Active Learning Space at www.activelearningspace.org

Active Learning Study Group
September 27, 2018 from 3:00-4:00 PM (CST)

Presented by
Patty Obrzut, Penrickton Center for Blind Children
Jessica McCavit, Penrickton Center for Blind Children

Facilitated by
Charlotte Cushman, Perkins School for the Blind
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Developed for:
Penrickton Center for Blind Children
Perkins School for the Blind and
TSBVI Outreach Programs
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Active Learning Study Group September 27, 2018

Facilitated by:

Patty Obrzut, M.S., OTR/L, Assistant Director, Penrickton Center for Blind Children
Jessica McCavit, M.S., OTR/L, Penrickton Center for Blind Children
Charlotte Cushman, Perkins School for the Blind

Co-Hosts

Figure 1: Photos of Patty Obrzut and Jessica McCavit
Patty Obrzut and Jessica McCavit, Penrickton Center for Blind Children

Poll

Have you used the Functional Scheme to assess Fine Movement?

- Yes
- No
- I don’t work directly with students.

Webinar Dates

- January 24, 2019: Constructive Play
- April 18, 2019: Oral Motor Activities

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Figure 2: Screenshot of archived webinar for the September 2017 Active Learning Study Group.
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Figure 3: Screenshot of the newsletter mailing list sign-up page
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Figure 4: Screenshot of Introduction to Active Learning Principles module
http://www.activelearningspace.org/courses
Upcoming Trainings

- Georgia Vision Educators Statewide: Oct. 10-11
- Penrickton Center: Nov. 5-6

Full calendar: activelearningspace.org/training-events

The Comprehending Hand
Active Learning and Fine Motor Skill Development

Goals for Today’s Session

- To understand how an infant develops the ability to grasp
- To understand how cerebral palsy and other disabilities can influence a child’s ability to grasp
- To identify Active Learning strategies and activities that encourage the development of grasp

A Child is a Learner!

- As such, a child learns throughout life. A child learns gradually according to his/her level of physical, mental & emotional capacity – no matter how old he/she is, or what type of special need has affected or is still affecting his/her ability to learn.
- Learning is therefore only restricted by a lack of learning opportunities in a poor environment.
- If a child is unable to grasp, he/she will be unable to make full or sufficient use of the impressions he/she is experiencing.

Dynamic Learning Circle

![Diagram of Dynamic Learning Circle](image-url)

Figure 5: Diagram of Dynamic Learning Circle -- Stage 1: A child becomes aware & interested; Stage 2: A child becomes curious & interested, which leads to activity; Stage 3: A child completes learning with an activity; Stage 4: A child becomes ready for new challenges.
# The Development of Grasp

<table>
<thead>
<tr>
<th>Hand Position/Grasp</th>
<th>Activities of the Hand</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In utero</strong></td>
<td>0 Movements of arms/hands</td>
</tr>
<tr>
<td></td>
<td>0 Hand to mouth</td>
</tr>
<tr>
<td></td>
<td>0 Pushing against uterine wall</td>
</tr>
<tr>
<td></td>
<td>0 Open/close fingers</td>
</tr>
<tr>
<td></td>
<td>0 Hand to hand</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>0-1 Month</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Reflexive hand</td>
<td>0 Movements of arm/hand</td>
</tr>
<tr>
<td>• Holds hand tightly</td>
<td>0 Hand to mouth</td>
</tr>
<tr>
<td></td>
<td>0 Scratching motion</td>
</tr>
<tr>
<td></td>
<td>0 Grasp &amp; let go</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2 Months</th>
<th>0 Releases objects without awareness</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Reflexive grasp</td>
<td></td>
</tr>
<tr>
<td>• Holds hands un-fisted half of the time</td>
<td></td>
</tr>
</tbody>
</table>

Figure 6: Infants With a Thumb-in-Fist Posture (Michael Jaffe, Yoram Tal, Hussein Dabbah, Leonid Ganelis, Ayala Cohen, Lea Even and Emanuel Tirosh: Pediatrics 2000; 105;e41 DOI: 10.1542/peds.105.3.e41)
Video Examples 0-2 Months of Age

- These children’s hand movements are influenced by Cerebral Palsy
- Hand development is under 2 months of age
- Activities should reflect current ability level of the hand
  - Movement of the arms and hands
  - Scratching
  - Grasping
  - Letting go

Video Example
Child with a slinky on a resonance board

Video Examples 0-2 Months of Age

- Stages 1 and 2 of Dynamic Learning Circle
  - Aware of the slinky and arm movements
  - Actively experimenting
- Feedback
  - Auditory, Tactile, Vibration, Proprioceptive
- Processing time
- Position of hands
  - Fisted
  - Bilateral extremity movement
  - Thumbs adducted between index and third finger

Video Example: Rylan

- Outdoor activity wall

Video Reflection: Rylan

- Increased time to move/increased processing time required
  - Understanding his movement caused something else to happen
- Movement of multiple body parts

Video Reflection: Luke

- Has the ability to grasp, but developmentally, is at the level of a 2 month old
  - Previous experiences impact willingness to explore
- Multiple opportunities provided to practice various developmental skills
  - i.e. grasping the washcloth or rice; moving one hand to the other
**Video Example: Kassidy**
- Uses muscle tone to grasp, releases unintentionally
- Proper positioning required to be successful with grasping

**Video Reflection: Kassidy**
- Actively grasping and moving arm to make contact
  - Practicing grasping/releasing
- Transitioning to next developmental level
  - i.e. purposeful opening of hand, but difficulty controlling grasp

**0-2 Months Old**
Activities must allow for:
- Movement of the arm
- Movement of the hands and fingers
- Scratching
- Hand to mouth
- Grasp and release

![Image of a baby hand with fingers open](Image from respectfulcaregiving.org)

**Hand Position/Grasp**

**3 Months**
- Voluntary grasp begins
- Hands un-fisted most of the time
4 Months
  • Reaches
  • Engages hand in supine
  • Clutches objects
  • Retains objects

5 Months
  • Transfers object hand to hand
  • Palmer grasp with thumb adducted

Activities of the Hand (0-2 Months)
  • Puts hands together
  • Grasp & let go
  • Grasp & keep
  • Release objects purposefully
  • Uses thumb while grasping
  • Turns wrist
  • Bangs on items with fist
  • Crosses midline
  • Grasps with both hands
  • Pushing motion/batting

Video Example: Little Room
  • Similar movement patterns of the arms as when he explored the Slinky
  • Accidental and purposeful grasp and release, grasp and keep
  • Grasps and brings to mouth

Video Reflection: Little Room
  • Pushing/batting with more open hand
  • Appropriate materials in Little Room to provide increased feedback

Video Example: RJ
  • Increased wrist/elbow flexion
  • Appropriate materials allow for increased exploration
Video Reflection: RJ
- Pushing motion → opening index finger and thumb to attempt grasp
- Do not “chase” the child’s hand with objects

Video Example: Zain
- Difficulty controlling movements
- Initially uses a raking motion to explore
- Altering the position of objects/keeping objects in place can lead to slight changes in finger/hand movements

Video Reflection: Zain
- Set up environment at current developmental level, with slightly greater challenges that promote skill development

3-5 Months Old
- Provide opportunities for pushing, batting, scratching to explore environment
- Motivating feedback will provide further movement
- Encourage any kind of grasp, grasp and release, grasp and keep
- Use appropriate materials and Active Learning environments to promote independent engagement
  - Little Room
  - Elastic board
  - Position board
  - SPG board
  - Velcro vest
  - Scratching board
  - Support bench

Figure 8: Hand on left picks up block. Hand on right closes fist around block. (Images from goldenreflectionsblog.com)
### Hand Position/Grasp

<table>
<thead>
<tr>
<th>Age</th>
<th>Description</th>
</tr>
</thead>
</table>
| 6 months | • Immature raking of small pellets  
• Transfers objects hand to hand |
| 7 months | • Radial palmer grasp with cube  
• Rakes a pellet into palm  
• Pulls peg out |
| 8 months | • Holds an object in each hand  
• Holds pellets between thumb and curled index finger |

### Activities of the Hand

- Bangs with toys
- Grasps feet
- Makes shaking motion
- Holds two objects
- Bangs objects on table

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**Video Example: Jordan**

- Sitting-up Little Room
- Uses 2 hands to hold objects
- Increased dexterity for exploration
**Video Example: Desmond**
- Banging on a surface with an open hand vs. using a tool

<table>
<thead>
<tr>
<th>Hand Position/Grasp</th>
<th>Activities of the Hand</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>9 months</strong></td>
<td></td>
</tr>
<tr>
<td>Radial digital grasp with cube</td>
<td>• Handling of objects</td>
</tr>
<tr>
<td>Inferior pincer grasp with pellet</td>
<td>• Releases objects into air</td>
</tr>
<tr>
<td><strong>10 months</strong></td>
<td>• Rotates the wrist</td>
</tr>
<tr>
<td>Isolates fingers and pokes</td>
<td>• Throws toys appropriately</td>
</tr>
<tr>
<td>Clumsy release of cubes into box</td>
<td>• Picks up objects within reach</td>
</tr>
<tr>
<td>Pincer grasp</td>
<td>• Pulls heavy objects</td>
</tr>
<tr>
<td><strong>12 months</strong></td>
<td>• Bangs objects together</td>
</tr>
<tr>
<td>Neat pincer grasp</td>
<td></td>
</tr>
<tr>
<td>Stacks 2 blocks</td>
<td></td>
</tr>
<tr>
<td>Precise release of cube into box</td>
<td>• Pulls heavy objects inside reach</td>
</tr>
<tr>
<td>Clumsy release of pellet into bottle</td>
<td>• Bangs objects together</td>
</tr>
</tbody>
</table>

*Figure 9: Top left: radial palmer grasp with cube; top right pincer grasp with cube; bottom left pincer grasp with pellet (images from goldenreflectionsblog.com and photographersdirect.com)*
Video Example: Jevarias
  o Difficulty rotating wrist to activate rain stick
  o Compares new activity to preferred activity

Video Example: Dameon
  o Activities to assist with isolating finger movements to further develop pincer grasp
  o Use objects with grooves/contours/holes

Video Example: Dureyea
  o Taking objects apart
  o Putting things together
  o Banging objects with 2 hands

Conclusion
  • All children with multiple disabilities, including autism, cerebral palsy, cognitive delays, and visual impairments can benefit from an Active Learning approach.
  • Activities should be presented at current developmental level and provide new appropriate challenges.
  • Avoid using hand-over-hand to make children participate.
  • Next webinar: how children utilize their ability to grasp to engage in more constructive activities

Notes:
Penrickton Center for Blind Children

Figure 10: Penrickton Center for the Blind logo

Perkins School for the Blind
E-Learning

Figure 11: Perkins eLearning logo

Texas School for the Blind & Visually Impaired
Outreach Programs

Figure 12: TSBVI logo

"This project is supported by the U.S. Department of Education, Office of Special Education Programs (OSEP). Opinions expressed herein are those of the authors and do not necessarily represent the position of the U.S. Department of Education."

Figure 13: IDEAs that Work logo and OSEP disclaimer.

Active Learning Study Group – September 2018 – Cushman, C., Obrzut, P., and McCavit, J.