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

<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
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<tbody>
<tr>
<td>Penfield and Roberts (1959)</td>
<td>Offset: age 9</td>
</tr>
<tr>
<td>Lenneberg (1967)</td>
<td>Onset: age 2</td>
</tr>
<tr>
<td></td>
<td>Offset: puberty</td>
</tr>
<tr>
<td>Molfese (1977)</td>
<td>Offset for phonetics/phonology: age 1</td>
</tr>
<tr>
<td>Seliger (1978)</td>
<td>Offset for phonetics/phonology: puberty</td>
</tr>
<tr>
<td>Diller (1981)</td>
<td>Offset for phonetics/phonology: age 6-8</td>
</tr>
<tr>
<td>Johnson and Newport (1989)</td>
<td>Offset of phase 1: age 7</td>
</tr>
<tr>
<td></td>
<td>Offset of phase 2: puberty</td>
</tr>
<tr>
<td>Long (1990)</td>
<td>Offset of phase 1: age 7</td>
</tr>
<tr>
<td></td>
<td>Offset of phase 2 for phonetics/phonology: age 12</td>
</tr>
<tr>
<td></td>
<td>Offset of phase 2 for morphosyntax: age 15</td>
</tr>
<tr>
<td></td>
<td>Offset for phonetics/phonology: age 1</td>
</tr>
<tr>
<td></td>
<td>Offset for syntax: 4th year of life</td>
</tr>
<tr>
<td></td>
<td>Offset for semantics 15th/16th year of life</td>
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</table>
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
REFERENCES


• Lenneberg, E. H. (1967). *The biological foundations of language*: 154-155


Images:

- [https://www.google.it/search?q=lenneberg&source=lnms&tbm=isch&sa=X&ved=0ahUKEwifo-qdyo3UAhXCyRQKHaVyCqEQ_AUICitB&biw=1366&bih=662#imgrc=KEm2wn_NnFB8FM](https://www.google.it/search?q=lenneberg&source=lnms&tbm=isch&sa=X&ved=0ahUKEwifo-qdyo3UAhXCyRQKHaVyCqEQ_AUICitB&biw=1366&bih=662#imgrc=KEm2wn_NnFB8FM)
- [https://www.google.it/search?q=lenneberg&source=lnms&tbm=isch&sa=X&ved=0ahUKEwifo-qdyo3UAhXCyRQKHaVyCqEQ_AUICitB&biw=1366&bih=662#tbm=isch&q=genie+socially+deprived+child&imgurl=ednkqI+RRLITmM](https://www.google.it/search?q=lenneberg&source=lnms&tbm=isch&sa=X&ved=0ahUKEwifo-qdyo3UAhXCyRQKHaVyCqEQ_AUICitB&biw=1366&bih=662#tbm=isch&q=genie+socially+deprived+child&imgurl=ednkqI+RRLITmM)