

Language acquisition when input is absent or limited

■ Absent input

- Deaf children of hearing parents (speech)
- Misdiagnosis of deafness for retardation
- Hearing child of a speechless parent
- Hearing child of an abusive parent

■ Limited input

- Deaf children of hearing parents (sign)
- Hearing children of parents and caretakers who speak a pidgin

1

Rationale

- In order to sort out what part of language is learned and what part is inherited, We need to look at cases where the typical environment is radically altered.
- Herodotus (ca. 410 B.C.)

2

Isolated deaf children

- Not exposed to sign language
- Unable to hear spoken language
- ASL unknown to parents
- No language 'model'

*Feldman, Goldin-Meadow and
Gleitman, 1978*

3

Isolated deaf children

1 year: single manual (iconic) gestures
(corresponds to single words in hearing
children)

2 years: sequence their gestures in 2-3
sign 'sentences'.

4

Isolated deaf children

2 years: sequence their gestures in 2-3 sign sentences.



5

Isolated deaf children

- Signs are structurally organized.

‘Mommy throw’ (subject)

‘Throw mommy’ (object)

6

Isolated deaf children

Timing of language development:

First words/signs	1 year
Rudimentary sentences	2 years
Elaborations	2;5-3 years

Limits on elaborations in deaf isolated children.

7

Isolated deaf children

- The appearance of the skeletal base of a language is thus part of the biology of normally developing children; it appears on the maturationally appropriate timetable even when a normal linguistic environment is absent.
- Subsequent limitations in the elaboration of language suggests that to learn a language fully, one needs exposure to a language.

8

Conclusion

- If language development is controlled by an underlying maturational timetable ...
- Then the point along this maturational timetable at which learners were first exposed to language should have an impact on the learning function ...

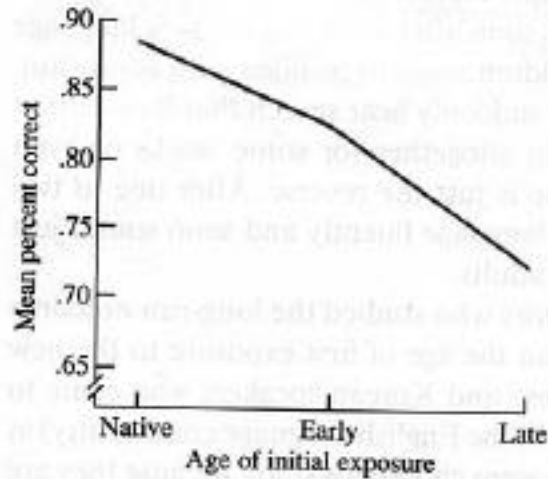
9

Effect of age differences on isolated deaf children exposed to ASL

- Newport and Supalla (1990) Newport *et al.*, (1990)
- Subjects: Age: 35-70, all deaf, have limited English, have had more than 30 years exposure to ASL
 - Native learners: learned ASL as infants
 - Early learners: learned ASL between 4 and 6 years
 - Late learners: learned ASL after age 12.

10

Results on a test of ASL



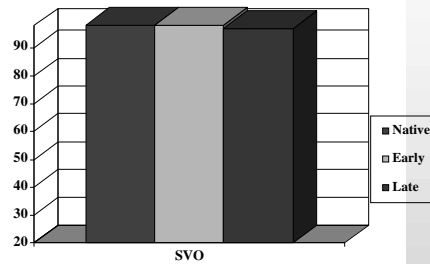
11

Where the errors were found

Word order

Basic S V O: Boy pat dog

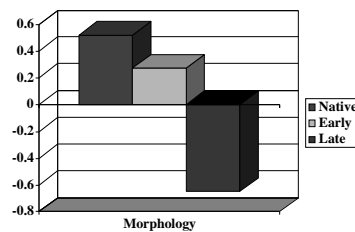
Topic O S V: Dog boy pat



Morphology (functional categories)

Subject-verb agreement (like eat-s)

Verb morphemes (like walk-*ing*)



12

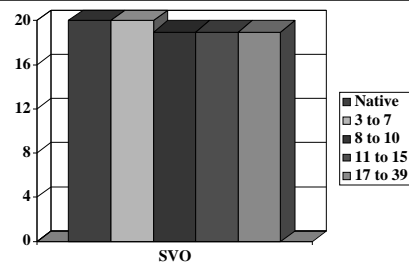
Effect of age differences on learning a foreign language

- Johnson and Newport (1989)
- Subjects: Chinese or Korean native speakers, university faculty or students, 10 years in U.S.
 - > Group 1: (control) Native English speakers
 - > Group 2: 3-7 years old when they entered the U.S.
 - > Group 3: 8-10 years old when they entered the U.S.
 - > Group 4: 11-15 years old when they entered the U.S.
 - > Group 5: 17-39 years old when they entered the U.S.

13

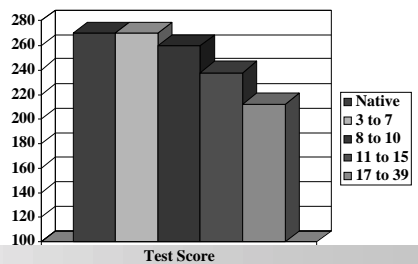
Analysis of the Errors

Word order



Morphology

(now you know why we wait to teach foreign languages until high school)



14

Critical Period For Language

The processor's ability to learn L1 or an L2 is:

- > normal to age 6
- > compromised after 6
- > unusable after 12 for L1, progressively more compromised after age 12 for L2

Evidence

- ASL acquisition of deaf children isolated from English
- Foreign language acquisition of children and adults
- Persistence of aphasia in children
- Language deprivation of children

15

Differences in the success of late language acquirers

- Genie - intentionally isolated until 13
- Chelsea - undiagnosed deafness until 31
 - > Orange Tim car in
 - > Richard eat peppers hot
- Isabelle- raised by speechless mother until 6
 - > Why does the paste come out if one upsets the jar?

16

Genie's Speech

- Want milk
- Mike paint
- Big elephant, long trunk
- Applesause buy store
- At school wash face
- Tell door lock
- Very sad, climb mountain
- I want Curtiss play piano
- Father take piece wood. Hit. Cry.

17

Analysis of Genie's Language

- Are these sequences of words structural?
 - > Aside from “piece wood” and “I want Curtiss play piano” utterances appear to be groups of content words linked to a sentence meaning that the context provides.
 - > “Piece wood” is probably a single word
 - > “I want ...” is a starter phrase for many sentences
- She obeys SVO order more than chance, thus she may know V(erb) P(hrase) structure
- However, she uses no functional category words, indicating that she may not know functional category phrase structure

18

Aphasia in Children: Loss of language due to brain damage

Causes: cardiac disease, vascular malformation, causing a blockage of blood flow to the language regions of the brain, resulting in brain cell death (called strokes), 2.7/100,000

Difference between childhood and adult aphasia

Adults: Following LH injury, the symptoms are stable and relatively permanent after 3 months.

Children: Before 2, injury has little lasting effect
Between 2 and 6, injury has progressively more lasting effect, more so for LH injury
Between 6 and 12, injury has progressively more lasting effect, approaching adult levels at 12-13, following LH injury.

19

Pidgins changing to creoles

Pidgins: protolanguages created by speakers from different languages trying to communicate

Creoles: former pidgins that have changed to become the language of a community

How pidgins change

expansion of vocabulary, word order, complex words, tense, agreement

Who caused the change: parent teachers or child learners?

20

Hawaiian Pidgin (1880-1930)

- o If like make, more better die time, no can carry
- o If you want to build (a temple), you should do it just before you die -- you can't take it with you.
- 1. And too much children, small children, house money pay
- 2. And I had too many children, small children, and I had to pay rent
- Foreman, who carry? Carry all, cut all.
- Who will carry it, Boss? Everyone will cut it and everyone will carry it.

Bickerton, 1992

21

Pidgin Analysis

- Spoken by adults who spoke a native language: Japanese, Korean, Filipino
- Short strings of no more than 4 words
- Each utterance is complete in itself, separate from other words
- Order of words somewhat variable but typically SVO
- No functional category words

22

Two single-generation creoles

1. The Hawaiian pidgin and creole created in late 19th century on Hawaiian sugar plantations
2. The sign pidgin (LSN) and sign creole (ISN) created in 1980 in Nicaraguan schools for the deaf

23

When can children invent language?

Home Signs	Pidgin Signs LSN	Sign Language ISN
Only a few Highly iconic Imprecise	Hundreds Less iconic Less imprecise	Thousands Combinatorial Precise, fluent

Six year-olds and younger

YES

YES

YES

Ten year-olds and older

YES

YES

NO

See web page for link to additional readings to Nicaraguan Sign Language *New York Times Magazine* article

24

What Kind of Input is Necessary?

Why is television-type talking (as used by deaf parents to teach English) not enough?

- Not about the “here and now”
 - The events and objects being referred to are not always present
 - Conversational speech is hard to follow by an outsider
- The learner is not being talked to, not engaged by the participants in an interaction of information sharing
 - Words are not isolated
 - No ability to assume an interpretation of what is said
- Why do isolated deaf children not invent structure and functional categories in their pidgin sign language?

25

What Kind of Input is Unnecessary?

■ Is Motherese (CDS) unnecessary?

- Cultural differences demonstrate that much is dispensable
 - Constant questioning or description of events appears to be a middle-class western-culture strategy
 - Many cultures do not ask babies questions or try to engage them in conversations because they don't think children know the answers or have anything to discuss
- Baby talk is not simple (questions predominate)

26

Is Speech Practice Necessary?

- **Output practice is needed for speech development but not language acquisition**
 - > Tracheal tubes cause babbling and 1st word delay but not comprehension delay
 - > Adults with cerebral palsy can have normal language given normal intelligence
 - > Children at each stage can understand much more than they can say
 - > Feedback on correctness is rarely given to children when they make errors

27

What is Necessary and Sufficient?

Opportunity to hear interpretable speech about the 'here and now' during the early months of life

- > Opportunity to associate certain sequences of sounds with concepts
- > Opportunity to associate grammatical category status with specific words
- > Opportunity to associate an interpretation with phrases composed of identifiable words

28