

# Practical Implications of Neuroplasticity to Brain Injury Rehabilitation

Jerry K. Hoepner, PhD, CCC-SLP  
University of Wisconsin – Eau Claire

**Beyond Rehab:**  
**Succeeding at** *Life*  
A conference on brain injury



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## Disclosures

- **Financial:** Jerry Hoepner received conference registration, travel and lodging
- **Non-financial:** Jerry Hoepner is a member of ANCDs and the right hemisphere damage writing group; an affiliate of Aphasia Access and interviewer for the Aphasia Access Conversations Podcast; Associate Coordinator of the ASHA SIG 20: Counseling, and Editor of Teaching and Learning in Communication Sciences and Disorders (TLCSD)

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## Learning Outcomes

- Plasticity is relevant to typical development, aging, and recovery following neurological lesions.
- There are two main types of neuroplasticity — neural (cellular) and behavioral.
- Vascular remodeling is both a developmental process and mechanism of recovery after stroke/brain injury.
- Long-term potentiation is a process of strengthening neural networks through stimulation and is critical for memory and learning.
- Plasticity can be adaptive or maladaptive.
- Several factors are associated with experience dependent neuroplasticity.
- Personal factors contribute to the degree of engagement and participation, which in turn affect adaptation.
- Reactivation of a brain region following recovery and reorganization via recruitment of another brain region to carry out functions

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Plasticity is relevant to development, aging, & Recovery from Neuro damage



What we do & don't do shapes the way our brain is wired and the cytoarchitecture (morphology/anatomy)



Activity can improve efficiency and dedicated structures and/or retain structures and functions

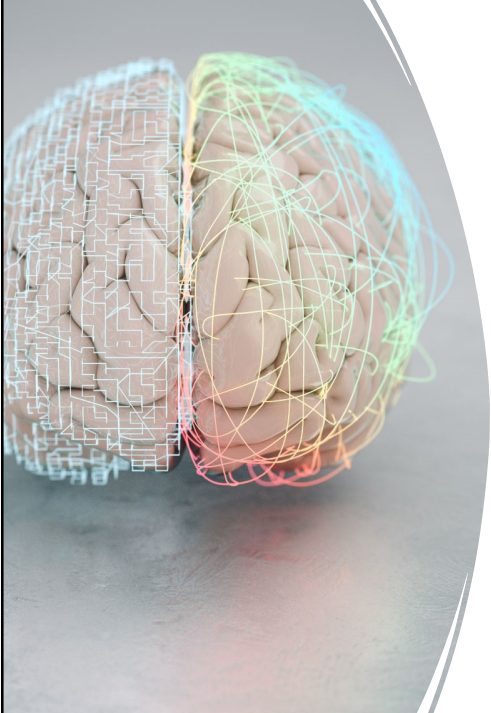


After stroke and brain injury, there is a period of increased potential for plasticity



Fostering participation is key

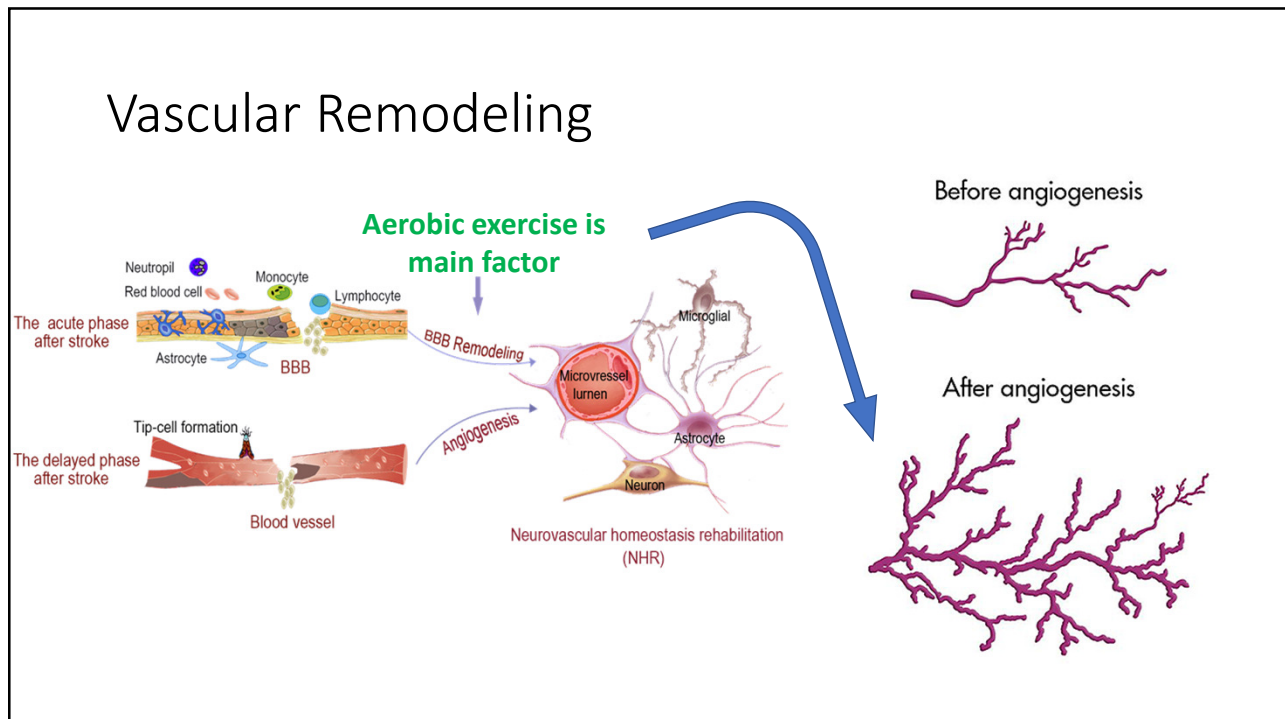
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## Neural (cellular) & Behavioral Plasticity

- Neural plasticity is what happens at the cellular level – changes to synapses through learning
- Behavioral plasticity is when a change in behaviors and environment changes brain structures and functions
- Behaviors drive neural plasticity

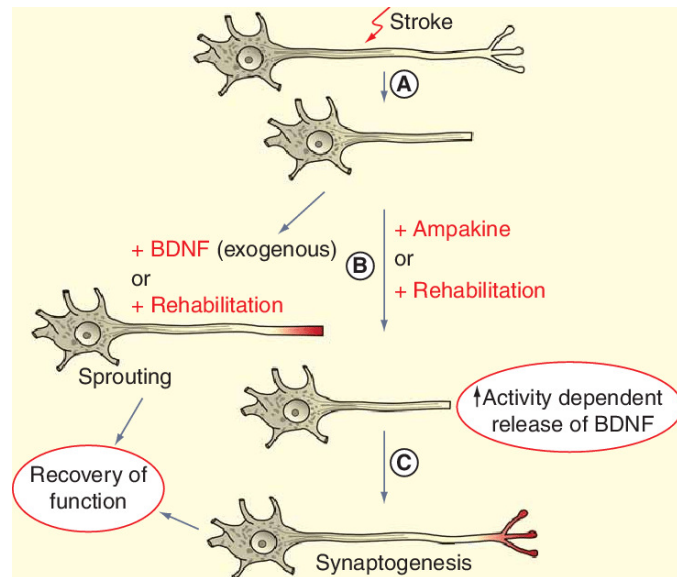
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## Synaptogenesis & Dendritic arborization

Cognitive exercise is a **primary driver** for synaptogenesis and dendritic arborization



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## Not all plasticity is adaptive

- Remember the old expression, “Practice makes perfect”?
- In truth, “Practice makes permanent”
- What we do matters!
  - Needs to be accurate
  - Needs to be contextually sensitive
  - Needs to be repeated (a lot)
  - Complexity needs to match the real deal (see examples in spinal cord injury recovery)
  - Doing it “wrong” can make it permanently wrong (or at least hard to undo)

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## What do we mean by maladaptive?

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- How many of you walk like this?
- What are the potential problems with walking like this?



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## How close can you get to the real deal?

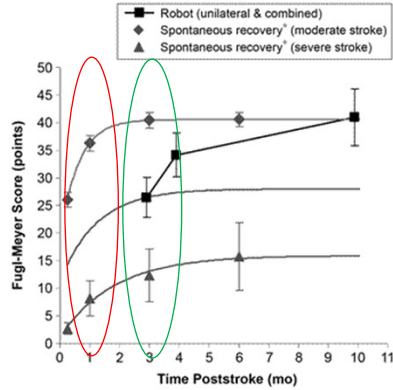
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What is the difference from our previous "walker"?

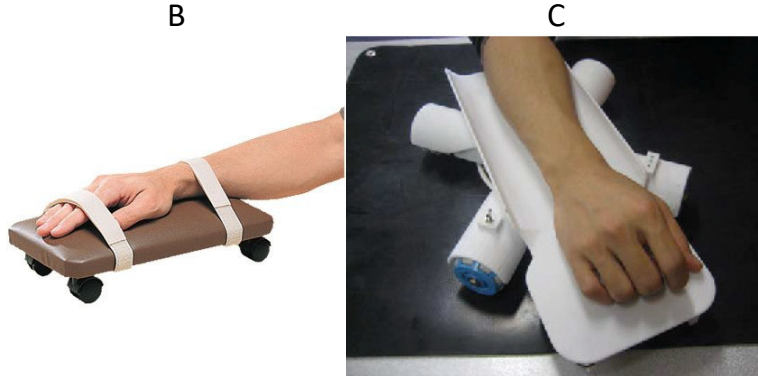


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# What about arms?



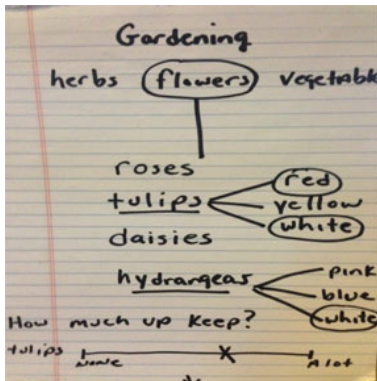
**Figure 2.** Gains in upper-limb Fugl-Meyer scores compared with spontaneous recovery patterns. Spontaneous recovery data have been replotted (◆ and ▲) along with exponential fits. Spontaneous recovery curve that intersects baseline point of our subject pool was calculated by interpolating between moderate and severe profiles. *Source:* Duncan PW, Lai SM, Keighley J. Defining post-stroke recovery: implications for design and interpretation of drug trials. *Neuropharmacology*. 2000; 39(5):835-41. [PMID: 10699448]



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# Okay, then what about Communication? Cognition?

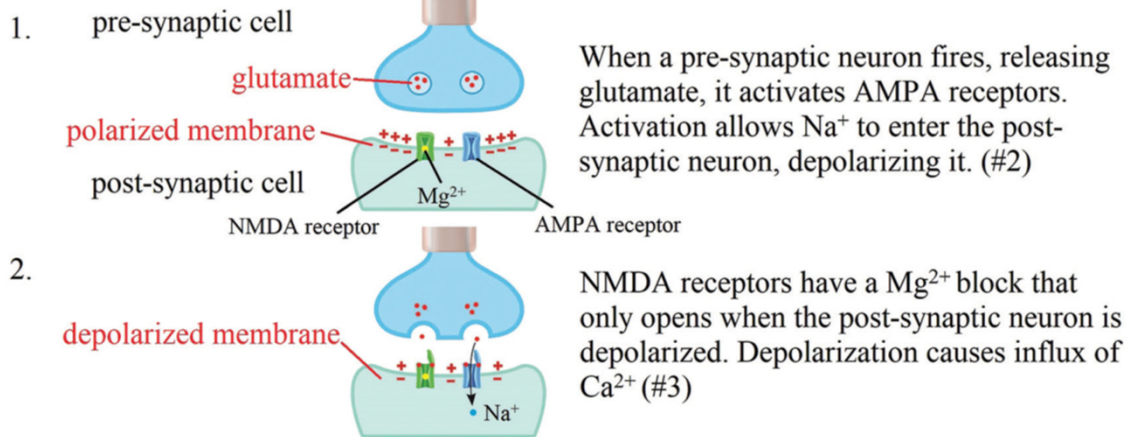
How can we change the threshold for communication? or Attention? Memory? Self-regulation? etc.



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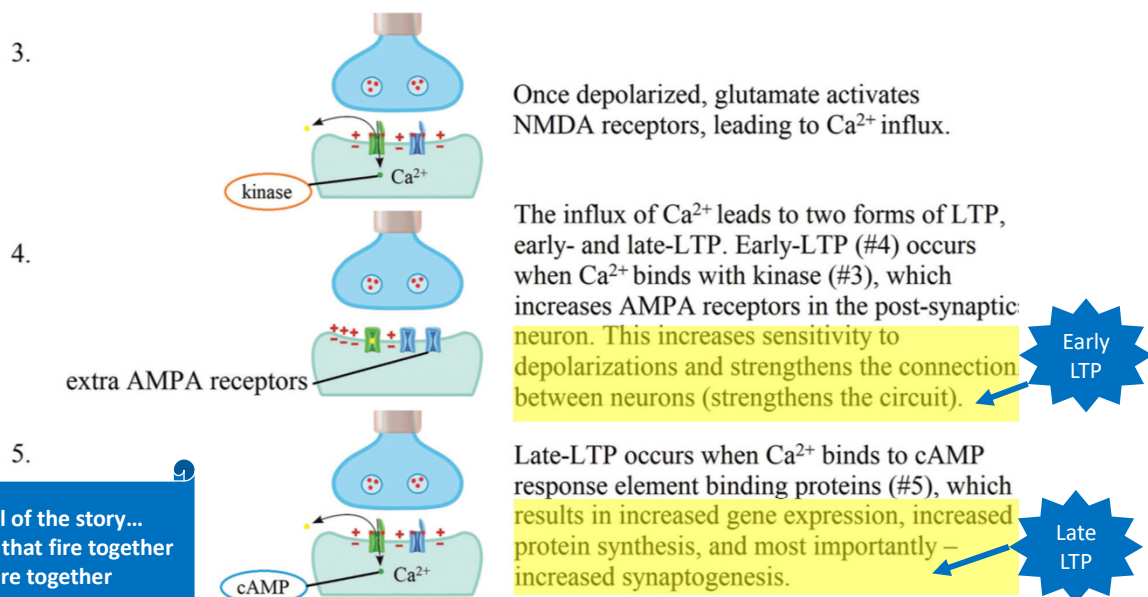


## Long-term Potentiation (Fig. 15-1)

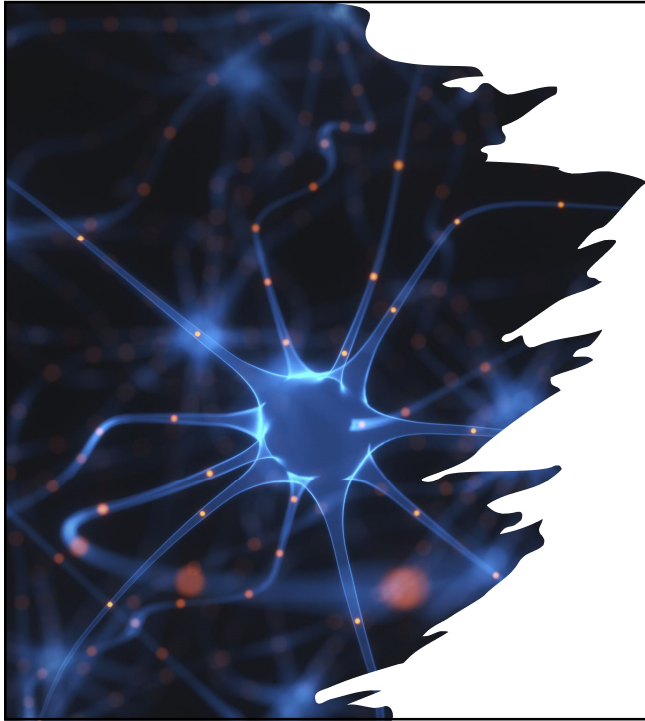


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## Long-term Potentiation (Fig. 15-1 continued)



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Did you know that  
Neuronal activity can  
also be depressed?

- The opposite of LTP is LTD
- In this case, pathways can be deactivated through lack of use
- This goes with the expression “Use it or lose it”

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## Plasticity: Kleim & Jones, 2008 Ludlow et al., 2008

Participation matters

- Use it or lose it
  - Use it and improve it
- } Increase participation
- Specificity – ecologically valid, authentic, environment matters
  - Repetition matters – errorless repetition = adaptive plasticity
  - Intensity matters – how much? Recovery continuum
  - Time matters – when is optimum time? Recovery continuum
  - Salience matters – person-centered, motivation, goal setting
  - Age matters – while young is better, change remains possible
  - Transference matters – generalization depends on authentic intervention
  - Interference - one experience affects others (can be constructive or deconstructive)

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## Experience Dependent Plasticity (Fig. 15-3)

Blake & Hoepner's (2023)  
clinical implications



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## Social vs. Impairment models: how do they stack up?

- From a neuroplasticity standpoint, this question relates to ...
  - **Specificity:** is the activity and/or environment similar to the real-life context?
  - **Salience:** are the activities and tasks motivating, person-centered/relevant one's goals?
  - **Transference:** are the activities and tasks generalizable to what the person wants and needs to do?

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## Specificity Matters

- Lof & Watson, 2008; McCauley et al. 2009 on non-speech oral motor tasks
- Blowing bubbles is not equivalent to the act of speaking!



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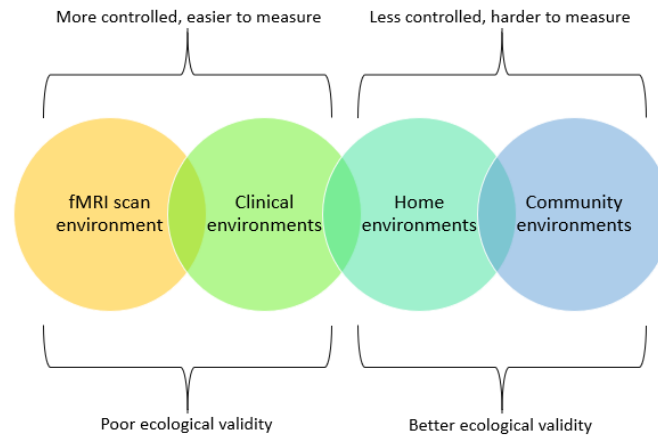
## Dosing Matters

- Some tasks benefit from massed practice (high intensity & high dose in a short period of time)
  - ICAPS & post-acute/chronic interventions (Babbitt et al., 2015; Cherney, Patterson, & Raymer, 2011)
- Some tasks benefit from distributed practice (low intensity & low dose over a long period of time)
  - Early rehabilitation (Sohlberg & Turkstra, 2011)
- Dosing refers to the number of teaching episodes per session. It is defined as the number of properly administered therapeutic inputs or client acts per session, and it includes not only what the clinician does but also the quality or accuracy of the client's response (Babbitt et al., 2015; Baker, 2012; Harvey et al., 2020)

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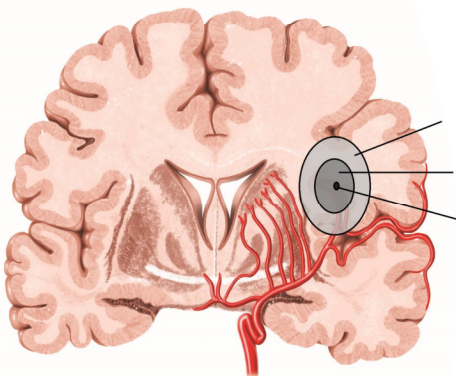
## Continuum of transference from clinical to community environments (Fig. 15-4)

- What happens in real life environments is likely different than what happens in clinical or controlled environments



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## Functional Reactivation

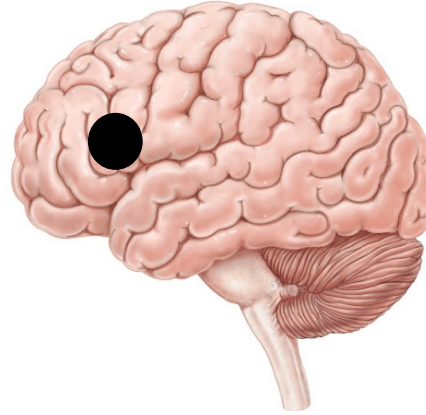


- Assume the ischemic area at the core of a lesion is no longer functional but that the penumbra was functioning poorly
- Functional reactivation is neuronal and/or vascular plasticity
  - Collateral dendritic regrowth (synaptic remodeling) of peri-infarct region
  - Vascular remodeling (new vessels) in peri-infarct region

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## Functional Reorganization

- Another area of the brain “takes over” functions of the damaged area
  - Perilesional area takes over OR
  - Increased activation of the opposite hemisphere



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## Neuromodulation techniques

Wang, 2022

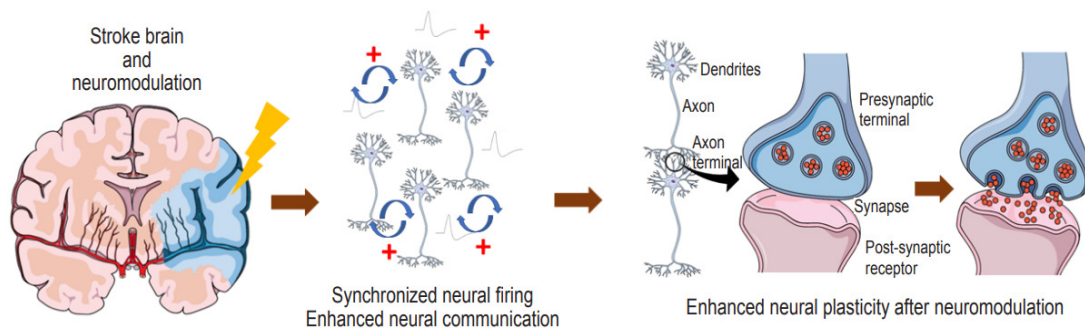
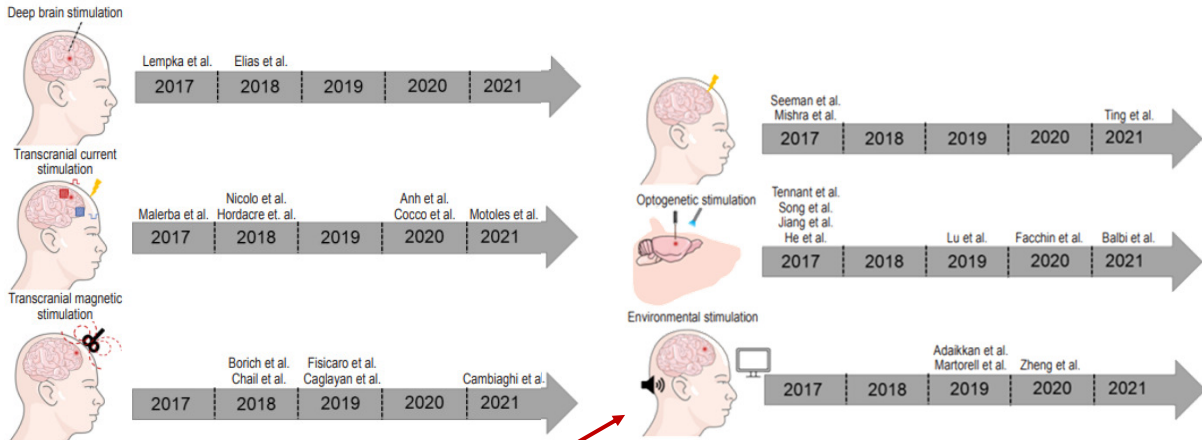


Figure 1: The mechanism of neuromodulation to enhance neural plasticity following stroke.

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## Types of neuromodulation



- Hmm... it's starting to look like what we do!

Wang, 2022

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## So, what does this all mean to you?

1

You need to learn who you're working with and what matters to them (what they want and need to do)

2

You need to set and measure goals and goal achievement with them

3

Therapy needs to parallel what they want and need to do in environments that are comparable to the environments they will need to do them in

4

You will need to use communication supports to help them express their identity, what they want and need to do, etc. (see tools on the slides that follow)

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## Bordin's (1979) 3 KEYS to Therapeutic Alliance

client and clinician  
agree on the  
therapy tasks

client and clinician  
agree on goals

the interpersonal  
bond between  
client and clinician

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### Personal Values Card Sort

(Miller, C'de Baca, Matthews, &  
Wilbourne, 2001)

- 83+ items
- Not communication-friendly
- Great framework

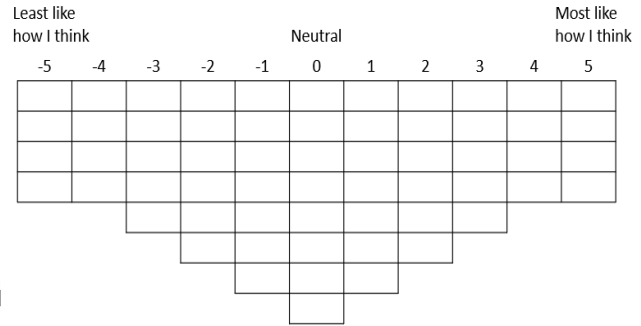
<b>PERSONAL VALUES Card Sort</b> <small>W.R. Miller, J. C'de Baca, D.B. Matthews, P.L. Wilbourne University of New Mexico, 2001</small>		<b>IMPORTANT TO ME</b>	
<b>VERY IMPORTANT TO ME</b>		<b>NOT IMPORTANT TO ME</b>	
<b>1 ACCEPTANCE</b> to be accepted as I am 9/01	<b>2 ACCURACY</b> to be accurate in my opinions and beliefs 9/01	<b>3 ACHIEVEMENT</b> to have important accomplishments 9/01	<b>4 ADVENTURE</b> to have new and exciting experiences 9/01
<b>5 ATTRACTIVENESS</b> to be physically attractive 9/01	<b>6 AUTHORITY</b> to be in charge of and responsible for others 9/01		

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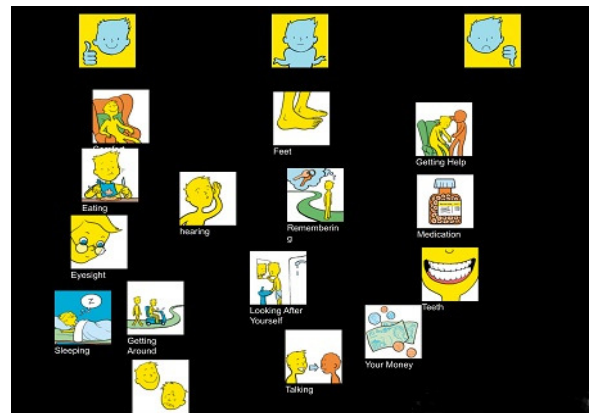
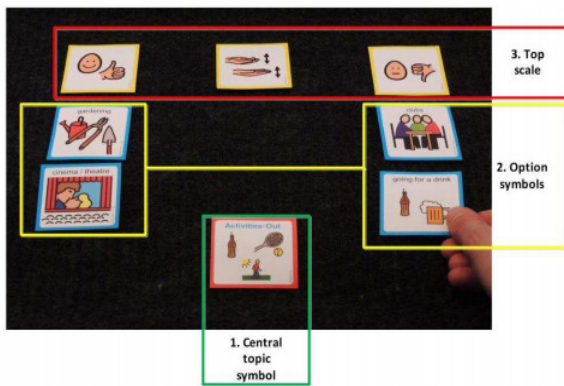
# Q-Sort

(Stephenson, 1953; Rogers, 1954)



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# Talking Mats



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# Activity Card Sort(s)

- Adult version – categorical sorts
  - Healthy adults
  - Institutional version
  - Recovering version
- Infant-Toddler
- Preschool
- Adolescent and Young adults



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## LIV Cards

LIV Cards Activity Score Sheet			
Home and Community Activities			
	Check activities the PWA wants to do more. Circle any activity number where the PWA and FFM give different responses.	PWA:	FFM:
		Order: 1 2 3 4 Date:	Relationship: Date:
1	Cleaning the House	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
2	Cooking	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
3	Washing Dishes	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
4	Doing Laundry	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
5	Taking Out the Trash	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
6	Indoor Plant Care	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
7	Pet Care	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
8	Home Maintenance	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
9	Yard Work	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
10	Paying Bills	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
11	Childcare	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
12	Online Shopping	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
13	Grocery Shopping	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
14	Clothes Shopping	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
15	Shopping at Hardware Store	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
16	Car Maintenance	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
17	Driving	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
18	Getting Gas	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
19	Public Transportation	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
20	Beauty/Barber Shop	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
21	Going to the Doctor	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
22	Taking Classes	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
23	Going to Place of Worship	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
24	Voting	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
25	Working for Pay	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO

LIV Cards Activity Score Sheet			
Creative and Relaxing Activities			
	Check activities the PWA wants to do more. Circle any activity number where the PWA and FFM give different responses.	PWA:	FFM:
		Order: 1 2 3 4 Date:	Relationship: Date:
1	Watching TV	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
2	Playing Video Games	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
3	Using a Computer	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
4	Bird Watching	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
5	Library	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
6	Reading	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
7	Sitting/Thinking	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
8	Resting	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
9	Getting a Massage	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
10	Photography	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
11	Drawing/Painting	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
12	Interior Decorating	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
13	Flower Arranging	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
14	Hand Crafts	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
15	Scrapbooking	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
16	Sewing	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
17	Needle Crafts	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
18	Puzzles	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
19	Collecting	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
20	Listening to Music	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
21	Playing a Musical Instrument	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
22	Singing	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
23	Attending Concerts	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
24	Art Museum/Gallery	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
25	Going to the Movies	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO

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LIV

- There is also a partner version of the inventory

LIV Cards Activity Score Sheet  
Physical Activities

	Check activities the PWA wants to do more. Circle any activity number where the PWA and FFM give different responses.	PWA: Order: 1 2 3 4 Date:	FFM: Relationship: Date:
1	Yard Games	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
2	Ball Sports	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
3	Racquet Sports	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
4	Golfing	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
5	Bowling	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
6	Winter Sports	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
7	Group Exercise	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
8	Indoor Exercise	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
9	Yoga/Tai Chi	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
10	Cycling	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
11	Walking/Running	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
12	Swimming	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
13	Horseback Riding	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
14	Hiking	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
15	Camping	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
16	Boating	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
17	Fishing	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
18	Hunting	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
19	Beach	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
20	Traveling	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
21	Going on a Road Trip	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
22	Sightseeing	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
23	Going to the Mall	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
24	Gardening	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
25	Woodworking	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO

LIV Cards Activity Score Sheet  
Social Activities

	Check activities the PWA wants to do more. Circle any activity number where the PWA and FFM give different responses.	PWA: Order: 1 2 3 4 Date:	FFM: Relationship: Date:
1	Volunteering	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
2	Watching Sports	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
3	Attending Parties	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
4	Family Gatherings	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
5	Entertaining at Home	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
6	Discussing Politics/Current Affairs	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
7	Attending Meetings	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
8	Having Coffee/Tea with Friends	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
9	Eating Out	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
10	Going to a Bar with Friends	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
11	Dancing	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
12	Picnic	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
13	Laughing/Joking	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
14	Gift Giving	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
15	Going to Children's Activities	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
16	Storytelling to Children	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
17	Table Games	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
18	Playing Cards	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
19	Using the Phone	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
20	Writing for Communication	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO

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## Obligatory vs. Non-Obligatory Inventory

Table 4.4a and 4.4b. Obligatory vs. Non-obligatory Interview.

Before Injury/Illness		After Injury/Illness	
Do because you have to	Do because you want to	Do because you have to	Do because you want to

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## Adjuncts for accessible interviews

- Along with tools like Talking Mats ...
  - Written choice for readers
  - Rating scales across lifespan, depending on cognitive level
  - Photographs to express idea or augment verbal expression
  - Drawing

Hoepner, J.K. (2023) Counseling and motivational interviewing for speech-language pathologists. Slack Publishing, Inc.

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Collaborative Goal Setting Tools

A number of tools exist that can help guide the process of collaborative goal setting.

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# Setting Collaborative Goals

(Hoepner & Hersh, 2022)

GOAL COMPONENT:	WHO: Name, Ms., Mrs., Mr., Dr., etc.	SKILL/TARGET: (production of /phoneme/, attention to task, orientation to..., recall of..., self-assessment, etc. )	PERFORMANCE LEVEL: (for X min., for X times, in X context, with X level of accuracy)	CONDITION: (w/ X type of cues or support, in the presence of X demands, environment)	PURPOSE: (In order to achieve activity/ participation outcomes)
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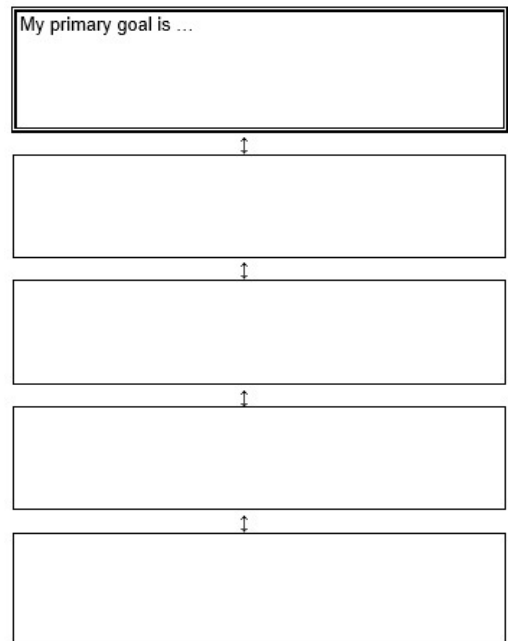
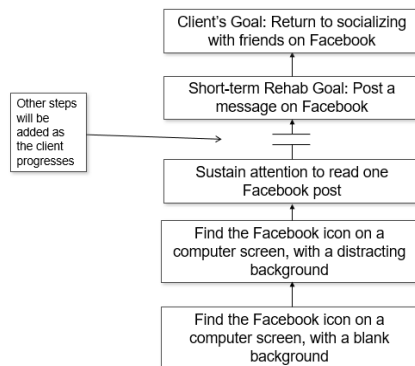
A client might see it more like this (personal communication with Deborah Hersh):



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# Goal Mapping (Turkstra)

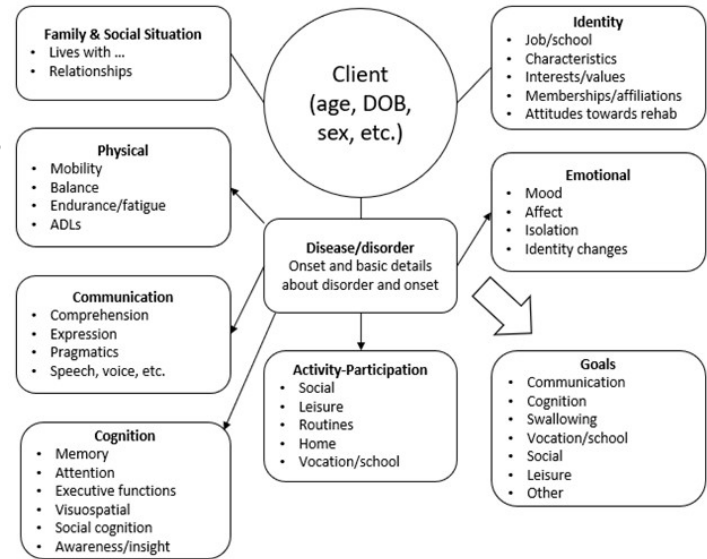
- Work backwards towards end goal to identify steps



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## Formulations (Fish et al., 2021)

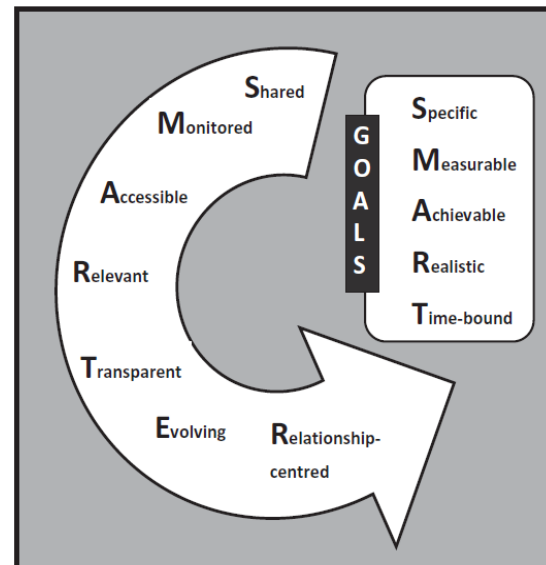
- Considers multiple domains



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## SMARTER GOALS (Hersh et al., 2012)


- How do we assure our SMART goals are collaborative?



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All of this so...



- WE CAN FOSTER MORE PARTICIPATION
- PROJECT BASED INTERVENTIONS
- MOTIVATIONAL INTERVIEWING
- GROUP INTERVENTIONS
- CAMPS

And....?

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Questions & Comments

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