

Library of Visual Reinforcers Designed for Children with Developmental Disabilities



Amanda Hemann^{1, 3}, Emily Kay^{1, 3}, Deborah Mood^{2, 3}, Kristin K. Sommerfelt¹, and Angela Yarnell Bonino^{1, 3}

- 1) University of Colorado Boulder, Department of Speech, Language and Hearing Sciences
- 2) University of Colorado Denver, Department of Pediatrics
- 3) The Colorado Leadership Education in Neurodevelopmental Disabilities (LEND) program



PURPOSE

The purpose of this presentation is to share a recently developed library of visual reinforcers that can be used by audiologists when conducting visually reinforced audiometry (VRA) testing with children with developmental disabilities.

BACKGROUND AND RATIONALE

Obtaining behavioral thresholds is considered the “gold standard” for differential diagnosis of hearing loss.⁴ For infants and many children with developmental disabilities clinicians frequently use VRA to obtain these behavioral thresholds. However, when the child’s developmental abilities misaligned with the developmental demands required for behavioral testing, thresholds may not be obtained or may require additional visits. Furthermore, clinicians frequently report difficulty obtaining sufficient data points for these children due to deviant interests, sensitivities to lights and sounds, a shortened attention span, and taking longer to attend to sounds within their environments.^{3, 7}

METHODS: SELECTION OF THEMES

Reinforcer themes were selected based on common interests of children with developmental disabilities reported in the literature and anecdotally by reviewers.^{1, 2, 5, 6} The list of themes was reviewed by a variety of professionals with backgrounds in audiology, speech-language pathology, developmental psychology, and early childhood education.

METHODS: SELECTION OF MEDIA

Media was obtained from open access, online depositories, including: Flickr, Pixabay, and Pexels. Depending on availability of materials, either videos or images were selected for each reinforcer theme. Each set consists of between 20-40 unique videos or images. Additionally, all digital materials were required to be of high-quality and be in the public domain or hold a license type that allowed us to freely build upon, enhance, or reuse the original work.

CONTACT US

For questions or comments about this poster please reach out to: Amanda Hemann (amanda.hemann@colorado.edu) and Emily Kay (emily.a.kay@colorado.edu)

METHODS: FORMAT OF MATERIALS

Materials are compatible with two commercially available systems: Intelligent VRA and Flex VRA. Microsoft Photos was used to convert individual photo files and video files to 4s or 10s .mp4 files. For clinics and laboratories that do not have access to a commercial system, we provide slideshows for all reinforcer sets that can be used in a custom setup. For each reinforcer set, a single slideshow was created in Microsoft PowerPoint (.pptx format). A single, full-screen photo or video is provided per slide and is preceded by a solid black background slide. To display the next photo or video, the slide must be manually advanced. The media will display for 4s, but this duration is customizable. Each slideshow displays a running count for the number of photos or videos shown and an additional visual alert on the final three slides for the set. The slideshow will automatically restart when the last photo or video in the set is shown. Materials were compiled on a website created using Open Source Framework (OSF), on this website current materials are broken into common themes. Additionally, there are directions for use, blank templates for personal creations, and additional information on obtaining media.

CURRENT REINFORCER THEMES

Activities	Animals	Sensory	Transportation and Equipment
- Cleaning - Cooking - Shopping - Sports	- African Safari - Big Cats - Birds - Birds of Prey - Bugs - Butterflies and Moths - Cats - Dinosaurs - Dogs - Farm Animals - Forest Animals - Frog and Toads - Reptiles - Sea Creatures - Snakes - Zoo Animals	- Bubbles - Clocks, Timers and Counters - Fans and Windmills Spinning - Items Moving and Spinning - People in Motion - Rainbows and Colorful Images - Reflections - Rides at Amusement Parks - Water spinning	- Airplanes - Boats - Emergency Vehicles - Farm Equipment - General Transportation Vehicles - Race Cars - Semi-Trucks and Heavy Construction Equipment - Trains
People			
- Babies - Faces			
Science and Letters			
- Alphabet - Space - Waterfalls - Weather			

SAMPLE REINFORCERS



IMPLEMENTATION

1. Download and trial materials prior to patient appointment
 - Directions for use on Intelligent VRA and Flex VRA can be obtained from OSF website
 - PowerPoint files contain directions on the first slide
2. Ask caregiver to complete the “[Caregiver Intake Survey](#)” prior to appointment to determine the child’s interest(s)
3. Preload materials so they are ready when patient arrives
4. Proceed with traditional VRA test procedures using the novel reinforcers

HOW TO ACCESS MATERIALS

<https://doi.org/10.17605/OSF.IO/BK6RC>

DISCUSSION

These materials may help facilitate testing for children who are difficult to test given current methods. However, further research is needed to verify efficacy of these reinforcer sets and to evaluate the implementation procedures with children with developmental disabilities. The ultimate aim of these materials is to improve behavioral assessment of children with developmental disabilities and obtain more data per encounter. Thus, decreasing the number of appointments needed, medical expenses, family stress, and providing earlier access to intervention for these children.

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