

Higbee and Reagon--Activity Schedules for Children with Autism

Activity Schedules for Promoting Independent Play in Children with Autism

Thomas S. Higbee, Ph.D., BCBA
Director, ASSERT Program
Kara A. Reagon, M.Ed.
Assistant Director, ASSERT Program
Utah State University



ASSERT Program Aims

1. **Education:** Provide effective educational and behavioral early intervention through our model classroom using research-based best practices
2. **Research:** Conduct research to improve educational and behavioral interventions for children with autism
3. **Training:** Serve as a model training classroom for USU preservice special education teachers and other educational professionals throughout the state of Utah who are interested in learning to work effectively with children diagnosed with autism spectrum disorders



We all use schedules...

- Schedules prompt us to engage in certain activities at certain times
- They make our lives more predictable and allow us to plan future activities
- Examples of schedules include:
 - Planners
 - Palm Pilots
 - Calendars
 - “To-Do” lists
 - Sticky notes

What is an activity schedule?

“...a set of pictures or words that cues someone to engage in a sequence of activities.”

(McClannahan & Krantz, 1999, p.3)

- Beginning schedules are often comprised of a set of photos of play materials that are presented sequentially in a small 3-ring binder
- The learner independently completes the play sequence using the schedule to prompt him or her instead of adult instructions

Why Activity Schedules?

- Promotes Independence
 - Decreases the need for adult prompting and guidance
 - Promotes increasingly longer response chains
- Choice
 - Individuals have increasing control in decision-making regarding type and sequence of daily activities
 - Provides framework for teaching choice making

Activity Schedules Continued

- Social Interactions
 - Prompts initiations of social interactions and conversations
- Planning
 - A prompting and tracking sequence for tasks to be completed
- [Video Example](#)

Schedule Formats

- Binder with pictures or words on each page
- To do lists containing pictures or words
- Written or typed
- Planners
- Pocket PCs
- Audio-taped schedules

Types of Schedules

- Across Activities
 - Daily
 - Teaching lessons
 - [Outdoor/exercise](#)
 - Independent
 - Play, work, bedtime, morning
- Activity specific
 - Meal-time activities
 - Snack making
 - Setting table
 - Cooking meals
 - Household chores
 - Loading dishwasher
 - Self help
 - Dressing
 - Brushing teeth
 - Leisure
 - Model building

Pre-requisite Skills

- Picture/background discrimination
- Identity matching
- Picture/object correspondence
- Motivational System
- Tactile tolerance
- Acquired play/work skills

Picture/background Discrimination

- Attends to picture not background
- Plain schedule pages, identical color
- Teach attending to picture cues by pointing

Identity Matching

- Initially three dimensional, then two dimensional
- Teach matching using at least 4 items
- Rotate both items to be matched and position of corresponding item on table for each trial
- Collect data

Picture/object Correspondence

- Important for schedule following
- Teach via schedule book
- Can use simple instructions such as “point” or “find” or use manual guidance only
- Use highly preferred items that are easy to manipulate, portable, and accessible
- Probe for generalization using new items

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Tactile Tolerance

- Manual guidance is the principle teaching procedure
- Ability to tolerate touching hands, arms, shoulders, and allow guidance
- Teach tactile tolerance before beginning a schedule
- Pair manual guidance with highly preferred physical activities

Acquired Play Skills

- Facilitates teaching of schedule following components
- Identify highly preferred or favorite activities/ tasks learner can complete independently

Materials

- Three ring binder (flat when open) appropriate size for the learner's age
- Velcro
- Sheet protectors
- Construction paper (same color)
- Pictures or photographs
- Containers for holding materials
- Shelf



Preparing a First Activity Schedule

- Beginning activity schedule should be short (5 activities)
- Select activities/toys with a clear beginning and end, easy to manipulate
- Include at least one social initiation in schedule
- Schedule should end with a preferred snack

Selecting Activities

- Shape sorters
- Picture lotto
- Insert puzzles
- Color matching games
- Bead threading
- Nesting cups
- Pop up toys
- Hammer ball
- Pegboards
- Books on tape
- Dot to dot
- Music on tape
- Drink of juice
- Cup of popcorn, chips, candy
- Picture books
- Make curriculum!!!!

Preparing the Environment

- Use natural locations if possible for materials
- Have materials always in the same location and within reach (perhaps on a shelf or on the floor in a specific location)
- Set the schedule up in close proximity of the materials initially
- Activity schedule is always placed in the same location on the work surface
- Rewards are within easy reach of the work area

Sequence of Schedule Following

- Opening schedule book
- Point to page
- Obtain item
- Perform activity
- Return item to original location
- Return to schedule book
- Turn page

Prompting Procedures

- "Prompts are instructions, gestures, demonstrations, touches or other things that we arrange or do to increase the likelihood that (the learner) will make a correct response (McClannahan & Krantz, 1999, p. 37),"

Prompting Continued

- Although learners may have many skills, they do not demonstrate these skills in the absence of adults, or a beginning instruction
- Activity schedules teach learners to initiate and complete a sequence of activities without verbal directions

Prompting Sequence

- Manual guidance
- Graduated guidance
- Spatial fading
- Shadowing
- Decreasing physical proximity

Manual Guidance

- Most to least system of prompts used to teach schedule following
 - Fewer errors until skills are mastered
 - Higher rate of reinforcement for errorless learning decreases the likelihood of other problems (disruptive behavior, inattention)

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Teaching Procedure

- Give beginning instruction
 - “Go play”
 - “Find something to do”
- Once the initial instruction is given **DO NOT** talk until the schedule is finished (unless the schedule indicates a social interaction)
- Do not use gestures
- Get out of the way

Manual Guidance

- Guide towards schedule book materials by holding the learner’s shoulders
- Use hand over hand prompts for opening the schedule book, and pointing to the picture
- Guide towards materials by holding shoulder
- Use hand over hand prompts for picking up materials and to complete the task

Manual Guidance Continued

- If task is mastered, use minimal guidance
- If the task is new, use hand over hand prompts
- When the activity is completed, use hand over hand to pick up materials and return container
- Use manual guidance from the shoulder to guide towards the bookshelf

Manual Guidance Continued

- Use hand over hand prompts to place materials on the shelf
- Use manual guidance from the shoulder to return to the activity schedule
- Begin the sequence again

Delivering Rewards

- High rate when beginning a new schedule
- Always deliver rewards from behind
- If you are using a token board make sure the learner sees the token being delivered
- Use a combination of tokens and rewards if necessary
- Time delivery of last token to coincide with the completion of the whole schedule

Rewards Continued

- Do not pair with praise
- Reward for any step in the chain the learner performs appropriately
 - Initially rewarding steps completed with manual guidance
- When fading manual guidance, make rewards contingent on independent behavior
- **DO NOT** reward for delayed responses, errors, resisting manual prompts, engaging in tantrum behavior or stereotypic behavior

Fading Rewards

- Fade rewards as the learner becomes more independent
- Eventually fade out all rewards
- The independent play schedule itself should be reinforcing at this time
- May want to consider adding in social interaction opportunities

Graduated Guidance

- Probe to see if the learner is beginning to complete parts of the schedule independently.
- Manual guidance can be faded for several steps (e.g. walking to and from shelf) and can still be required for other steps (e.g. turning schedule pages)
- When and what steps are faded are decided for each learner individually and are based on the data

Spatial Fading

- Changing the location of manual prompts
 - Hand
 - Wrist
 - Forearm
 - Upper arm
 - Elbow
 - Shoulder

Shadowing and Increasing Distance

- Follow movements with hands
- Follow movements to and from schedule
- Fade distance from learner
- A variety of different prompting levels may be used during one activity schedule
- The goal is fluent, errorless schedule following

What About Mistakes?

- Return to the previous prompting procedure
- Re-teach entire schedule with manual guidance
- Begin the session again
- Consider motivation
- Assess materials/activities
- Implement rehearsals
 - Have the learner do it again so that behavior chain is free of inappropriate behaviors and or mistakes.

Measuring Progress

- Why?
 - Collecting data is critical to using an activity schedule
 - Helps identify where errors occur in the response chain (and therefore assist in error analysis).
 - Assists in decisions regarding prompt-fading.
 - When to make changes to schedule.

How to Measure Progress?

- Score each component of the schedule
 - Opening schedule book/turning page
 - Looking at or pointing to picture
 - Obtaining materials
 - Completing activity
 - Putting materials away
 - Returning to schedule

Scoring Responses

- Score correct responses + (plus)
 - Correct responses are those which do not require any prompts (touch or gesture).
- Score incorrect responses - (minus)
 - Incorrect responses are those steps in the sequence which are not completed independently (i.e. selecting wrong materials, moving in the wrong direction, skipping a page, not returning to schedule, requiring assistance with materials, waiting - 10 sec. Delay)

Activity Schedule Following Data Sheet

Learner _____ Observer _____ Date _____

Activity Schedule

Step	Points Looks	Obtains Materials	Completes Step	Returns to Schedule	Turns Page

Number of components completed correctly ____
Total number of components ____
% of components completed correctly ____

Making Changes

- Adding new activity sequences
 - Change order of the pictures in the schedule to ensure 'picture reading' occurs
 - Rearrange materials so they do not reflect order in book
 - Begin to add new activities into schedule in order to lengthen the amount of time the learner is engaged in independent play and to prevent boredom

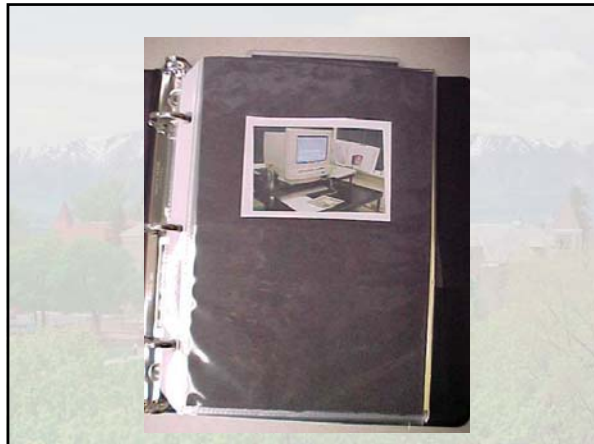
Independence

- Learner completes schedule without assistance when photographs are regularly re-sequenced
- Various activities have been added
- Materials are frequently rearranged
- Fade presence from the room completely

Adding 'Timed' Activities into Activity Schedules

- Timed activities
 - Reading books, playground equipment, playing with toy cars, computer time, music, watching t.v. or video, drawing
 - Food preparation- using the microwave oven
- Use manual guidance within schedule to teach setting the timer
- Picture cues prompts learner to
 - Clear timer, set timer for number of minutes, start timer

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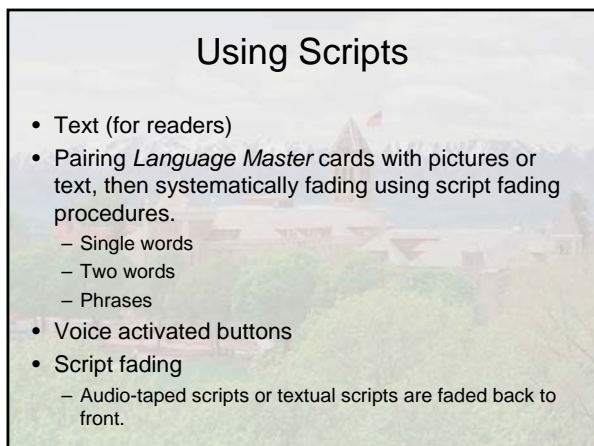
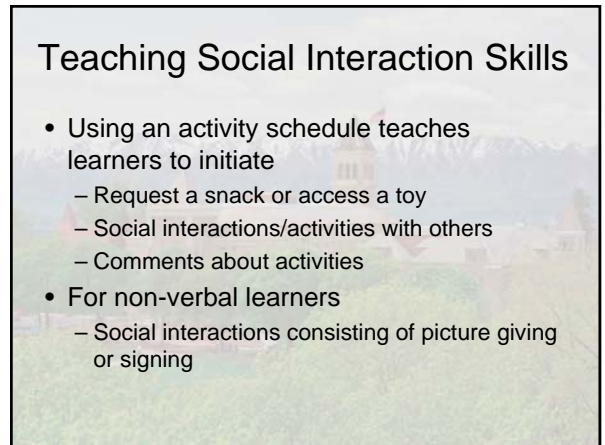
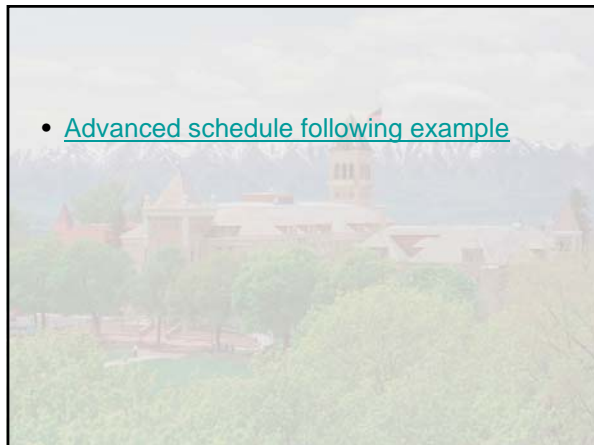
Making Open Ended Activities Closed

- Stringing beads
 - Limit the number of beads
- Matching
 - Limit the number of cards
- Coloring/Drawing
 - Give a partially completed worksheet

Choice Making

- Rewards
- Sequencing activities
 - Add blank (color coded) page to schedule. This can add depth to your schedule.
 - Select three highly preferred activities as initial choices - change them often.
 - Use manual guidance for pointing to picture, going to choice board, placing it on schedule page, and completing activity.
 - Or use icons

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Examples of Social Interactions

- To request attention
 - “Watch me”
- For physical interactions
 - Tickle, hug, kiss
- For joint attention/sharing with toys or objects
 - Bubbles, ball, sing songs
- To discuss favorite topics
 - Movies, restaurants

Examples of Interactions About Activities

- At the beginning of an activity or at the completion of an activity
 - “May I look at a book?”
 - “Look what I did!”
 - “I’m hungry.”
 - “Bathroom.”

Scripts and Script-Fading

- “I like to eat chips.”
 - “I like to eat ____.”
 - “I like to ____.”
 - “I like ____.”
 - “I ____.”
 - _____
- Audio scripts
 - Written scripts
 - Video Models

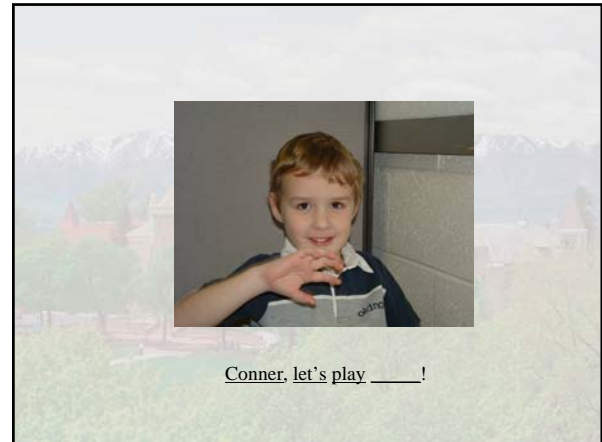
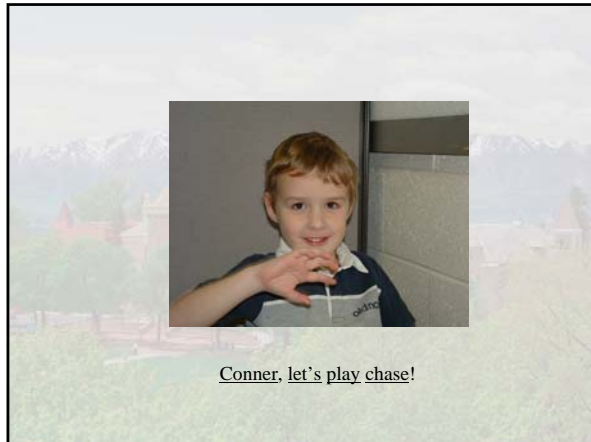
Scripts and Script-Fading

- Increase social initiations of children with autism
- Promote generalization
- Promote adaptations of the scripts
- Increase in social responding
- Decreases adult prompts

Textual Schedules for Readers

- Schedules can then be changed to list format
- Completed activities can be checked off, crossed out, or use tokens to keep place
- For learners with writing skills, begin using appointment books or a daily planner

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Summary

- Research has demonstrated that activity schedules are an effective tool for teaching individuals with autism
 - Promote independence
 - Make choices
 - Select and sequence activities
 - Make social interactions

For more information...

Handout for this presentation is available online at:

<http://sped.usu.edu/assert/announce.html>

Contact Dr. Higbee:

- Email: tom.higbee@usu.edu
- Phone: (435) 797-1933

Reference Book and Training Tapes

- "Activity schedules for children with autism: Teaching independent behavior." By McClannahan, L.E. & Krantz, P.J.
 - Available for purchase at any online bookstore (e.g. www.amazon.com)
- Krantz, P.J.; McClannahan, L.E.; Fenske, E.C.; & MacDuff, G.S. Teaching independence and choice: How to use photographic and written activity schedules in autism intervention. Princeton Child Development Institute Video.
 - Purchasing information available at:
 - www.pcdi.org

Purchasing Information

- Black 3-ring binder *Avery* (7 ½ x 9 in., 1 in or 3in. Thick) - *Staples* or *Office Depot*
- Sheet protectors - *C-Line Style # 62058*
 - www.C-LineProducts.com or 1-888-860-9120
- Timer - *Westbend* (digital kitchen timer) – *Walmart*
- *Language Master* – *EIKI International, Inc.*
 - 1-714-457-0200

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Research on Scripts and Script- Fading

- Krantz, P. & McClannahan, L. (1993). Teaching children with autism to initiate to peers: Effects of a script-fading procedure. *Journal of Applied Behavior Analysis*, 26, 121-132.
- Krantz, P. & McClannahan, L. (1998). Social interaction skills for children with autism: A script- fading procedure for beginning readers. *Journal of Applied Behavior Analysis*, 31, 191-202.

Research on Activity Schedules

- Krantz, P., MacDuff, M., & McClannahan, L. (1993). Programming participation in family activities for children with autism: Parents' use of photographic activity schedules. *Journal of Applied Behavior Analysis*, 26, 137-138.
- MacDuff, G., Krantz, P., & McClannahan, L. (1993). Teaching children with autism to use photographic activity schedules: Maintenance and generalization of complex response chains. *Journal of Applied Behavior Analysis*, 26, 89-97.

Research

- Stevenson, C., Krantz, P., & McClannahan, L. (2000). Social interaction skills for children with autism: A script-fading procedure for nonreaders. *Behavioral Interventions*, 15, 1-20.

More Research

- Hall, L., McClannahan, L., & Krantz, P. (1995). Promoting independence in integrated classrooms by teaching aides to use activity schedules and decreased prompts. *Education and Training in Mental Retardation and Developmental Disabilities*, September, 208-217.
- McClannahan, L., & Krantz, P. (1997). In search of solutions to prompt dependence: Teaching children with autism to use photographic activity schedules. In E.M. Pinkston & D.M. Baer (Eds.), *Environment and Behavior* (pp. 271-278). Boulder, CO: Westview Press.