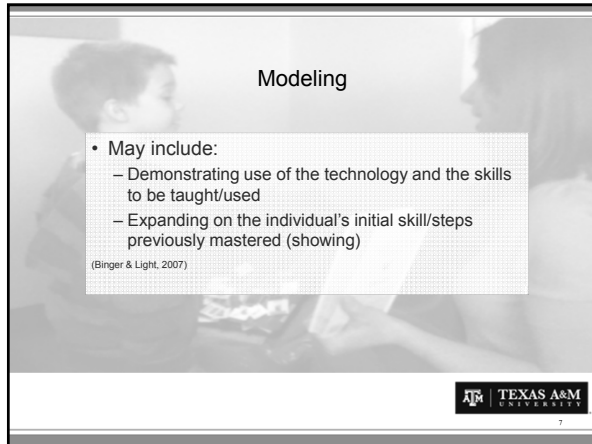
Specific Instructional Strategies

- Modeling
- Prompts
- Errorless Learning
- Time Delay
- Expanding
- Reinforcement

(Ogletree, Davis, Hambrecht, & Phillips, 2012; Binger & Light, 2007; Reichle, Drager, & Davis, 2002; King & Fahsi, 2012)




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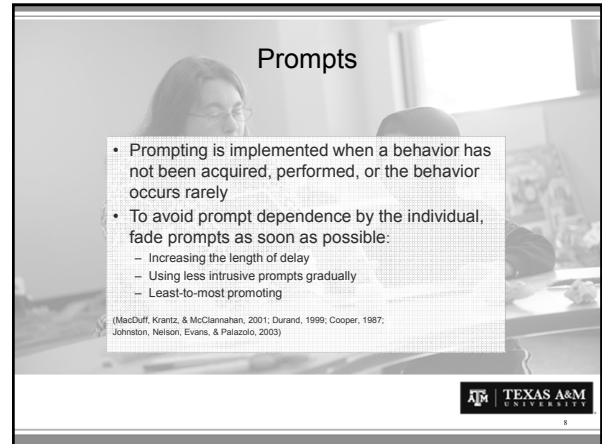


Modeling

- May include:
 - Demonstrating use of the technology and the skills to be taught/used
 - Expanding on the individual's initial skill/steps previously mastered (showing)

(Binger & Light, 2007)


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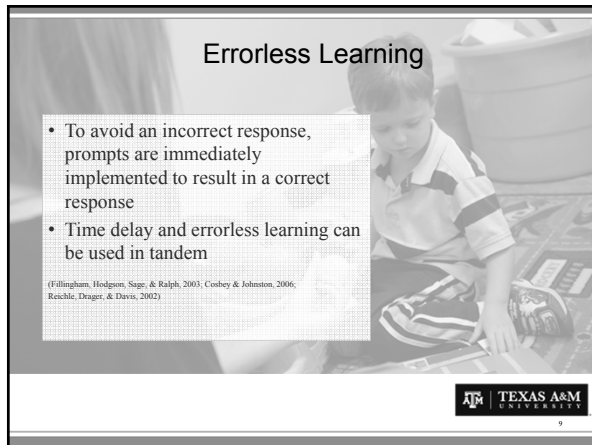


Prompts

- Prompting is implemented when a behavior has not been acquired, performed, or the behavior occurs rarely
- To avoid prompt dependence by the individual, fade prompts as soon as possible:
 - Increasing the length of delay
 - Using less intrusive prompts gradually
 - Least-to-most prompting

(MacDuff, Krantz, & McClannahan, 2001; Durand, 1999; Cooper, 1987; Johnston, Nelson, Evans, & Palazzolo, 2003)


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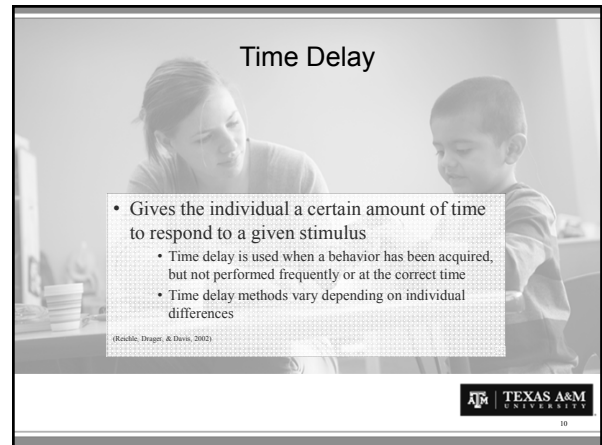


Errorless Learning

- To avoid an incorrect response, prompts are immediately implemented to result in a correct response
- Time delay and errorless learning can be used in tandem

(Fillingham, Hodgson, Sage, & Ralph, 2003; Cosbey & Johnston, 2006; Reichle, Drager, & Davis, 2002)


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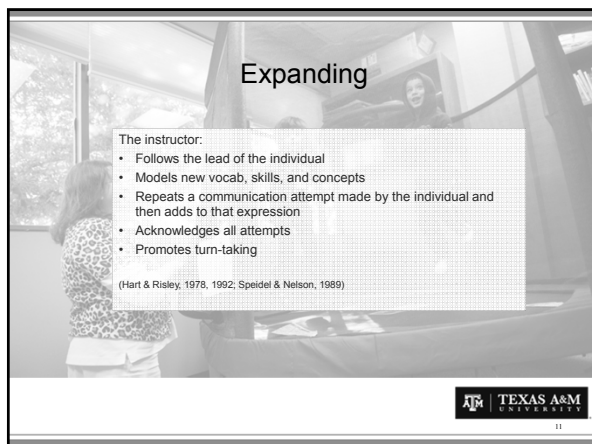


Time Delay

- Gives the individual a certain amount of time to respond to a given stimulus
 - Time delay is used when a behavior has been acquired, but not performed frequently or at the correct time
 - Time delay methods vary depending on individual differences

(Reichle, Drager, & Davis, 2002)

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Expanding

The instructor:

- Follows the lead of the individual
- Models new vocab, skills, and concepts
- Repeats a communication attempt made by the individual and then adds to that expression
- Acknowledges all attempts
- Promotes turn-taking

(Hart & Risley, 1978, 1992; Speidel & Nelson, 1989)

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Reinforcement


- A consequence is presented that increases the rate of behavior that the individual exhibits
- In the natural environment, attempts to use skills should result in reinforcers that are typically available and appropriate to each situation

(Skinner, 1951; Cosbey & Johnston, 2006; Johnston et al., 2003)

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Use of Technology to Implement Evidence-based Practices for People with ASD




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Augmentative and Alternative Communication (AAC) Defined


Definition – AAC systems are used as aids in producing speech, clarifiers for unintelligible speech, and/or representations for the absence of speech (Ganz et al., 2012)

Two types of AAC :

- Unaided AAC
 - Gestures
 - Manual sign language
- Aided AAC
 - Pointing to a picture on a communication board
 - Exchanging a symbol
 - Activating a speech-generating device (SGD)





(American Speech-Language-Hearing Association [ASHA], 1997, Frost & Bondy, 1994, 2002; Ganz et al., 2012)





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AAC Examples

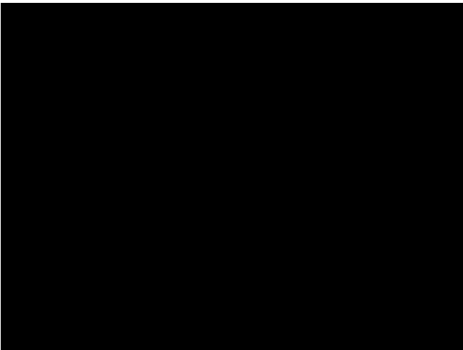

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Grid-Style AAC Example



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Grid-Based AAC Example Video

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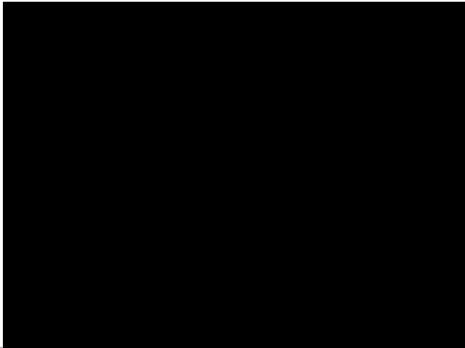
Visual Scene Display Example

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Visual Scene Display Example



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Modeling → Video Modeling

- Using social learning theory to encourage the client to imitate skills demonstrated
- Allows efficient repetition of the model
- 3 primary types:
 - Video-Modeling with Other (VMO)
 - Video Self-Modeling (VSM)
 - Point-of-View modeling (POV)

(Bandura, 1969; Hitchcock, Dowrich, & Prater, 2003; Mason, Ganz, & Crutchfield, in press)

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Video-Modeling with Other

- An adult or peer serves as the model in the video
- Model has already mastered the skill
- Video is scripted
- Many examples are recorded

(Mason et al., 2013)

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Video Modeling of Other Example



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VMO Example



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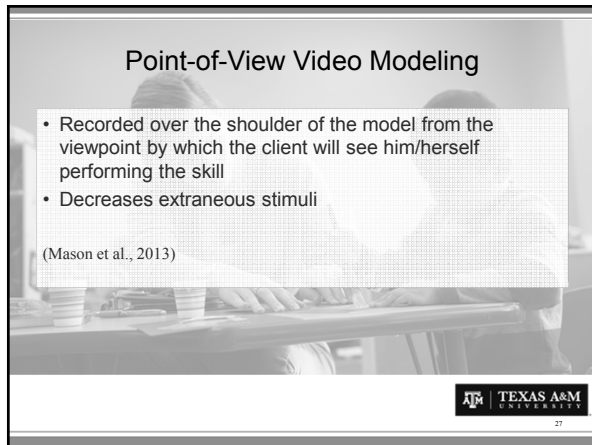
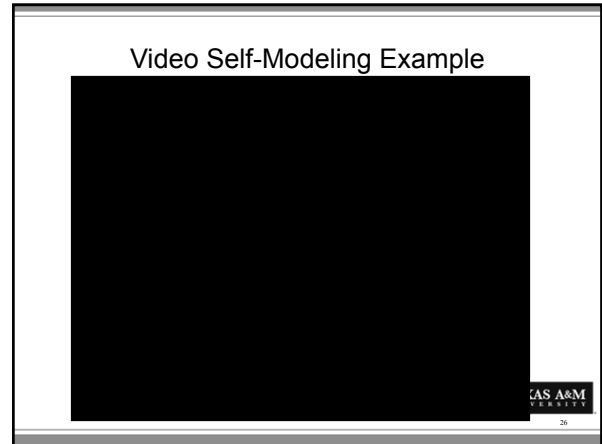
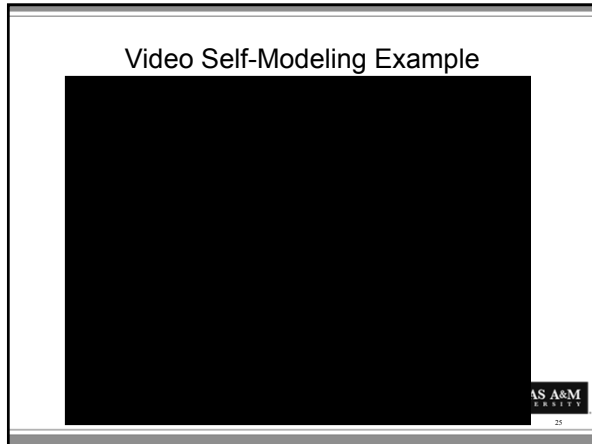
Video Self-Modeling

- The client is video recorded performing the target skill
- Prompts may be needed to ensure correct demonstration of the skill
- Prompts and non-examples are edited out until the video shows only correct performance

(Bellini & Akiuillan, 2007; Mason et al., 2013)

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Task Analyses

- Breaking down complex tasks into discrete steps
- Steps are taught one at a time
- Steps may be chained
- Visually-based task analyses may remain in the environment as natural cues for the client to self-cue/prompt


(Szidon & Franzone, 2010)




Task Analysis Example


Task Analysis Example




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Task Analysis Example




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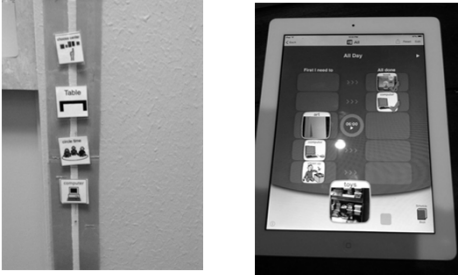

Visual Schedules

- They provide the client with information regarding what activities/tasks are upcoming
- Depending on the person's reading abilities, icons, photos, or words may be used
- Clients will be taught to use them independently

(Smith, 2008)



Visual Schedule Example





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Written Scripts


- Can be used to teach appropriate language given particular contexts
- Provides visual cues for the client via words and/or images to prompt language
- Script fading is also used, when the individual demonstrates mastery or generalization of skills.

(Ganz, Cook, & Earles-Vollrath, 2006)




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Written Script Example



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Written Script Example



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Apps

- Choiceworks can be used with an iPad (iOS 6.0 or later), iPhone, or Android
- iReward can be used with an iPad and an iPhone (with whichever iOS version), and Android
- SceneSpeak is an app for the iPad iOS version 5.1 or later
- QuickCues can be used with an iPad, iPhone, and iPod Touch (version 6.0 or greater), Android and Microsoft
- iPraiseU App for iPad (whichever iOS version)
- iReward Chart app for Android, Microsoft Windows Phone 7 and up.
- Scene and Heard (iOS universal iPad app, free Lite version)
- First-Then Visual Schedule (Android)
- Pic-See Lite (Android)
- What's Next (Android)
- Autism Apps (list of apps commonly used for individuals with autism)
- Bridging Apps (bridgingapps.org)



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Thank you!

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