

Session Four: Part I Hands and Touch

Web course on Early Literacy for WSDS
Spring 2012

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Resources for content:

*On the Way to Literacy, 2nd ed., APH
Project EDIN, Chapel Hill, NC
Project VIISA training material*

Touch

- Gathered bit by bit, relating one part to another until it is understood as a whole
- Involves moving hands and fingers and sometimes stretching arms and hands to reach all parts of the object.
- Provides different types of sensations that are often overlapping (e.g., texture, temperature, pressure)
- Tactual sensations “fade” unless refreshed





Touch is:

- the most intimate of senses
- a reciprocal sense
- the most vulnerable of the senses

❖ Children who can see and hear mostly use their hands as tools



❖ Children who are blind or deafblind also use their hands for other functions

❖ They use their hands to look, listen, communicate, as tools and to express emotion

Two Main Functions of Touch

Protective

- first to develop
- survival
- general tactile awareness of environment
- activated by light touch, change in temperature and general contact with skin
- predominates in the newborn
- seen in primitive reflexes such as rooting reflex

Discriminatory

- allows us to tell the difference between textures, contours, and forms by touch
- deep pressure combined with motion and precise localization of touch
- important for planning movement, adapting to different environments, and manipulating objects
- fingertips are the most sensitive

Prone Weight Bearing



- This is very helpful for tactile tolerance, general strength, postural control and proprioceptive/vestibular input
- Any pushing through the hands will help
- This can be done on the tummy or over a yoga ball holding body weight through arms and hands

Refinement of Touch

- As they grow, children learn to inhibit the protective response and fine-tune the discriminatory responses
- Sensory tables help children balance the protective and discriminatory responses; don't force
- Tactile discrimination is needed for:
 - buttoning a sweater
 - finding a small item in your purse
 - braille reading



Exploratory Procedure	Sensory Information Acquired
Lateral Motion (rub finger across surface or object)	Texture
Pressure (squeeze or poke object)	Hardness
Static Contact (fingers rest on object surface)	Temperature
Enclosure (hold/grasp object)	Shape, Size, Volume
Unsupported Holding (hold object in hand)	Weight
Contour Following (trace around object with fingers)	Global Shape, Exact Shape

McLinden, M. & S. McCall. Learning Through Touch, 2002

Dysfunction in Protective System

May result in:

- Interpreting ordinary contact as threatening (e.g. agitated by tag in shirt)
- Inability to appropriately interpret the affective meaning of touch (overreact to a bump from another child, so hits them)
- May be frequently in a state of Red Alert, so avoids tactile experiences (grass, playdough)
- May react with flight/fright/or fight, either physically or verbally
- Can result in inability to settle, decreased attention, and behavior problems
- Being labeled tactually defensive
- Some children feel too much; some too little; those with high tolerance for pain don't accurately feel what is happening to them
- May not react to being too cold or too hot because they are unaware of temperature



Dysfunction in Discriminatory System

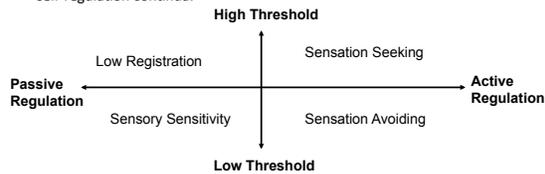


May result in:

- Difficulty with fine motor skills, impacting daily living (working fasteners, dressing)
- Inability to distinguish the form, contour or texture of things touched and to understand and use information gathered through touch
- Impaired awareness of body schema
- Contributes to dyspraxia-disorder in motor planning
- Inefficiency in how one tactually explores an object or environment to gain added cues which help give meaning about the object and the environment
- Problems articulating sounds due to inadequate information from touch receptors in and around face and mouth

Patterns of Sensory Processing

- When the two continua of threshold and self-regulation intersect, 4 basic patterns of sensory processing emerge.
- Each pattern is unique and represents one extreme of the threshold and self-regulation continua.



- We each may have more than one pattern (sensitivity for touch, low registration for sounds).
- Need to understand one's own patterns and the child's in order to tailor activities to fit both sets of needs.

Tactile System Imbalance

Hypersensitive/Low Threshold

- Reacts negatively to touch; does not like being picked up or hugged
- May rub or press on skin after being touched
- Startles easily
- Low tolerance for pain
- Does not like certain clothes, tags in them
- Dislikes bandaids
- Uncomfortable wearing shoes and socks; dislikes going barefoot
- Dislikes brushing hair and teeth, cleaning and trimming nails
- Avoids certain texture foods, does not chew well
- Rejects touching messy materials
- Washes/wipes hands often
- Uses fingertips to touch

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L

Hyposensitive/High Threshold

- Inability to feel touch right away, delayed responses
- High tolerance for pain
- Does not notice when face and hands are messy
- Does not notice when clothes are twisted or when feet are not well placed in shoes
- Craves touch and may over-touch others or objects
- Poorly coordinated, heavy walker or walks on toes
- May be a "good baby"
- "Slow and low" activity level
- May have limited social interaction
- May be slow and unmotivated to dress and feed self
- May be unaware of hunger, hot, cold, being wet, messy (liquid on lips)

Consult with OT with SI Training

- Ask them about skin brushing and joint compressions. This technique can help reduce tactile defensiveness with frequent, structured tactile and proprioceptive input
- Ask about other helpful techniques



Strategies for Introducing New Tactual Experiences

- * Choose an object that has a firm touch
- * Observe individual for preferences
- * Offer what they like first
- * Offer choices
- * Over time, offer a variety of textures
- * Begin with dry textures, then moist, wet, and sticky
- * Don't force them to touch with fingers and hands; try letting them touch with a spoon or fork, a straw, or wear dish gloves
- * Keep soft cloths and water ready for clean up
- * Fingerprint can be put in small bag to hold and squeeze



Strategies for Introducing New Tactual Experiences

- * Tell the individual what is coming
- * Activate sound objects, see if individual reaches for it
- * Touch object to their fingertips or back of hand, not palm
- * Present to less sensitive areas first (elbows, shoulders, knees)
- * Don't avoid whole area that is sensitive
- * Touch the periphery
- * Give opportunity to use different parts of their body for touching



Remember, if you . . .

☒ remain sensitive to the individual,

☒ go at the individual's pace, and

☒ stay in genuine conversation,



. . . you can help the individual who has tactile defensiveness to learn to use touch in positive ways.

Session Four, Part II: Braille Readiness

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Critical Areas of Learning Braille Readiness Skills Grid

- *Tactile Skills*- examining objects, exploring textures, feeling Braille in books, matching objects and textures, tracing
- *Fine Motor Skills*- grasp, book handling, finger strength and dexterity, Braille scribbling, copying patterns
- *Listening/Attending*- Fingerplays, following directions, identify sounds, listen to and tells stories, use of tape recorder/CD
- *Concepts*- Body parts, actions, names, same/different, numbers, size, positions, rote knowledge of alphabet, letter cell awareness, name of braille keys, name in Braille
- *Book and Story*- identify parts of book, turns pages, exploring tactile books, storybags, twin vision books, pretend reading, selecting favorite book

Braille Readiness Tools

Braille Readiness
Skills Grid by the
Center for the
Visually Impaired,
Atlanta, GA

Pre-Braille Readiness Checklist
by Suzi Newbold, Foundation
for Blind Children, Phoenix, AZ

Tactile Skills: Identify, Match, Sort Objects

- Identifying objects by touch; at first large, then medium sized and then small
- Begin with familiar objects, later use unfamiliar objects
- Learn where to find them in the environment
- Sets of comparables to play with
- Matching, then sorting objects by touch:
 - first very different ones (rock, spoon, keys)
 - then more similar (set of spoons, 2 wood, 2 metal, 2 big, 2 small)
- Child has to feel characteristics and details to match



Tactile Skills: Identify, Match, Sort Textures

- Identifying textures (soft, rough smooth, bumpy, hard)
- Finding textures in the environment (smooth window, bumpy wall, scratchy carpet)
- Matching, then sorting textures;
 - at first with obvious differences, (furry, scratchy, smooth)
 - then less obvious differences (e.g. set of different types of sandpaper, different swatches of cloth or fur, different pieces of carpet samples)



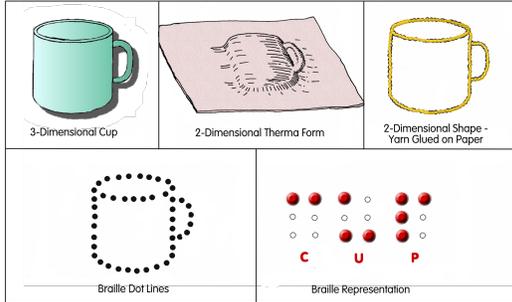
Home-made texture lids

Tactile Skills: Identify, Match, Sort Geometric Shapes

- Identifying 3-D shapes and then matching them (e.g., blocks or cubes, round balls)
- Finding shapes in things around them and feeling those (oranges are round, a box is like a cube)
- Matching, then sorting flat shapes; putting flat shapes in a formboard
- Identifying raised, flat shapes in a tactile book; then raised line shapes; shapes made with braille dots



FROM THE REAL OBJECT TO ITS ABSTRACT REPRESENTATIONS



Tactile Skills: Exploring Braille

- Exploring texture pictures in books; finding tactile marks on page
- Touching braille in exploration and finding it on the page and on things around them.
- When children are older and it seems developmentally appropriate, stop reading braille when the child stops tracing the braille so that the child learns that the braille dots represent words that tell the story.



Tactile Skills: Tracing/Tracking

- This begins with teaching the child to systematically explore all parts of objects at hand.
 - Explore large objects by feeling from top to bottom and in a left to right fashion.
 - Explore an object or area by moving hands inward from its outer edges until hands meet in the center.
 - Some objects and displays can be explored from the center outward until the edges are contacted.
- Teach child to tactually scan an object first, then go back over to stop and explore the details.



Tactile Skills: Tracing/Tracking

- Tracing around three, then two dimensional outlines of shapes to identify them

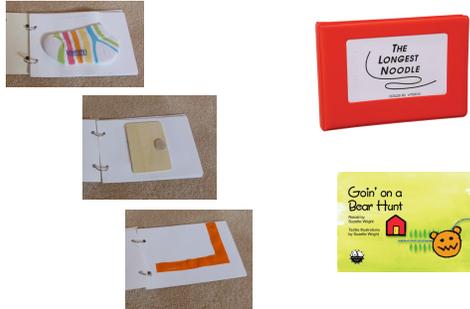


- Tracing left to right continuous line with sticki-wix, yarn, then Braille cell patterns (e.g., full Braille cell, dots 3/6, Dot 1)



- Feeling Braille with fingerpads, light touch, two hands (put chalk on dots; if feel braille and chalk is left on fingers, child is pressing too hard "scrubbing"; likewise if paper moves as they feel, pressure is too hard)

Fun Tracking Books



Teaching Efficient Hand Use

- Posture
 - Feet Firmly on the floor, providing stability.
 - Forearms at 100 degrees with upper arm.
 - Use both hands, unless physical disability precludes this.
 - Adjust the furniture and chair height to fit the child's needs.
- Emphasize:
 - Light touch
 - Smooth left-to-right movement
 - No SCRUBBING!
 - It decreases reading speed and fluency.
 - Indicates inability to recognize the letter or symbol.
- Develops bad habits that will hamper efficient braille reading.

Teaching Tactile Tracking Skills

- Smooth tracking is easier when no discrimination is involved
- Tracking skills can deteriorate when character recognition is introduced into the task
- Learning good tracking skills at a young age will provide many benefits as your child becomes a fluent braille reader.
 - Maintaining contact with the braille line while reading braille.
 - Good tracking skills contribute greatly to long-term fluency and speed.

Tracking Sequence

Stage 1

- Track across a single raised line, texture or sequence of Braille characters.
- Two hands move together with pointer fingers touching.
- Four fingers in contact with the line.
- Fingers move across the line, then back, retracing the line.
- Drop down to the beginning of the second line, two hands moving together.
- This technique may last for years, unless student is a super efficient braille reader.

Tracking Sequence, cont.

- Stage 2
 - Use both hands to track across the top line, then drop diagonally down to the beginning of the next line.
 - May require teaching the concept of “diagonal”
- Stage 3
 - By 5th or 6th grade
 - The hands should separate in the middle of the braille line.
 - The right hand finishes reading the line while
 - The left hand drops diagonally down and locates the beginning of the next line of braille
 - The left hand starts reading the new line as
 - The right hand lifts from the page and meets the left hand in the middle of the new line.

Tracking

- Tracking Guides

-Use a pencil, teacher's hand as a guide or frame, or a grooved ruler.



-Always encourage children to keep as many fingers as possible on the raised practice line or line of braille text. (Even with consistent prompting, not all children will read with six or eight fingers.)

-Some children with additional disabilities may benefit from widely spaced lines and rote verbal cues such as "across, back, down to the next line."

Personal Styles of Reading

- Students will develop personal styles.
- Students with multiple impairments may stay at Stage 1 for longer period of time.
- Some readers keep the left hand at the beginning of the line as a marker, then drop it down to the next line.
- If a student insists on reading with only the right hand, have him/her use the left hand as a marker.
- If the student insists on reading with only the left hand, teach him/her to keep the right hand in contact with the left.

Fine Motor Skills: Building Finger Strength

- Pulling apart and putting together pop-beads
- Play with modeling clay
- Pinching clothespins
- Fastening snaps
- Popping bubble wrap
- Pushing pins in corkboard



Fine Motor Skills: Finger Dexterity

- Stacking, putting pegs in board
- Play with toy piano, phone
- Stringing things, sewing cards
- Cutting, gluing, tearing
- Opening/closing small containers and putting things in/out of them
- Small construction toys, taking parts apart and putting them together
- Manipulating fasteners on clothes
- Turning pages of books



Independent Life Skills Trays

- Trays set up on shelves with items on them for the child to initiate, practice and complete specific skills needed for daily tasks (see article)

- **Bottle Twist Tray**

- a nice variety of bottles with odd shaped lids
- bottle is placed on tray with lids on
- child removes all lids, then reunites the bottle with its lid



- **Pom-pom pick-up tray**

- need 5-10 colored pompoms, a tweezer-like tool for picking up, a large margarine tub
- pom-poms are on tray and child picks them up with the tweezer and puts them in the tub



Fine Motor Skills: Scribbling in Braille



- Scribbling by poking holes in paper; turning it over to feel bumps made
- Scribbling on braille writer
 - free play on it, push keys
 - “ghost dots” did not push hard enough
 - load paper (backward chain)
 - teach finger-to-key association (e.g., which key makes dot 1, the letter a)
 - make patterns (waves, steps, etc.)



Copying Patterns

- Use the 6 hole paint tin or a pop-a-cell
- Use M and Ms, Cheerios or other snack item.
- If child can accurately copy a pattern you make in yours in theirs, they get to eat it.
- If connecting to a letter in their name, if they make the "c" for example, they get to eat it.
- This makes this activity much more fun!



Listening/Attending Skills: Identifying Sounds

- Identifying environmental sounds (e.g., doorbell means someone at door, jingling keys mean we are going in the car)
- Making loud and soft sounds with toys and voice
- Sound of truck getting louder means it is getting closer; softer means it is getting further away
- Making fast and slow sounds with stomping, clapping, or rhythm instruments
- Fast sounds could mean someone is in a hurry
- Finding high and low pitches on piano, xylophone; making them with voice when singing
- Learning that children have high pitched voices; men are low

Listening/Attending Skills: Matching Sounds, Copying Rhythms

- Imitates word syllables and vocal sounds
- Matches sounds toys by their sounds (sounds are very different)



- Copies simple rhythms with drum, clapping or voice



- Matches sound cylinders (or Easter eggs and other small containers made into sound toys that make similar sounds)
- Imitates more complex words and vocal sounds

Listening/Attending Skills: Stories

- Listens and participates with preschool class in songs, rhymes and fingerplays
- Follows one, then two-step directions
- Listens to stories told and read
- Tells events, makes up simple story
- Listens to stories on tape, puts tape/CD in, turns it on and off, takes tape/CD out

Concepts: Hands-on Experiences

Gaining hands-on, multi-sensory experiences is not a "frill" for children with visual impairments; it is a *necessity*." Koenig



Concepts: Spatial

- Names own body parts, planes (front/back, side), actions, own feelings, later left/right



In and on

- Shows spatial concepts with objects (e.g., up/down, on/off, front/back, side, middle, above/below)



- Understands positional concepts with marks on paper

Concepts: Other

- Names objects and actions
- Understands same/different
- Number awareness and quantities to 3
- Shows more/less, big/small, long/short, wide/narrow with objects



Concepts: Alphabet Awareness

- Alphabet blocks (Amazon.com, with braille and indented print letters on a wooden set)
- Magnetic letters (Seedlings has them with braille letters on them and an alphabet placement with print and braille on it)
- Alphabet books
- Alphabet songs
- Tactiles



Concepts: Alphabet

- Says letters of name by rote (b e s s)
- Rote knowledge of alphabet (ABC song)
- Shows letter/cell awareness using balls, snack items in 6-hole tin, pegs, Louis Braille doll (example: dot 1 is A)
- Making cell patterns on Braille Caravan (www.nbp.org), the pop-up cell and, on the Louis doll
- Recognizes braille letters in their name
- Recognizes pattern of name in Braille



Louis doll



Popup Cell



Braille Caravan



Name Book

- Make a book with pages about each letter in the child's name (for example, Ruth)
- The "R" page has the letter "r" in caps and lower case on it in large print and braille
- It has pictures (if child has low vision) or objects (if child is blind) of familiar objects that start with that letter
- Children enjoy learning about the letters in their name
- Intersperse the "r" in a line of full cells to see if child can find all the "r"s



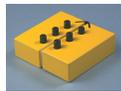
roll



run

Concepts: Braillewriter Keys

- Use swing cell to teach how braille cell configurations are made on the braillewriter
- Says names of braille keys (e.g. dot 1, dot 2, space bar, backspacer, line spacer)



New light weight braillewriter for use with preschoolers available from APH



- Makes letters of their name on the braillewriter
- Helps put paper in and take it out
- Learns to use the other keys

Book and Story Skills

- Use books as toys (squeak, pull, mouth)
- Helps turn pages and holds book
- Looks at pictures in book and/or tactually explores the textured pictures using finger pads
- Identifies parts of the book (front/back, top/bottom of page)
- Traces marks purposefully in tactile book from start to end
- Participates in object book story
- Spends time daily with adult looking at and listening to storybooks including twin vision books with braille and print
- Dictates and reads "sentence" book
- Selects favorite books and stories
- Completes formal braille primer series
- Reads "On the Way to Literacy" series from APH

Adapted Games

- Nearly all games can be adapted to meet the child's needs.
- Either by adding braille or textures to the game board.



Resources for finding already adapted games...

- American Printing House for the Blind www.aph.org has created several games for visually impaired children. Your child's teacher of students with visual impairments may be able to loan you games from APH, so check with him or her before making a purchase.
- LS&S <http://www.lssproducts.com/> not only has games but many other products for people with visual impairments.
- Maxi Aids <http://www.maxiaids.com/> also has more than just games for people with visual impairments.
- Exceptional Teaching Aids <http://exceptionalteaching.net> has games and toys that have been adapted for children with visual impairments. They also have a lot of educational materials that may be helpful to your child in school.

Resources

- **FamilyConnect:** Site includes videos, stories, and forums developed by the American Foundation for the Blind and the National Association for Parents of Children with Visual Impairments
- **The Hadley School for the Blind:** Offers free online courses on everything from helping the young child develop to beginner's braille
- **Perkins Panda:** A kit designed to introduce toddlers to Braille that includes print-braille books, audio versions of the stories, and teacher guides full of literacy ideas; available from Perkins School for the Blind
- **Seedlings:** A great place to buy braille children's books. Sign up for two free books through the [Book Angel Project](#)
- **National Braille Press:** Another great place to buy braille children's books. With the [Children's Braille Book Club](#) you get a new braille book in the mail every month for \$100 a year
- **APH Guide to Designing Tactile Illustrations for Children's Books:** Online guide to creating accessible books for blind babies and toddlers



Additional Resources...

- [I read with My hands](#): A wonderful set of tactile books and activities designed specifically for blind and visually impaired children
- [Braille Bookstore](#): Great selection of braille books, braille dictionaries, and even braille flash cards. They also carry fun games like braille playing cards or braille dice
- [Slate Pals](#): NFB's pen-pal program for kids who read braille
- [National Library Service for the Blind and Physically Handicapped \(NLS\)](#): Provides free braille books and audio books to blind patrons. Check out their [NLS Kids Zone](#) for children's books
- [Tactile Vision](#): A company that specializes in creating tactile books, calendars, and greeting cards.
- [Accessible Children's Magazines](#): Search the database and sign up for free Kids Magazines in audio, large print, or braille. APH also offers the [Squid Tactile Activities Children's Magazine](#).
- [Hungry Fingers](#): Some lovely, simple and often wooden resources to help blind children to understand, interpret and produce tactile graphics (drawings). Many of these resources also help with spatial awareness and understanding.

Key Findings of Study by Dr. Ryles

“Legally blind individuals who read Braille fared better than those who had only learned to read using large print. They had higher employment rates and educational levels, were more financially self-sufficient, and spent more time reading.”

“Skilled Braille readers scored the same as, or higher than, sighted schoolmates in several areas. The key to developing good Braille reading skills was frequent Braille instruction, four to five times a week in the early grades.”
