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Language, Cognition, the Enriched Environment and Dementia: A New Role for Teaching English as a Second Language

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Language, Cognition, the Enriched Environment and Dementia: A New Role for Teaching English as a Second Language

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From our research at *CASN* in cognitive rehabilitation, it became apparent to us that due to the rapidly increasing incidence of dementia in elders worldwide and its devastating effect on cognitive functioning and quality of life, there was a most urgent need for a specific focus on geriatric cognitive rehabilitation. Our consequent focus on geriatric cognitive rehabilitation has evolved into a concept of innovative community-based well-being centers for elders with dementia and other forms of aging-related neurodegenerative cognitive disorder and comorbid sequelae. The proposed well-being centers are innovative in their primary grounding in the highly vetted principle of the 'enriched environment' implemented through the breakthrough modality of Cognitive Neuroeducation (CNE), a neuroscience-informed modality for the prevention of and recovery from cognitive and behavioral disorder, inclusive of dementia and other aging-related cognitive decline.

The enriched environment is defined in the neuroscience literature as "the stimulation of the brain by its physical and social surroundings." In other words, the enriched environment is an application of the understanding that for humans the brain and mind ('mind' being the constitution of cognition) develop from and are vitalized by the richness and variety of the sensory input and stimulation of an environment of learning, physical exercise and social interaction in cognitively challenging activities of group engagement. The enriched environment as implemented in CNE consists of a well-rounded curriculum of appealing, fun activities that focus on learning, social interaction and physical exercise, all domains of activity critical to cognitive health and general well-being, especially for elders. This curriculum is presented in CNE within a specifically designed person-centered orientation consisting of a prevailing ambiance of respect and concern for the elder with dementia, recognizing each individual as unique, whereby the sanctity of selfhood is honored while simultaneously emphasizing the essential role of social integration in the well-being of the individual.

From our research and work in cognitive rehabilitation we understand how language, as an evolutionary development, is an inherent component of human cognition, no less so than logical reasoning, attention, conceptualization, etc. (see, for example, Harris, 2003), and we find the studies within the research circle of Thomas Bak (Alladi et al., 2013; Bak, 2016; Bak et al., 2016; Bak et al., 2014) as well as that of Ellen Bialystok and her research colleagues (Barac & Bialystok, 2012; Bialystok, 2011; Bialystok et al., 2007; Bialystok et al., 2004; Craik et al., 2010; Luc et al., 2011; Schweizer et al., 2012), especially in their respective studies in the cognitive effects of bilingualism, as convincing arguments for the verification of this conclusion, succinctly articulated by Deák, as follows:

> In the last 40 years, language development research has moved steadily toward recognizing that language processing ***is*** cognition [emphasis mine], language use is distributed cognition, and understanding children's capacity for language means understanding the development and recruitment of ***general learning and cognitive processes***" [emphases mine]. (Deák, 2014, p. 290)

The studies on the effects of bilingualism in cognitive performance, especially in cognitive recruitment and the development of cognitive reserve in the delay of the onset of dementia and other aging-related cognitive decline (such as in Alladi et al., 2013; Bak, 2016; Bak et al., 2014; Bialystok et al., 2007; Bialystok et al., 2004; Craik et al., 2010; Luc et al., 2011; Schweizer et al., 2012), clearly demonstrate the power of enhanced language learning and diversified, more complex language usage that is inherent in both second-language acquisition and bilingualism in stimulating general cognitive facility and the development of a neuroprotective shield that slows neurodegenerative cognitive decline.

These studies parallel the concept of the enriched environment as a highly vetted structure of activities and learning in cognitive rehabilitation. As detailed in our proposal for community-based well-being centers for elders with dementia (Robinson, 2021), such centers are specifically designed to substantively increase healthcare access, dramatically improve health outcomes, and significantly enhance the patient experience, with the centers' curriculum totally grounded in the principle of the enriched environment. Recognizing that language is the primary medium for learning and socialization, and that language is an inherent cognitive capacity, we clearly understand that language and language learning cannot be isolated as independent of general learning and general bodily health (noting that physical decline and health issues have often been observed to lead to cognitive decline). Our enriched environment curriculum for elders with dementia, while emphasizing language and communication, includes various learning activities as well as activities that combine physical exercise with motor coordination to broadly stimulate both cognitive resources and physical vibrancy in the promotion of active and healthy aging.

Language as an integral component of cognition is clearly borne out from research in neuroscience, as it has been demonstrated in studies of cognitive dysfunction that cognitive deficits are largely recognized in errors in syntactical, symbolic, semantic and lexical processing and logical sequencing – all principal components of language processing – and that higher-order cognitive processing (i.e., so-called 'executive functions'), especially higher abstract, conceptual thinking, is essentially the correlation of constructions of language (see, for example, Robinson, 2021; and Deák, 2014). Even pure mathematics employs the basic components of language, such as logical sequencing, symbolic representation, syntax and semantics (see Robinson, 2021). As Harris states, from the neurobiological evidence, "there is no known way that genes could [specifically] encode for concepts like 'subject' and 'verb'" (Harris, 2003, p. 5 – insertion in brackets mine), so that language, rather than an independent outcome of human evolution, emerged in the mind from the uniquely human social brain as a fundamental attribute of cognition in the facilitation of the essential capacity for learning and social interaction in consequence of the environmental pressures on the survival of the genus *Homo*.

To promote the stimulation of the widest possible array of cognitive functioning in our work here in Japan with CNE, we have developed a form of CBI (content-based instruction) and CLIL (content and language integrated learning) combining English-language learning with stories, drama skits, and dialog-based learning activities for native Japanese speakers with learning/cognitive disorder, whereby, in a strictly English-language environment, we interrogate the '*texts*' of communication and expression (oral, written, or graphic) in stories, imagery and discussions, to deeply delve into the underlying meaning embodied therein through learning about the history, art, culture, science, biography, philosophy, religion, etc., that constitutes, impacts, or reflects on the context of a literary work, artwork or any text and its authorship presented in a particular lesson, seamlessly integrating language and subject learning in an interactive group discourse. In this method learners are exposed to a considerable amount of language and range of subject matter through stimulating content, and by exploring this content become engaged in language-dependent activities by which language learning becomes an automatic, integral process in reaction to the continual introduction of novelty and the resolution of curiosity in joint activities incorporating study and discourse.

In cognitive and behavioral dysfunction we have found that language learning combined with broad-based, general learning in fun, socially engaging activities in an enriched environment stressing multisensory input, teamwork and dialog with emphasis on the voice of the individual in a group dynamic, powerfully stimulates positive neuroplasticity, by which well-being, a positive outlook on life and self-affirmation are gained through the revival of general cognitive functioning and more fluid social integration.

Because CNE consists of a very comprehensive curriculum of integrated activities requiring specialized, rigorous training and considerable training time to learn to effectively conduct as an integrated program, we have incorporated the basic principles of CNE into a highly condensed framework of an ESL (English as a Second Language) program tailored to elder native Japanese speakers with dementia. We believe that such a framework constituting a stand-alone module provides the vehicle by which to implement the basic principles of CNE in a much simpler form with much easier training and greatly reduced training time for program conduction. We envision this simplified CNE module as the first of several individual CNE modules, that when combined together, constitute the complete CNE system constituting a prototype well-being center for elders with dementia. The CNE ESL program would provide the central, base unit of the modular system since it defines and actualizes the fundamental principles of CNE. With a much reduced training time for English teachers to master, the CNE ESL program opens up new career paths for teachers of English as a second language as specialized practitioners in continuing education, cognitive rehabilitation and dementia intervention.

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