



# Oregon Deafblind Project



## Building Effective Programs

Lyn Ayer, Ph.D., Project Director • December 2015



Wishing everyone a wonderful festive season as we end 2015 and begin a new year.

Enjoy celebrating with your family and friends. Stay warm. Be safe — and See you in 2016!

Lyn



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**"Adopt the pace of nature; her secret is patience."  
Ralph Waldo Emerson**

# TOUCH RESEARCH NOTES



## Starter Questions:


- ◆ In your view, what is the similarity or difference between touch and vision?
- ◆ Any ideas about how touch and cognitive/intellectual functions are connected?

Hint: Think of how each of us uses touch on a daily (functional) basis.

## Research-based Facts to Remember:

- ◆ Touch is the first sense to develop and, according to some researchers, is the sense that “educates” vision and hearing – and that is how we associate tangible ideas with the distance senses of vision and hearing. We could be looking at something that we know is “soft”, but the only reason we really KNOW this, is because we have touched it, or something like it and thus learned the concept of “soft”. Vision didn’t teach us this.
- ◆ It is extremely important in early bonding. I remember having a mother call me to take a look at her newly-adopted toddler. She thought her child could not see—because of how she behaved. She also said her toddler would not hug her back and really was like a floppy doll when her Mom hugged her. It turned out that the child had normal vision and sensory input, but had been in a facility where she just lay in a crib and no one touched her — not even when she was being fed. I left the Mom with one main idea — “Love your child — and keep on loving her”; that, and advice to learn infant massage. Two years later I saw them at the grocery store and did not even recognize the child sitting in the cart, joyful, animated and chatty.
- ◆ The whole science of what has come to be known as Kangaroo Care is based on the value of skin-to-skin touch between babies and parents. Briefly — doctors dealing with premature and critically ill infants who did not have access to

adequate incubator units had mothers hug their babies closely, skin-to-skin. They found, to their surprise, that babies they had expected to die would not just survive, but thrive. The skin-to-skin action created a “sharing” between mother and infant which normalized breathing, blood flow and much more. It was like an expanded “osmosis” experience between them. Look at all the “benefits” listed in this Cleveland Clinic site: <http://my.clevelandclinic.org/childrens-hospital/health-info/ages-stages/baby/hic-Kangaroo-Care>

- ◆ Touch should not be considered “more primitive” or inferior to vision and hearing. In fact, it is the one sense that can help us survive if all other senses do not perform. Vision may “fail” us in some instances. For example – when we have a tiny splinter that can only be seen through magnification; or in detecting very fine surface variations; or in detecting grit in food.
- ◆ The feedback from skin to brain is continuous – even in sleep. It is why we may go to sleep in one position and wake up in another; a good reason to remember to reposition a child whose body cannot change position even when the child’s brain says it needs to change. It is also why we feel a stone that suddenly gets into a shoe while we are walking along even though we were no longer aware of our shoes or our feet, but were just moving along!
- ◆ It is the most “social” sense, a “mirror of our passions and emotions”. Unlike with vision, we can “feel” that something is hot or cold, soft or hard, rough or smooth – in addition to the spatial attributes and how something “looks”. A splinter will prompt an intense emotional reaction %^\$#@!, as does putting fingers/hands into something that is sticky or goopy—YUK!  Sound familiar? Know a child who doesn’t like “goo”?
- ◆ Emotions are a powerful motivator for tactile learning—and a good reason for us to appeal to a child’s sense of touch in the process of teaching him/her something. If a child is “tactile sensitive” (as we still call that reaction of taking the hands out of play), he/she will not really learn by watching or listening. Take some simple examples that could just be visual or auditory images,

but mean nothing to a child in functional terms — stirring pudding mix, pouring juice from a jug to a cup or glass, kneading dough, falling down and scuffing a knee, Mom kissing Dad, jumping into a puddle of water or a pile of fall leaves, a puppy pulling at a leash, a cat purring, going up and down on a teeter-totter or on a swing. None of these would have as much meaning without the sense of touch.

- ◆ Touch functions even after seeing and hearing start to fade. This is why even with a person who cannot respond or is in a coma, visitors are encouraged to hold their hand(s) and perhaps stroke the hand, even if not talking.
- ◆ One researcher calls the skin (which houses the “tools” of touch), a two-sided mirror with triple functions. It has
  - ◆ The outer surface which informs us about the outside world, as well as the living world within the body
  - ◆ And the inner surface which communicates with the body’s inner cells and organs
- ◆ When you see the word “HAPTIC” – it is related to **ACTIVE** touch. In passive touch – the person does not move, and information is imposed on the skin by an outside source. In ACTIVE touch, the person is allowed to get objective information, make intentional movements, and perhaps manipulate what is felt. Without movement, you cannot discover details about an object such as shape and texture – or distances between objects.

Have you heard about “haptic technology”? You have probably experienced it. Learn more about it — and think about where this technology may be taking us! It is even being used by architects. <http://electronics.howstuffworks.com/everyday-tech/haptic-technology.htm>

Learn about “wearable technologies” related to haptics and how they make use of this:

<http://haptic-technology.com/>

And watch this slideshare — to gain an even better understanding of how widely haptics is being used in our world:

<http://www.slideshare.net/arunsiv/haptic-technology-ppt>

Try this:

Close your eyes. Have a friend touch various objects to your skin — without moving the objects on your skin or using too much pressure. You will not be able to tell the differences between them. Then, using the same objects, have your friend move the objects on your skin. You will get more information, but it will still not be a lot. Finally, ask them to place the objects in your hands so you can “explore” them. You will explore by MOVING your hands. It is possible that you can guess what the objects are — but this may be because you already have had experience with them and your brain remembers. Children who don’t have these concepts, need to explore to get them!

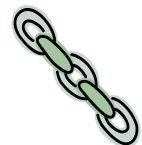
- ◆ Touch is on a continuum: tactile sensation → tactile perception → tactile cognition. The continuum is bidirectional – bottom up, as well as top down (cognition to tactile sensation) when learned concepts influence what we feel. If either the bottom-up or top-down modes are interrupted by damage to the brain, this will result in clinical disorders.
- ◆ **Tactile defensiveness** is one of these. This is hypersensitivity to touch due to a distortion in the central nervous system’s ability and capacity to process, regulate, and organize, in a graded manner, the:
  - ◆ degree
  - ◆ Intensity and/or
  - ◆ nature of sensory input

Read this blog by a pediatric OT on this topic — and think of a child you know who has this issue: <http://pediatricot.blogspot.com/2011/04/treating-tactile-defensiveness.html>

At the end of her blog, this OT suggests reading the book, “Too Loud, Too Bright, Too Fast, Too Tight” by Sharon Heller:

<http://www.amazon.com/Loud-Bright-Fast-Tight-Overstimulating/dp/0060932929>

But also look at all the persons she thanks and credits for expanding on this topic, including Jean Ayres.



## TOUCH PERCEPTION

Touch perception can be

- whole vs. part (e.g., what you might use in examining a toy)
- serial vs parallel (e.g. a fingertip for braille, or all fingers to move ahead and scan faster).

Below is an article on the perception of touch—from the Nursing Times (U.K.):

<http://www.nursingtimes.net/clinical-subjects/dermatology/sense-of-touch-the-perception-of-touch/736367.fullarticle>

Want to test your sense of touch? Here are a couple of ways to do this. Many of you may recognize these:

<http://www.hometrainingtools.com/a/sense-touch-perception-experiment>

Watch these two excellent videos on Haptic perception which explore how we examine objects through touch. These are Interviews with Dr. Roberta Klatzky, Carnegie Mellon University. Watch all the different ways in which someone explores objects, including raised line drawings:

- <http://www.bing.com/videos/search?q=touch+perception&view=detail&&mid=6C7A6BC63BAC0230012D6C7A6BC63BAC0230012D&rvmid=7E86E36395CCEBC844787E86E36395CC EBC84478&fsscr=0>
- <http://www.bing.com/videos/search?q=touch+perception&view=detail&mid=7E86E36395CCEBC844787E86E36395CCEBC84478&FORM=VIRE3>

Some resources for Research-based information in this article can be found in:

- *From Active Touch to Tactile Communication – what's cognition got to do with it?* (Jude Nicholas)
- *Touching: The human significance of the skin* (Ashley Montagu)
- *The Psychology of Touch* (Eds. Morton A. Heller, William Schiff)
- *Touch and Blindness: Psychology and Neuroscience* (Eds. Morton A. Heller & Soledad Ballesteros)

## More on the brain – and touch:

A cortical homunculus drawing – will show the extent to which touch is represented in the brain.

You can look it up on Wikipedia or a textbook:

[https://en.wikipedia.org/wiki/Cortical\\_homunculus](https://en.wikipedia.org/wiki/Cortical_homunculus)

Notice the distribution of touch — and how much is concentrated in the hand and face alone. For fun, also take a look at this site for children — explaining the term homunculus:

<http://faculty.washington.edu/chudler/flash/hom.html>

The two hemispheres of the brain do different things within the area of touch, BUT laterality may be different for different individuals, and may change with intellectual experiences. Generally speaking:

- The **left hemisphere** is involved with WHAT is being touched – form recognition; and also fine details (e.g., subtle differences in roughness, smoothness, and softness).
- The **right hemisphere** indicates WHERE one is being touched – tactile localization; as well as holistic details (e.g., global features of an object, spatial layout, the length/shape/size of objects).
- When there is active touch (grasping the target) – there is also a HOW.

Interestingly, there are similar functions for vision – different areas of the brain dealing with WHAT one is seeing and WHERE it is.

Hand laterality seems to differ too and it worth exploring—but I will not do so in this article. Just to get your interest, it appears that the left hand is more sensitive to weight and thermal properties. Laterality is also said to be connected to directionality and the aptitude for this.

Related topics:

### Embodied cognition:

<https://www.psychologytoday.com/blog/beyond-words/201202/embodied-cognition-what-it-is-why-its-important>

<http://www.scientificamerican.com/article/embodied-cognition-our-inner-imaginings/>

### Touch-emotion synesthesia:

<http://synesthesia-test.com/touch-emotions-synesthesia> - emotions are demonstrated when touching different textures (e.g., denim, wax, sandpaper, silk).

## FACEBOOK SHARE



Hello to our NON-Facebook friends!  
Here is an assortment of posts from our Facebook page that might be of interest to you!

Paths to Literacy suggests Ten ways to include your child in Christmas fun:

<http://www.pathstoliteracy.org/blog/10-ways-include-your-child-christmas-fun>

And Perkins has a holiday gift guide:

[http://www.perkinsproducts.org/store/en/69-2015-holiday-gift-guide?utm\\_campaign=2015+holiday+gift+guide&utm\\_source=perkins+solutions&utm\\_medium=email](http://www.perkinsproducts.org/store/en/69-2015-holiday-gift-guide?utm_campaign=2015+holiday+gift+guide&utm_source=perkins+solutions&utm_medium=email)

Read the new blogs on the Complex Child e-magazine site: <http://www.complexchild.com/>

The focus of this issue is Spirituality.

The feature article of the December edition is

**How to Appeal an Insurance Denial: 9 Steps to Success**

Is your child deafblind, and also ADHD? Take a look at this Paths to Literacy post:

<http://www.pathstoliteracy.org/blog/emotional-behavioral-difficulties-observed-students-visual-impairments-learning-adhd> I love the list of one-liner points at the very end of this post — things to think about.

There is a National Intervener Association — and a list of states and credentialed interveners at this site:

<http://intervener.org/nia-national-intervener-association/>

A new way to ensure children are tested for hearing loss — read about California's Tele-audiology program: <http://www.hearingreview.com/2015/11/california-tele-audiology-program-improves-access-audiologists/>

Listen to Evelyn Glennie—percussionist who is Deaf — but continues to play solo, and to join in orchestra performances too. She listens with her bare feet on the wooden boards too! Good talk on a different way to “listen”.

[http://www.ted.com/talks/evelyn\\_glennie\\_shows\\_how\\_to\\_listen](http://www.ted.com/talks/evelyn_glennie_shows_how_to_listen)

Sharing things to touch!

<http://www.bing.com/videos/search?q=touch+perception&view=detail&&mid=DC1F1CD F279AC5304ECEDC1F1CDF279AC5304ECE&rvsmid=7 E86E36395CCEBC844787E86E36395CCEBC84478&fs scr=-1485>

Taste and smell—and touch too:

<http://www.bing.com/videos/search?q=touch+perception&view=detail&&mid=FC0AC80 F38272A4118E8FC0AC80F38272A4118E8&rvsmid=7 E86E36395CCEBC844787E86E36395CCEBC84478&fs scr=-1485>

Heard of the Molly Watt Trust (Usher Syndrome):

<http://molly-watt-trust.org/>

Follow their tweets too!

From this talk, learn if ASL can be represented musically:

<http://magazine.good.is/videos/connection-between-music-and-sign-language>

Read this story about the little girl who shared ASL with her dog — and gained a companion!

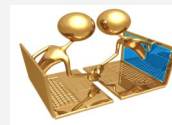
<https://www.thedodo.com/girl-teaches-dog-sign-language-1424274543.html>

Teaching children with CVI to identify 2-D information:

<http://www.pathstoliteracy.org/blog/teaching-students-cvi-identify-2-d-pictures>

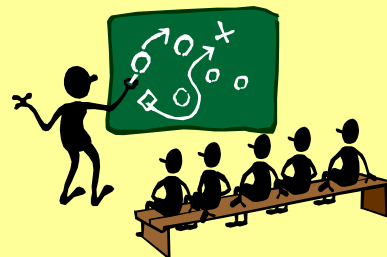
Keep an eye on FACT's events calendar:

[http://factoregon.org/calendar/action~agenda/tag\\_ids~35/request\\_format~html/](http://factoregon.org/calendar/action~agenda/tag_ids~35/request_format~html/)



## THE OREGON DEAFBLIND WORK GROUP

<b>Malina Lindell:</b>	Region one, Eastern Oregon
<b>Nancy Abbott:</b>	Region two, Central Oregon
<b>Lynette Kleespies:</b>	Region three, Southern Oregon
<b>Terry Cadigan:</b>	Region four, Cascade Regional
<b>Anne Olson-Murphy:</b>	Region five, Willamette Regional
<b>Darlene Daniels:</b>	Region six, Columbia Regional
<b>Trish Orr:</b>	Region seven, Lane Regional
<b>Gina Fivecoat:</b>	Region eight, Northwest Regional
<b>Sharla Jones:</b>	Oregon School for the Deaf/RMT representative
<b>Lisa Darnold:</b>	Oregon Department of Education
<b>Kathy Eckert-Mason:</b>	Department of Vocational Rehabilitation
<b>Sarah Mora:</b>	Oregon Commission for the Blind
<b>Amy Parker:</b>	NCDB representative, The Research Institute at WOU
<b>Noelle Sisk:</b>	FACT/PTI parent representative
<b>Lyn Ayer:</b>	Oregon Deafblind Project, The Research Institute at WOU



### WEB INFORMATION:

The Oregon Deafblind Project Website: [www.oregondb.org](http://www.oregondb.org)

The home page has our newsletters, both current and archived.

Also get frequent information from our Facebook page:

<http://www.facebook.com/pages/Oregon-Deafblind-Project/132672043449117>

and our Pinterest page: [www.pinterest.com/lynbayer](http://www.pinterest.com/lynbayer)

We also have our newsletters and other information on our web-page with our partner organization, the Oregon Department of Education:

<http://www.ode.state.or.us/search/results/?id=185>



### Contact the Oregon Deafblind Project!

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