

1/24/00

Shari Green

EDFN-303-31/Early Childhood Development

Article Review #2-Genetic/Inherent Issues

1. Resource: Brownlee, Shannon, "Baby Talk", U.S. News and World Report, June 15, 1998, pp. 48-55.
2. Review: Amazingly, currently language development research points to statistical proof that children are wired from birth with the ability to acquire speech by fitting in what they already know to an existing template for the basic structure shared by all languages. In essence, rather than our brain being a "blank slate" ready to be written on, the format for language already may exist in a lock and key/fill in the blanks methodology, (Chomsky). Prior to these discoveries, previous research suggested that the learning of language was a process dictated mainly by imitation.

Studies conducted at John Hopkins University by Dr. Peter Jusczyk, a psycholinguist of 25 years, show that children 18 months of age can already recognize whether a sentence is grammatically correct or incorrect. Most 18 month olds somehow have also learned the rule that -ing goes after the verb "to be".

Language is believed to be a distinct piece of biological makeup of the brain (Pinker). MRI studies show that language "sculpts and reorganizes" the connections within the brain as the child grows and develops.

Babies can distinguish differences in their native tongue and other native tongues, and to determine this, babies sucked more vigorously on a pacifier when offered the foreign sounds, indicating a need for calming via the sucking mechanism.

Babies can also distinguish syllable stress, and English-speaking babies prefer 1<sup>st</sup> syllable words, often ignoring second-syllable stress words at 30 months of age. However, basically all languages have universal laws, which include nouns, verbs, and distinct phrases. In essence, we all speak the same language, with different dialects, containing sentence structure and form similar to one another. Chomsky postulated that children could decipher these patterns and laws of language, and then use this decoding and hard-wiring to acquire their individual native tongue's dialect and speech acquisition.

Children exhibit an exceptional “neural network” within their developing brains, which can decipher a verb from a noun at a very tender age, allowing them to conjugate language correctly. A 2 year old can point to the dog when asked to “Find the dog for me”, but cannot point 45% of the time when the request is spoken incorrectly, “Find gub dog for me”. It is noted that 90% of sentences from the average 3 year old are grammatically correct. The article also relates that at age 10 mos. brain waves are altered when incorrect words are substituted in speech, indicating that babies are picking up grammatical information and processing it even before comprehension is present. The speed at which children can recognize beginnings of words or entire words is astounding (fast-mapping). By 24 months, a child can recognize a word in 600 milliseconds; for instance, the sound “bay” is already recognized to be “baby”.

Infants treat language in both halves of grammar in the brain initially, and then shift this function entirely to the left hemisphere, where speech is processed, leaving the right hemisphere for speech cadence and pitch and spatial relationships.

And, as we have suspected all along, the article mentions that the more a child is spoken to by their mothers, the greater the influence on the size of a toddler’s vocabulary. Huttenlocker at the U. of C found children of talkative moms had significantly more words those children of less-talkative moms. In essence, early input is essential, and it must be real human interaction with meaning. In addition, the gap for acquiring language closes around age 6, so children who have not acquired a native tongue, deaf children who are not taught to sign, and those children wishing to acquire a second language with ease, have the best chance of achieving these complex tasks in the earliest junctures of childhood.

3. Discussion: The complexity of the human brain and nervous system never ceases to amaze me. Can you imagine a child being capable of such complex and sophisticated achievements by being merely a passive listener? Maybe they are not quite as “passive” as we previously suspected! The biological and genetic proprieties of the capability of the brain and babies nervous system are only beginning to be discovered. True, John Locke referred to the child as a “blank slate”, and researchers did feel that language was acquired by repetition onto a blank slate. However, confirming this “hard-wiring theory” of the neural network of the language center of the brain is the fact that babies are born with a variety of incredible capabilities from the onset. True, these capabilities refine themselves over time, and with growth and development, but the neural and biological basis of all these capabilities MUST be present at birth. Babies are born with the ability to sense danger, hunger, comfort, love, emotions, and many other complex capabilities via the limbic

system. They have reflexes already in place via a highly defined reflex arc, and the autonomic nervous system has already sustained the beating of their little hearts, the expansion of their lungs, and is capable of aiding in the digestion of their mother's milk. They can begin to smile at 6 weeks, and recognize faces and basic shapes soon after birth, refining this skill throughout infancy, which is related to very complex cortical processes. Is it so far fetched to believe that infants can also, at some level, process the language of those faces they so beautifully and visually perceive in infancy, even though they can't communicate this back to us yet? I believe it IS possible, given all the marvelous neurologically-mediated processes the tiniest of babies are already astoundingly capable of. What is more astounding is the fact that this all started from 2 minute cells which just happened to meet a mere 9 months prior!

Babies first experience language prior to birth while in utero, as they hear the muffled sounds outside of the womb, and the calming sounds within. Yet, they cannot see anything in the dark of the womb, which offers little visual stimuli to their brain tissue. Basically, by the time they are born they have received far more auditory stimuli than visual stimuli, yet it is well documented that babies indeed can and do see shortly after birth in the absence of significant previous visual stimuli. From that perspective of observation, I fully accept the detailed research in this article, given this correlation of vision.

I loved the premise of this article. There is so much we are learning about child development from a genetic and biological-physiological standpoint, yet there is so much yet to be discovered.

In conclusion, this knowledge and research relates just how crucial it is for mothers, caregivers, and preschool teachers to continuously and lovingly encourage language, speech, and talking with even the youngest of newborns, infants, toddlers, and children of all ages. One must always be cognizant of the fact that HUMAN meaningful interaction is the best teacher in the acquisition of language. By talking to our children and students with precise meaningful interactions, and in a non-threatening atmosphere, they will undoubtedly further redefine the hard-wiring present already in their genetic make-up and pre-disposition which will constitute their present and future language and communication. Whatever the skill sets our children acquire from us via communication, be it the actual oral-motor aspects of speech, or the acquisition of voice, emotion, and meaningful language, when we think of all the possibilities that exist in this endeavor, we can't help but realize that we can make such a profound impact on our child's development. Of course, that is why we become parents and thus teachers in the first place, isn't it? i.e., to make a difference in a child's life.

