




ASHA CEUs

Information and Notes Pages

“Clinical Application of Assistive Technology for Experience-Dependent Neuroplasticity”

<p>APPROVED PROVIDER</p>  <p>ASHA CONTINUING EDUCATION AMERICAN SPEECH-LANGUAGE-HEARING ASSOCIATION</p>	<p>LingraphiCARE America is approved by the Continuing Education Board of the American Speech-Language-Hearing Association (ASHA) to provide continuing education activities in speech-language pathology and audiology. See course information for number of ASHA CEUs, instructional level and content area. ASHA CE Provider approval does not imply endorsement of course content, specific products or clinical procedures.</p>
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This course is offered for .01 ASHA CEUs (Introductory level; Professional area).

www.aacdevice.com

888-274-2742

Complete a 0.1 ASHA CEU Course

Speech-language pathologists (SLPs) are invited to participate in a one-hour ASHA-approved course offering, "A Clinical Application of Assistive Technology for Experience-Dependent Neuroplasticity." To be eligible to receive 0.1 ASHA CEUs (Introductory level), please see the guidelines below.

For more information about ASHA's most up-to-date eligibility criteria, go to the FAQ section of the ASHA CE website: <http://www.asha.org/CE/FAQs/>.

Course Description:

This course reviewed the research that supports the provision of activities that infuse the principles of neuroplasticity and demonstrated how the implementation of AT can be utilized to maximize experience-dependent neuroplasticity, from the perspectives of a stroke survivor and aphasia advocate, Dr. Thomas Broussard, and an SLP, Faye Stillman.

Learning Outcomes:

By completing this course, participants will be able to:

1. describe at least three research-based factors supporting the need to induce and leverage the principles of neuroplasticity;
2. Discuss four different scenarios in which technology is utilized for best practice in experience-dependent neuroplasticity;
3. identify three simple actions they can take to utilize the principles of neuroplasticity in treatment and in HEPs.

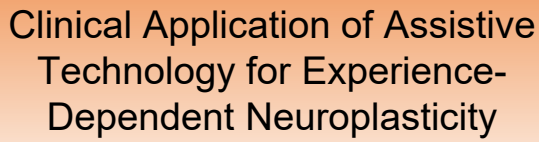
Additional courses in the Life Participation Approach to Aphasia track include:

- Integrating Positive Psychology Techniques in Aphasia Support Groups (Introductory, 0.1 ASHA CEUs)
- Listen Here: Listening Skills in Assessment and Treatment, for Speech-Language Pathologists (Introductory, 0.1 ASHA CEUs)

Processing:

Online course completions are reported to ASHA quarterly. Please allow eight to ten weeks for processing. Lingraphica will issue a certificate of participation to each SLP who completes a CEU course.

For more information, or to start a device trial, contact: continuinged@lingraphica.com



Neuroplasticity Defined

Neuroplasticity is the brain's ability to adapt, alter and reorganize itself by forming new neural connections throughout a person's life.

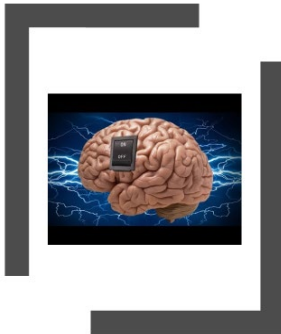
Neuroplasticity allows the neurons in the brain to compensate for injury or disease and adjust their activities in response to new situations, stimuli, or to changes in their environment.



Understanding Neuroplasticity

GIVE THE EXPERIENCE

Provide the right experience in the right moment to gain the desired outcome.



What the research says:

"Neural plasticity is believed to be the basis for both learning in the intact brain and relearning in the damaged brain that occurs through physical rehabilitation."Klein J, Jones T. (2008). Principles of experience-dependent neural plasticity: Implications for rehabilitation after brain damage. *Journal of Speech, Language, and Hearing Research*, 51, 225-239.

"The key to treating is to encourage the brain to change."Kolb, B. (2006). Stimulating functional recovery after stroke. Seminar presented at the Annual Meeting of the International Neuropsychological Society, Boston, MA.

"Together with the theory of intersystemic reorganization, the ability of people with aphasia to recover language function well into the chronic phase of stroke recovery and self-cue to promote word retrieval during anomic events offer the solution for how an AAC device could be employed as a dual-purpose tool to augment language recovery and compensate for deficits."Aimee Dietz, et al. (2018): The feasibility of improving discourse in people with aphasia through AAC: clinical and functional MRI correlates, *Aphasiology*. DOI: 10.1080/02687038.2018.1447641



10 Principles of Experience-Dependent Neural Plasticity

Impairments

1. Use It or Lose It
2. Use It and Improve It
3. Specificity
4. Repetition Matters
5. Intensity Matters



Improvements

6. Time Matters
7. Salience Matters
8. Age Matters
9. Transference
10. Interference

Kiern J. Jones T. (2008). Principles of experience-dependent neural plasticity: Implications for rehabilitation after brain damage. Journal of Speech, Language, and Hearing Research, 51, 225-239.





Applications of Technology in Experience-Dependent NeuroPlasticity

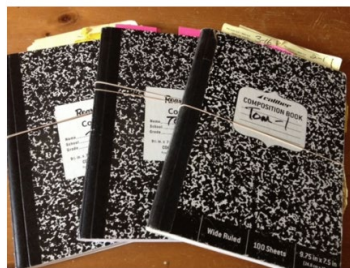


No Tech-Low Tech:
Paper and pencil, diary, recording device, camera, pictures

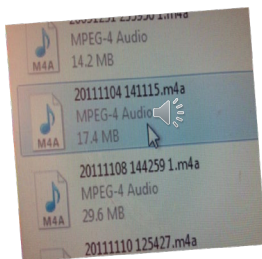
Mid-Tech: Apps

High-Tech: AAC devices





Listening & Recording

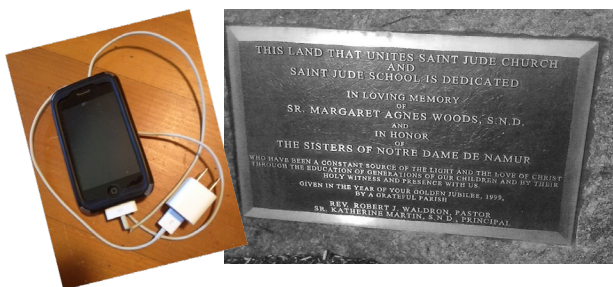


"...in such a way that the combination of both necessarily produce a ma-ma-mator-matorially puh-pum- ha ha, matorially compotilly duladalis (laughs) of the units, oh, shit, thought correctic by nature is made precisely by this, by this process of salimentation. And what happens is neither a signfulmation, a signfulmation of thoughts into me-metter-m-metter, nor a fonsonation of signs into ideas..."

Voice memo, 12/28/2011, verbatim transcription.



Camera (iPhone)



Pictures (Reading signs)



Constraint-Induced Aphasia Therapy (CIAT)



Uses CI movement therapy principles; modified to be language appropriate

- Behavioral Contracts
- Daily Home Diary
- Daily Verbal Activity Log
- Home Skill Assignments
- Post-Treatment Practice
- Post-Treatment Telephone Contracts

Johnson ML, Taub E, Harper LH, Wade JT, Bowman MH, Bishop-McKay S, Haddad MM, Mark VW, Uswatte G. An enhanced protocol for constraint-induced aphasia therapy II: a case series. *Am J Speech Lang Pathol*. 2014 Feb;23(1):60-72.



Lingraphica's Mid-Tech Options to Facilitate Experience-Dependent NeuroPlasticity

Communication Apps

- SmallTalk Aphasia - Male
- SmallTalk Aphasia - Female
- Pain Scale
- Conversational Phrases
- Frases de Conversación
- Daily Activities
- Intensive Care

Video Apps

- Oral Motor Exercises
- Dysphagia
- Consonant Blends
- Common Phrases
- Days, Months, Dates
- Phonemes
- Letters, Numbers, Colors

SmallTalk



SmallTalk Daily Activities



SmallTalk Common Phrases



Lingraphica's Practice Applications for Experience-Dependent NeuroPlasticity

- More than 13,500 exercises
- News articles
- Four language categories
- Three cognitive categories
- Difficulty levels ranging from 1-7

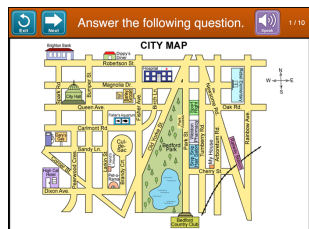
TalkPathTherapy



Cognitive: Daily Living – City Map

- With the ADL category, the City Map exercise is a navigational activity with multiple levels of difficulty.

TalkPathTherapy



TalkPath News

- 3 new articles per day, 5 days per week, in 8 categories.
- TalkPath News is an online news source for people with language and cognitive challenges affecting one's ability to read, listen to, or comprehend the news.
- TalkPath News Facebook Group

TalkPath News



Start reading at
talkpathnews.com

Download on the
App Store

GET IT ON
Google Play

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Lingraphica's High-Tech Options to Facilitate Experience-Dependent NeuroPlasticity



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Experience-Dependent NeuroPlasticity

Patient 1

- Home Health patient, 11 months s/p CVA. Dx with Mixed, non-fluent aphasia.
- Adult male, 64 years of age, resides with his wife.
- Speech Therapy goal: targeting receptive language; Identify pictures of objects on the AAC device, when named with 80% accuracy. The Patient was only able to meet this goal with mod-max assist from the SLP, despite modeling and multiple repetitions.



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Experience-Dependent NeuroPlasticity

Patient 2

- Patient seen for outpatient ST. S/p Sx and chemo/radiation for brain tumor. Dx with severe apraxia of speech.
- Adult female, 34 years of age, resides alone.
- Speech Therapy goal: Addressing expressive communication; Utilize an AAC device for functional communication across communication partners and settings.



Experience-Dependent NeuroPlasticity

Patient 3

- Patient seen for outpatient ST. Dx with autism.
- Pediatric male, 4 years of age, resides with his younger sister and parents. History of hitting/biting family members as means of communication.
- Speech Therapy goal: Addressing expressive communication; Utilize an AAC device to request preferred items without adverse behaviors, 4/5 opportunities.

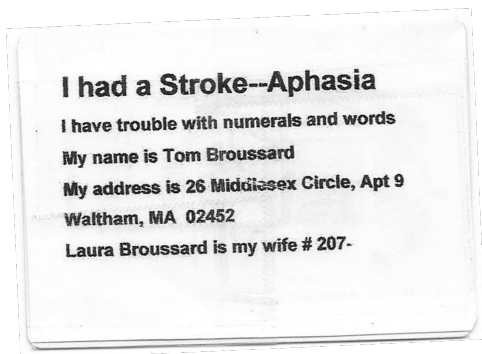


Real world exercises

- Exercise including walking
- Activities with varied modalities (reading, speaking, listening)
- Interaction--different modalities ("awareness card")
- Intensive activities (>30hrs/weeks)
- Repetition/duration/novel/practice
- Personal relevance (salience)
- Keeping track/feedback/awareness



Awareness Card



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Suggestions for changes in treatment plans/plan of care (POC)



- Are my therapy goals patient-centered, specific, salient?
- Have I factored in timing; repetitions, age, intensity?
- Am I providing the right experience, at the right time, to gain the desired outcome?

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Suggestions for change in Home Exercise Program (HEP)



- Are my HEP goals patient-centered, specific, salient?
- Have I factored in timing; repetitions, age, intensity?
- Have I explained the principles of "use it or lose it," and "use it and improve it?"

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Questions & Answers