



THE CRITICAL PERIOD HYPOTHESIS (CPH)

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OVERVIEW

- Introduction
- What is the CPH?
- Lenneberg's theory: correlation of motor and development
- Evidence of the CPH's existence
- Different termini
- CP in SLA
- Does CPH really exist?

THE CRITICAL PERIOD

- Ethologists studied the origin of species-specific behaviour
 - Some species need periods in which a particular stimulus has to be present to develop normal behaviour
- Critical period also in human maturation?

ERIC H. LENNEBERG (1921-1975)



- ...argued that a CP exists in case of language acquisition
- ...examined the development of language in children in the context of developmental biology
- ...had a similar intention as Noam Chomsky: “reinstate the concept of the biological basis of language capacities”
- ...used a different approach: language as a “species-specific mental organ with non-trivial biological properties”
- ...was the “father” of CPH and successor of W. Penfield (1891-1976)

WHAT IS THE CPH?

- ability to acquire language biologically linked to the age
- ideal time span to acquire language
- After this time span: further language acquisition becomes more difficult
- Native like mastery of grammatical structure cannot be fully achieved
- Lenneberg: development of language as a result of brain maturation
 - Equipotential hemispheres at birth, language gradually becoming lateralized in the left hemisphere

LATERALIZATION

- Complex and ongoing process: regions of the brain „take over“ the functioning of behaviours & cognitive skills
- Certain functions are located in one side of the brain
- Delays in lateralization affect cognitive/behavioural skills
- Language deficits
- Lenneberg: age 2 – puberty

CORRELATION OF LANGUAGE & MOTOR DEVELOPMENT?

Table 1. Correlation of motor and language development (3, pp. 128-130).

Age (years)	Motor milestones	Language milestones
0.5	Sits using hands for support; unilateral reaching	Cooing sounds change to babbling by introduction of consonantal sounds
1	Stands; walks when held by one hand	Syllabic reduplication; signs of understanding some words; applies some sounds regularly to signify persons or objects, that is, the first words
1.5	Prehension and release fully developed; gait propulsive; creeps downstairs backward	Repertoire of 3 to 50 words not joined in phrases; trains of sounds and intonation patterns resembling discourse; good progress in understanding
2	Runs (with falls); walks stairs with one foot forward only	More than 50 words; two-word phrases most common; more interest in verbal communication; no more babbling
2.5	Jumps with both feet; stands on one foot for 1 second; builds tower of six cubes	Every day new words; utterances of three and more words; seems to understand almost everything said to him; still many grammatical deviations
3	Tiptoes 3 yards (2.7 meters); walks stairs with alternating feet; jumps 0.9 meter	Vocabulary of some 1000 words; about 80 percent intelligibility; grammar of utterances close approximation to colloquial adult; syntactic mistakes fewer in variety, systematic, predictable
4.5	Jumps over rope; hops on one foot; walks on line	Language well established; grammatical anomalies restricted either to unusual constructions or to the more literate aspects of discourse

CPH BASED ON....

1) The recovery from traumatic aphasia, lateralization of speech function and hemispherectomy

- Aphasia: inability to comprehend and formulate language
- Hemispherectomy: one hemisphere is removed, disconnected, or disabled

CPH BASED ON....

2) Down's syndrome children

- 54 mongoloids between 6 months and 22 years old
- Seen two/three times a year over a three year period
- Result: progress in language development only in children <14 years

EVIDENCE OF CP EFFECT?

- Genie (discovered in 1970)
- No social contact for the first 13 years of her life
- Disturbed, underdeveloped, unable to learn language
- Case supports theory of Lenneberg, but only in a weak form

<https://www.youtube.com/watch?v=6H2PONmVbPo>



DIFFERENT CP TERMINI

Penfield and Roberts (1959)	Offset: age 9
Lenneberg (1967)	Onset: age 2 Offset: puberty
Molfese (1977)	Offset for phonetics/phonology: age 1
Seliger (1978)	Offset for phonetics/phonology: puberty
Diller (1981)	Offset for phonetics/phonology: age 6-8
Scovel (1988)	Offset for phonetics/phonology: age 12
Johnson and Newport (1989)	Offset of phase 1: age 7 Offset of phase 2: puberty
Long (1990)	Offset of phase 1: age 7 Offset of phase 2 for phonetics/phonology: age 12 Offset of phase 2 for morphosyntax: age 15
Ruben (1997)	Onset for phonetics/phonology: 6th month of foetal life Offset for phonetics/phonology: age 1 Offset for syntax: 4th year of life Offset for semantics 15th/16th year of life
Hyltenstam and Abrahamsson (2003)	Offset: shortly after birth

SLA AND THE CP

- New term: sensitive period
 - different periods, regarding different linguistic aspects
- nativelikeness in an L2 is still achievable up to a certain point → adolescence

CRITICAL PERIOD EFFECT IN SLA

- Survey by Johnson and Newport (1989):
- General findings:
 - adults may initially outstrip children
 - childhood learners reach higher levels of ability
- studied the eventual levels of attainment of Chinese and Korean learners of English as a second language
- Specific results regarding age of acquisition:
 - Before age 10 and 15: very few individual differences in ability to learn language between the groups
 - Adults: there are large individual variations in ultimate ability in the language

DOES THE CPH REALLY EXIST?

- Aitchison (1989): “there is no evidence of a sudden onset, or final endpoint of the supposed critical period.”
- Fromkin, Krashen et. al (1978): “at least some degree of first language acquisition seems to be possible beyond the critical period” and enough language acquisition is possible after puberty.
- Singleton (1989): the evidence for a critical period is too weak

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Images:

- https://www.google.it/search?q=lenneberg&source=lnms&tbm=isch&sa=X&ved=0ahUKEwifo-qdyo3UAhXCyRQKHavYcQEQ_AUICigB&biw=1366&bih=662#imgrc=KEm2wn_NnFB8FM:
- https://www.google.it/search?q=lenneberg&source=lnms&tbm=isch&sa=X&ved=0ahUKEwifo-qdyo3UAhXCyRQKHavYcQEQ_AUICigB&biw=1366&bih=662#tbn=isch&q=genie+socially+deprived+child&imgrc=ednkqItRRLITmM: