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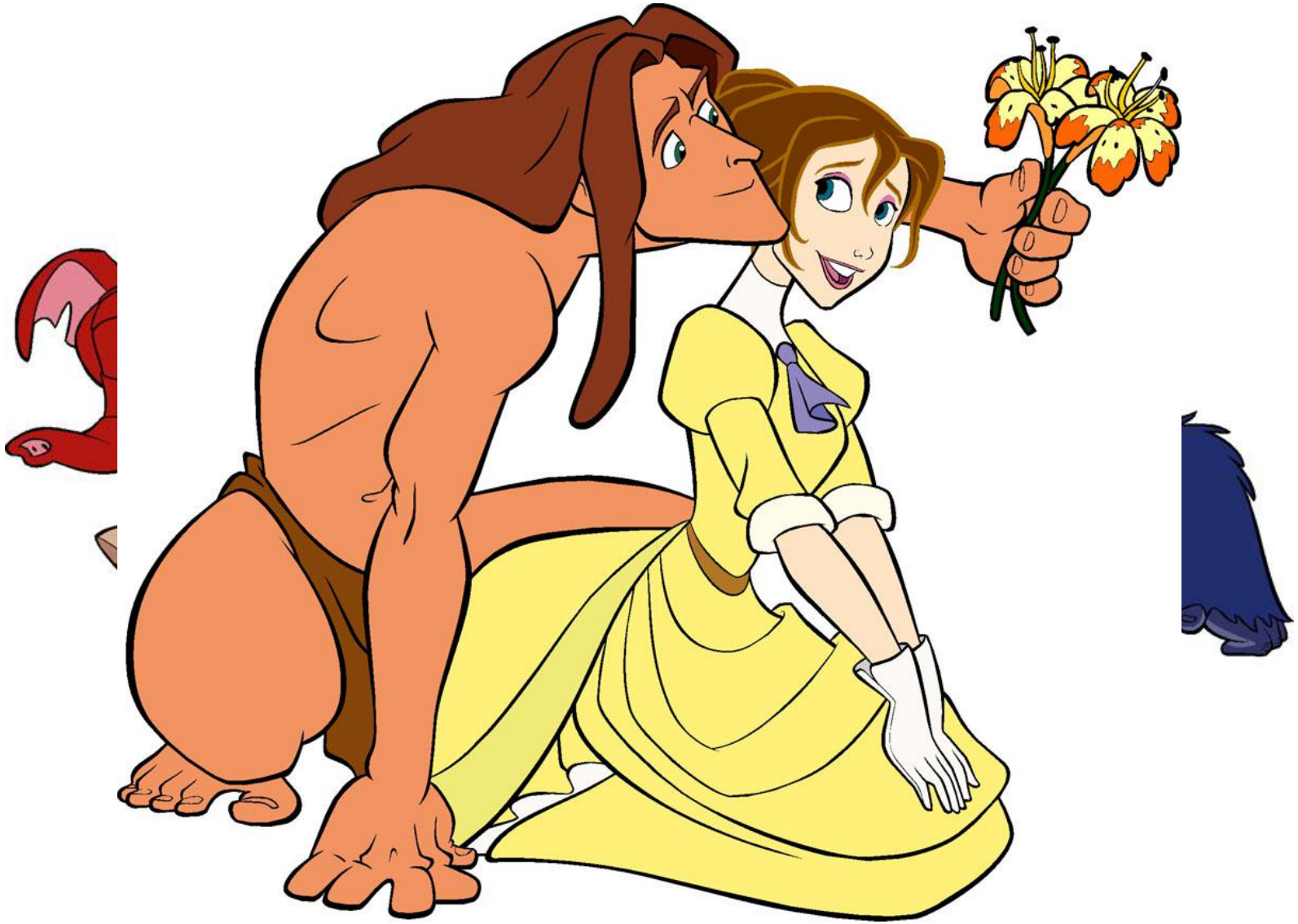
FIRST LANGUAGE ACQUISITION

Chapter 4

FERAL CHILDREN



狼孩

- 印度狼男孩 Shamdeo （1972~1985）:1972年5月，在Musafirkhana 的森林里发现了一个四岁男孩正在跟小狼玩耍。他皮肤黝黑，指甲呈长钩型，他有尖利的牙齿，非常嗜血；喜欢生肉和土壤，还喜欢黑暗环境，并与狗、豺狼为友。
- 被带住纳拉扬布尔的小村庄后，他已经不吃生肉，但他从不说话，只是学会一些手语。1978年他因为贫穷和疾病搬入了位于勒克瑙的德雷莎修女之家，在那里他有了新名字，叫做Pascal，最后死于1985年2月。

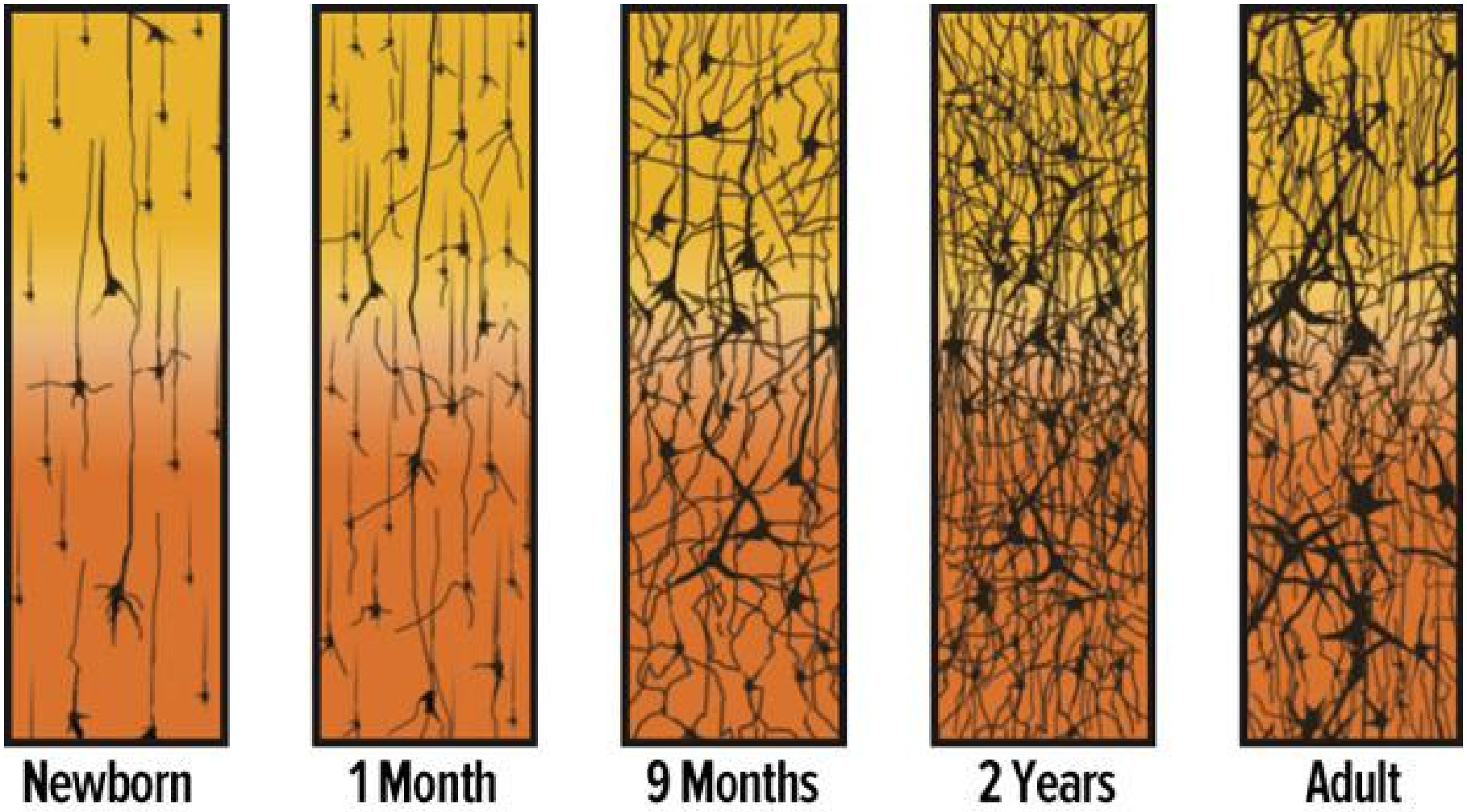
FERAL CHILDREN

- The wild girl of Champagne had probably learned to speak before her abandonment, for she is a rare example of a wild child learning to talk coherently.
- Her diet consisted of birds, frogs and fish, leaves, branches and roots. Given a rabbit, she immediately skinned and devoured it.
- “Her fingers and in particular her thumbs, were extraordinarily large.” She is said to have used her thumbs to dig out roots and swing from tree to tree like a monkey.
- She was a very fast runner and had phenomenally sharp eyesight.
- When the Queen of Poland, the mother of the French queen, passed through Champagne in 1737 to take possession of the Duchy of Lorraine, she heard about the girl and took her hunting, where she outran and killed rabbits.

FERAL CHILDREN

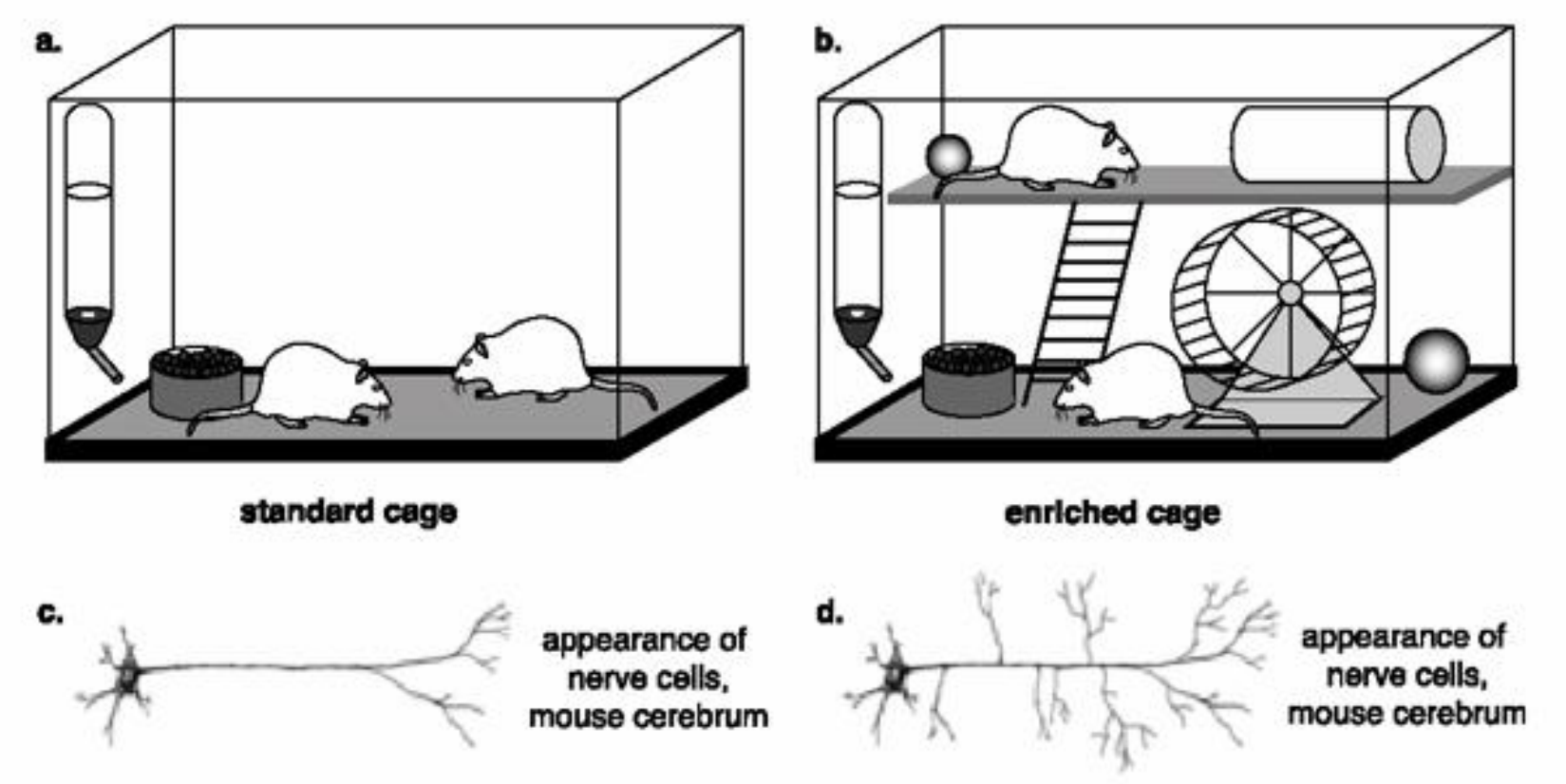
孩子被关羊圈三年，几乎丧失语言功能

THE GROWTH OF THE BRAIN (SYNAPSE DENSITY OVER TIME)



Source: Corel, JL. The postnatal development of the human cerebral cortex. Cambridge, MA: Harvard University Press; 1975.

ENVIRONMENTAL ENRICHMENT







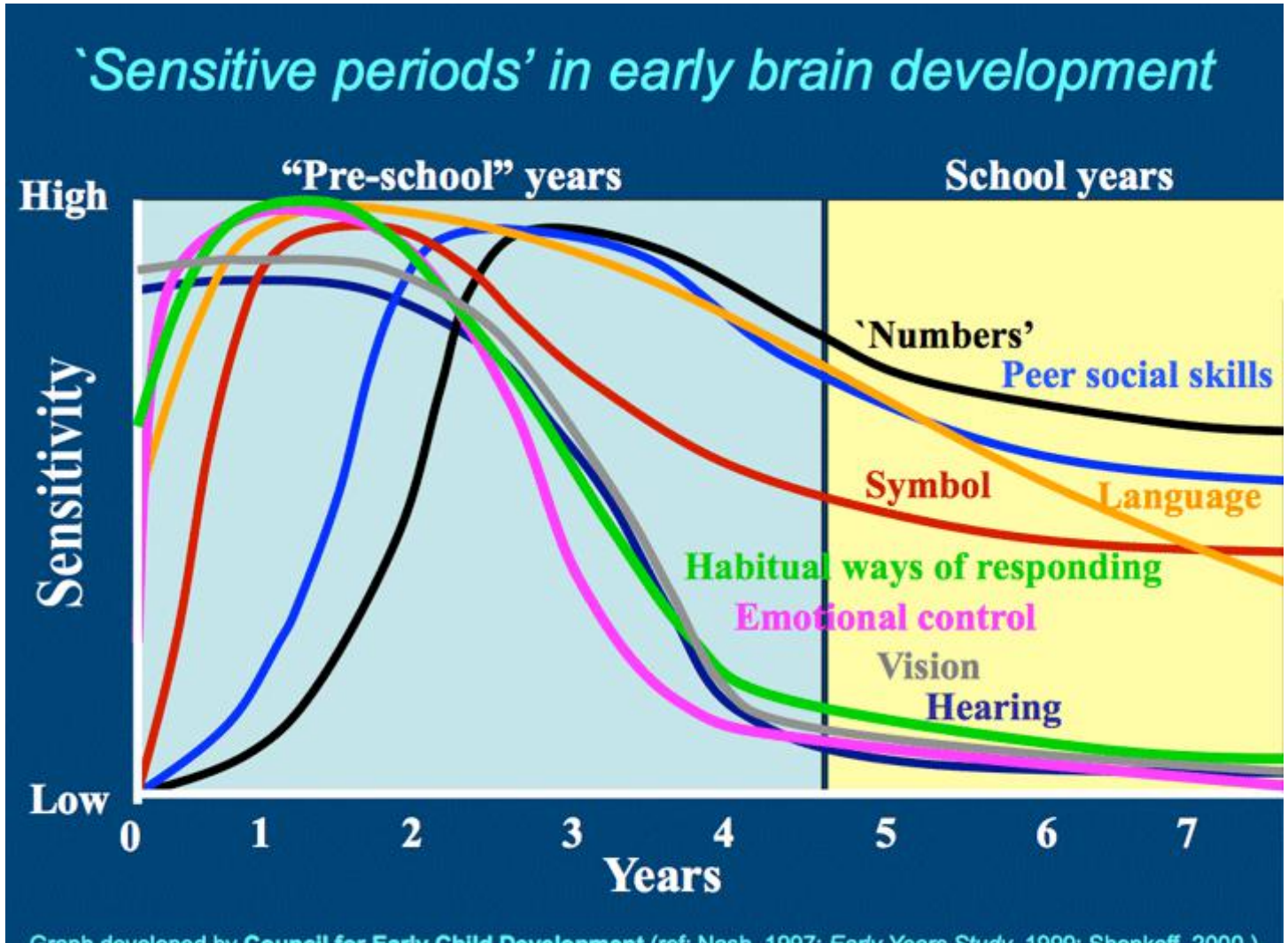


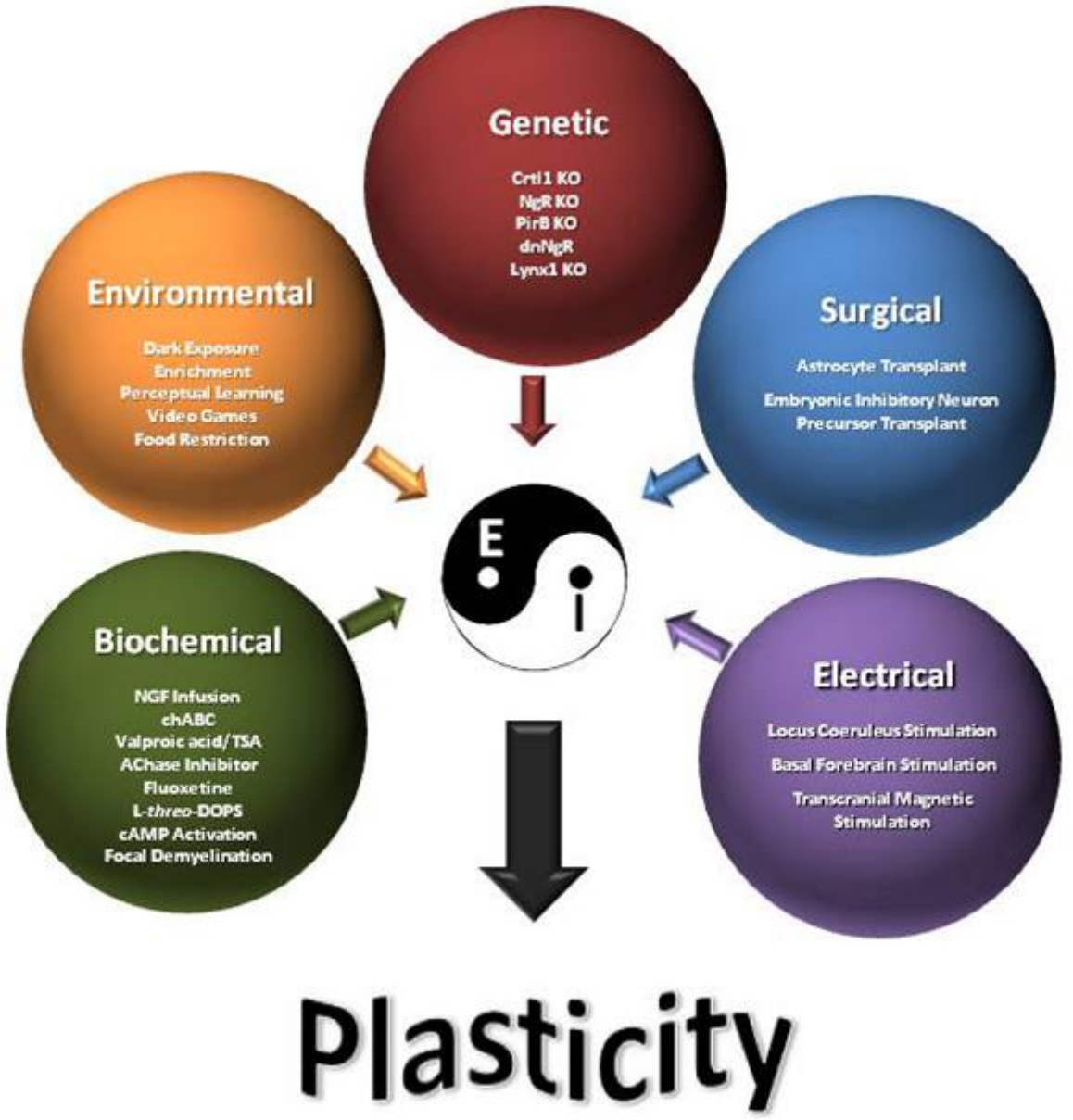






CRITICAL PERIOD HYPOTHESIS (LENNEBERG, 1967)





(Hensch & Parizad, 2012)

INFANTS LEARN WORD-LIKE STIMULI

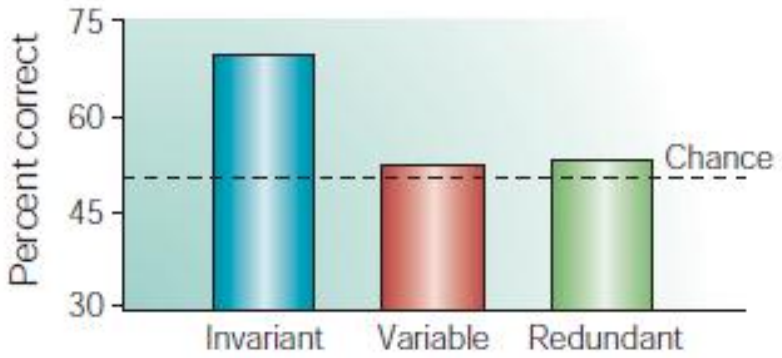
a Trisyllabic stimuli

	Background stimuli	Change stimuli
Invariant order:	dekoga, kogade	tikoga, kogati
Variable order:	dekoga, gakode	tigako, kogati
Redundant order:	dekoko, kokode	tikoko, kokoti

b Head-turn procedure

Test stimuli: 'de' versus 'ti'

c Discrimination performance



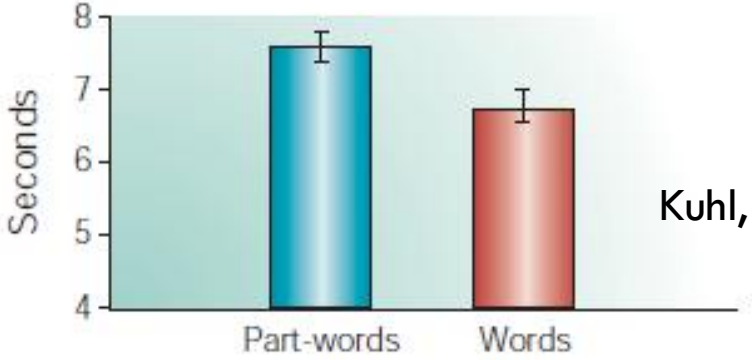
d Continous stream stimuli

Familliarization: pabikutibudogolatupabikudaropi...

e Auditory preference procedure

Test stimuli: 'tudaro' (part-word) versus 'pabiku' (word)

f Mean listening times



Kuhl, 2004

LANGUAGE DEVELOPMENT

Major Questions:

- What is language/what is involved in language?
- What are the stages of language development?
- Is language development driven by nurture or nature?

LANGUAGE LEARNING INVOLVES :

- **Phonological development**
  - Learn which sounds (phones) influence meaning.
  - These special phones are called phonemes and are the smallest meaningful sound changes in a language.
  - We are able to recognize all phonemes (around 200) and eventually our phonemic inventory narrows to match that of languages we are exposed to (45 sounds for English)

- **Semantic development**
  - Learn to manipulate minimal units of meaning, called morphemes. Stems and affixes (prefix, suffix, infix) are two kinds of morphemes.

LANGUAGE LEARNING INVOLVES:

- **Syntactic development**
  - Learn the impact that the **ordering of meaningful elements** has on meaning. This is called **descriptive grammar**.
  - This is **NOT** what we **learn in school**, but rather **how people actually speak**. What we are taught in school is called prescriptive grammar.
  - **Descriptive grammar** only **describes** the system of use; **prescriptive grammar imposes** (prescribes) a particular system
- **Pragmatic development**
  - Learn the rules of use, including social rules, etc.
- ***Meta-linguistic knowledge**
  - This is linguistic knowledge about language: for instance, categorizing words a noun, verb, etc. This may not actually be necessary for language learning but is a common feature.

LANGUAGE LEARNING INVOLVES :

- Phonological development
- Semantic development
- Syntactic development
- Pragmatic development
- *Meta-linguistic knowledge

THE STAGES OF PRIMARY LANGUAGE ACQUISITION:

- There are five basic stages of language acquisition
- **Cooing**: Appears at about 6 months or so. All infants coo using all the phonemes from every language. Even congenitally deaf children coo.
- **Babbling**: Appears at around 9 months. Infants are starting to selectively use the phonemes from their native language.
- **One-word utterances**: At around 12 months, children start using words.
- **Telegraphic speech**: Children start making multi-word utterances that lack function words. (about 2 years old)
- **Normal speech**: By about 5-6 years of age, children have almost normal speech

LANGUAGE DEVELOPMENT

Infants are equipped for language even before birth, partly due to brain readiness, partly because of auditory experiences in the uterus

- Children around the world have the same sequence of early language development

Newborns prefer to hear speech over other sounds- they prefer to listen to "*baby talk*"- the high pitched, simplified and repetitive was adults speak to infants

The sound of a human voice, whether familiar or strange always fascinates infants

"BABY TALK"

Babbling is the extended repetition of certain single syllables, such as "ma-ma-ma, da-da-da, ba-ba-ba" that begins at 6-7 months of age.

Babbling is *experience-expectant* learning

- All babies babble
- All babies gesture

- The sounds they make are similar no matter what language their parents speak

"BABBLING"

Over the next few months, babbling incorporates sounds from their native language.

Even untrained listeners can distinguish between babbling infants who have been raised in cultures in which French, Arabic, or Cantonese languages were spoken.

- Many cultures assign important meanings to the sounds babies babble:
- "ma-ma-ma", "da-da-da" and "pa-pa-pa" are usually taken to apply to significant people in the infant's life

FIRST WORDS

Infants first *recognize* words, then they begin to *comprehend* words

At about 4 ½ months of age, infants will listen longer to a tape repeating their own name than to a tape of different but similar name

At about 7-8 months of age, infants readily learn to recognize new words and remember them for weeks

FIRST WORDS

- At 6 months – if an infant hears either "mommy" or "daddy", they look toward the appropriate person.
- By their 1st birthday, infants usually say their first words, usually an extension of babbling.
- By the age of 2 most children have a vocabulary of a few hundred words, and by age 6 the vocabulary includes over 10,000 words!

A REPRESENTATIVE LIST OF EARLY WORDS:

Juice	Mama	All Gone		
Cookie	Dada		More	
Baby	Doggie	No		
Bye-Bye	Kitty		Up	
Hi	Dirty		Go	
Car	Hot		Do	
Water	Shoe	Milk		
Eye	Nose	Hat		

6 MONTHS

Vocalization with intonation

Responds to his name

Responds to human voices without visual cues by turning his head and eyes

Responds appropriately to friendly and angry tones

12 MONTHS

Uses one or more words with meaning (this may be a fragment of a word)

Understands simple instructions, especially if vocal or physical cues are given

Practices inflection

Is aware of the social value of speech

18 MONTHS

Has vocabulary of approximately 5-20 words

Vocabulary made up chiefly of nouns

Some echolalia (repeating a word or phrase over and over)

Much jargon with emotional content

Is able to follow simple commands

24 MONTHS

Can name a number of objects common to his surroundings

Is able to use at least two prepositions, usually chosen from the following: in, on, under

Combines words into a short sentence-largely noun-verb combinations (mean) length of sentences is given as 1.2 words

Vocabulary of approximately 150-300 words

Volume and pitch of voice not yet well-controlled

Can use two pronouns correctly: I, me, you, although me and I are often confused

My and mine are beginning to emerge

Responds to such commands as "show me your eyes (nose, mouth, hair)"

36 MONTHS

Use pronouns I, you, me correctly

Is using some plurals and past tenses

Knows at least three prepositions, usually in, on, under

Knows chief parts of body and should be able to indicate these if not name

Handles three word sentences easily

Has in the neighborhood of 900-1000 words

Verbs begin to predominate

Understands most simple questions dealing with his environment and activities

Relates his experiences so that they can be followed with reason

Able to reason out such questions as "what must you do when you are sleepy, hungry, cool, or thirsty?"

CHANGING MEANING BY CHANGING WHOLE OF PARTS OF WORDS

‘-ing’ endings: 19 – 28 months
‘In’ – 27 – 30 months
‘On’ – 27 – 30 months
Plural ‘s’ – 27 – 33 months
Irregular past tense (i.e. ‘brought’) – 25 – 46 months.
Possessive “ ‘s “ :26 – 40 months
‘is’ – 27 – 39 months
‘a’, ‘the’ – 28 – 46 months
Past tense ‘ed’: 26 – 48 months

DEVELOPMENTAL SEQUENCE OF SOME BASIC CONCEPT WORDS:

‘In’ and ‘On’ : 24 months

‘Under’ 36 months

‘Next to’ 40 months

‘Behind’, ‘In back/front’, beginning to use ‘above’, ‘below’, and using kinship words.

Approx. 48 months

‘Before’ and ‘After’ 60 months

DEVELOPMENT OF PRONOUNS: (OWENS, 1996)

I , it:	12 – 26 months
My, me, mine, you	27 – 30 months
Your(s), she, he, we	31 – 34 months
They, us, her(s), his, them	35 – 40 months
Its, our, him, myself, yourself, ours, their(s)	41 – 46 months
Herself, himself, itself, ourselves, yourselves, themselves:	47 + months

48 MONTHS

Knows names of familiar animals

Can use at least four prepositions or can demonstrate his understanding of their meaning when given commands

Names common objects in picture books or magazines

Knows one or more colors

Can repeat 4 digits when they are given slowly

Can usually repeat words of four syllables

Demonstrates understanding of over and under

Has most vowels and diphthongs and the consonants p, b, m, w, n well established

Extensive verbalization as he carries out activities

Understands such concepts as longer, larger, when a contrast is presented

Readily follows simple commands even thought the stimulus objects are not in sight

Much repetition of words, phrases, syllables, and even sounds

60 MONTHS

Can use many descriptive words spontaneously-both adjectives and adverbs

Knows common opposites: big-little, hard-soft, heave-light, etc

Has number concepts of 4 or more

Can count to ten

Should be able to repeat sentences as long as nine words

Should be able to define common objects in terms of use (hat, shoe, chair)

Should be able to follow three commands given without interruptions

Should have simple time concepts: morning, afternoon, night, day, later, after, while, tomorrow, yesterday, today

Should be using fairly long sentences and should use some compound and some complex sentences

Speech on the whole should be grammatically correct

ADULTS USE INFANT-DIRECTED SPEECH

Adults speak slowly and with exaggerated changes in pitch and loudness and elongated pauses between utterances

- Also known as parentese, motherese, or child-directed speech

Infant-direct speech may attract infants' attention more than adult-directed speech because its slower pace and accentuated changes provide the infant with more salient language cues

- Helps infants perceive the sounds that are fundamental to their language

DEAF CHILDREN

About 1 in every 1,000 American infants is born deaf

- Over 90% of deaf children have hearing parents
- These children are often delayed in language and complex make-believe play

Mommy

Daddy

Baby

DEAF CHILDREN

Deaf infants and toddlers seem to master sign language in much the same way and at about the same pace that hearing children master spoken language.

- Deaf 10-month-olds often “babble” in signs: they produce signs that are meaningless but resemble the tempo and duration of real signs

DADDY (12 months)

DEAF CHILDREN

- Compared to hearing children, babbling of deaf children is delayed
  - However, if they are exposed to sign language development will be right on schedule with normal-hearing children's speech development
- Hearing "dog", infants in the middle of the first year of life may first say "dod" then "gog" before finally saying "dog" correctly
  - The same gradual progression will occur with sign language – infants will make mistakes at first before making the correct sign for dog.

METHODS OF WORD LEARNING

- **Fast mapping** (an idea which has come under fire recently, but is still worth discussing)
  - Whole object assumption ('chair' means whole, not part of the thing being referenced)
  - Mutual exclusivity assumption (no thing has more than one name)
- **Pragmatic cues**
  - Social context
  - Attention
  - Intentionality
- **Linguistic context**
- **Syntactic bootstrapping** (using syntactic rules to guess meaning in context)

THE IMPORTANCE OF SYMBOLS

Children begin using gestures, which are symbols shortly before their first birthday.

Gestures and words convey a message equally well…sometimes gestures pave the way for language

- In one stu were re sture and later, by w w, 200

NAMES FOR EVERYTHING!

Once an infant's vocabulary reaches about 50 words it suddenly begins to build rapidly, at a rate of 50-100+ words per month, mostly nouns.

This language spurt occurs around 18 months and is sometimes called the *Naming explosion*.

PRODUCTIVE VOCABULARY

Early productive vocabularies of children in the US include names for people, objects, and events from the child's everyday life.

- Frequent events or routines are also labeled, such as "up" or "bye-bye"
- Nouns predominate the early productive vocabularies of children

LANGUAGE EXPOSURE

- The rate of children's vocabulary development is influenced by the amount of talk they are exposed to.
- The more speech that is addressed to a toddler, the more rapidly the toddler will learn new words

WORD COMPREHENSION

Fast Mapping is the process of rapidly learning a new word simply from the contrastive use of a familiar word and an unfamiliar word

The children's ability to connect new words to familiar words so rapidly that they cannot be considering all possible meaning for the new word

EXAMPLE OF FAST MAPPING

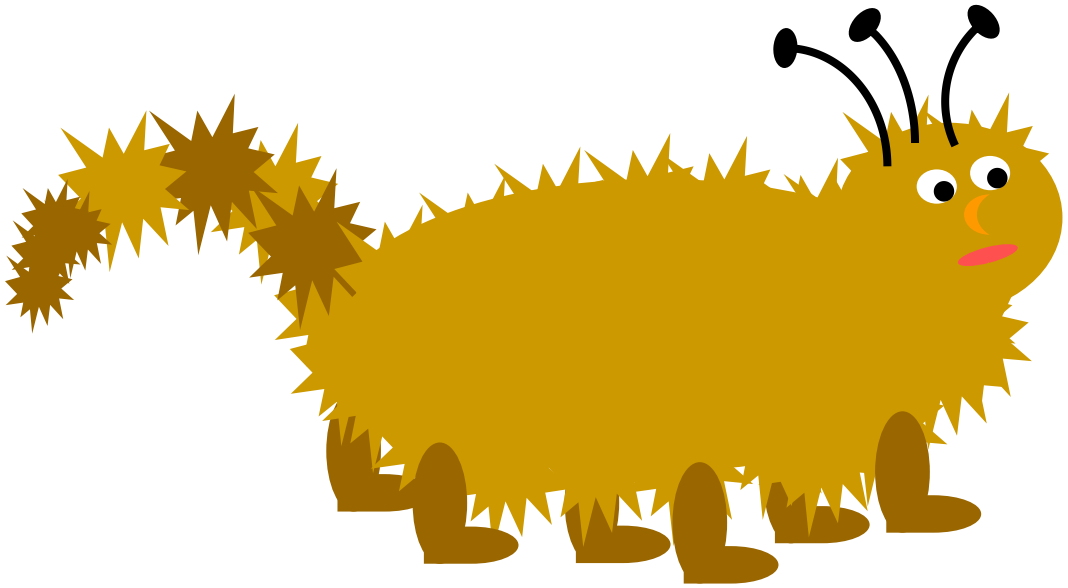
In a preschool classroom, an experimenter drew a child's attention to two blocks – asking the child to "get the celadon block not the blue one"

From this simple contrast, the child inferred that the name of the color of the requested object was "celadon"

After a single exposure to this novel word, about half the children showed some knowledge of it a week later by correctly picking the celadon color child from a bunch of paint chips

GIVE FAST-MAPPING A TRY…

Answer the following questions on you own.



1. This is a snurk. It walks on its flaxes. How many flaxes does a snurk have?
2. Snurks have twice as many flaxes as ampolinks. Where are the amopolinlks?
3. Snurks are covered with garslim. Garslim is like _____?
4. Like dogs, snurks can wag their pangeers. Where is the pangeer?
5. Do you think snurks can bispooche? Why or why not?

EARLY ERRORS IN LANGUAGE

One common inaccuracy is *underextension* –using a word too narrowly.

- Using the word “cat” to refer only to the family cat
- Using the word “ball” to refer only to a favorite toy ball

OVEREXTENSION

The use a given word in a broader context than is appropriate

- Common between 1 and 3 years of age
- More common than *Underextension*

Toddlers will apply the new word to a group of similar experiences

- "Open" – for opening a door, peeling fruit, or undoing shoelaces

LANGUAGE ERRORS

Children overextend because they have not acquired another suitable word or because they have difficulty remembering a more suitable word

Examples:

- Ball referring to ball, balloon, marble, egg, or apple
- Moon referring to moon, half-moon shaped lemon slice, or half a Cheerio
- Car referring to a car, bus, truck, or tractor
- Daddy referring to dad or any man
- Doggie referring to dog or any four-legged animal

MAKING SENTENCES

- Most children begin to combine words into simple sentences by 18 to 24 months of age
- Children's first sentences are two-word combinations referred to as *Telegraphic speech*
  - Words directly relevant to meaning
- Words not critical to the meaning are left out – similar to the way telegrams were written such as:
  - Function words: a, the in
  - Auxiliary words: is, was, will be
  - Word endings: plurals, possessives, verb tenses

OVERREGULARIZATION

Speech errors in which children treat irregular forms of words as if they were regular.

- Applying rules to words that are exceptions to the rule
- This leads young children to talk about foots, tooths, sleeps, sheeps and mouses.

Although technically wrong, *Overregularization* is a sign of verbal sophistication because it shows children are applying the rules to grammar.

BETWEEN 3 AND 6 YEARS OF AGE

Children learn to use negation
- "That isn't a butterfly"

Children learn to use embedded sentences
- "Jennifer thinks that Bill took the book"

Children begin to comprehend passive voice as opposed to active voice
- "The ball was kicked by the girl" as opposed to "The girl kicked the ball"

By the time most children enter kindergarten, they use most of the grammatical forms of their native language with great skill

THEORIES OF LANGUAGE DEVELOPMENT

1. Learning Theory

Accounts of language development which emphasize that language acquisition can be explained using the principles of learning such as classical conditioning, operant conditioning, and observational learning.

THEORIES OF LANGUAGE DEVELOPMENT

Skinner argued that children learn language as parents selectively **reward** or **punish** only those behaviors which they recognize as appropriate, grammatically correct utterances.

Bandura argued that language learning takes place primarily by processes of **observation** & **imitation**. Simply put, children overhear language being used and they imitate the behavior of these models.

THEORIES OF LANGUAGE DEVELOPMENT

Learning theory has been criticized on a number of counts.

- It is simply not possible for parents to reinforce or punish all of the possible utterances a child will use.
- Studies of parent-child interaction show that parents reward grammatically incorrect utterances that are truthful.
- The language that children hear contains too few examples for them to learn the correct rules (**poverty of the stimulus** argument).

THEORIES OF LANGUAGE DEVELOPMENT

2. Nativist Theory

- The nativist view of language development is traced back to the work of Noam Chomsky (1957).
- Chomsky argued that language is the product of an unlearned, biologically-based, internal mental structure.
- Because the rules which underlie a language are too complex to be acquired by children in a few short years, some aspects of language must be **innately specified**.
- In short, many aspects of language are not learned but are a part of our biological endowment.

THEORIES OF LANGUAGE DEVELOPMENT

- All nativist theories of language development share certain elements.
- First, they assume that certain grammatical concepts are common to all languages and are therefore innate.
- Children are biologically predisposed to learn a language.
- Children come equipped with a set of innate **hypotheses** which guide their attempts to learn the rules of a language. These help to reduce the complexity of learning a language.

THEORIES OF LANGUAGE DEVELOPMENT

- Chomsky (1968) proposed that children come equipped with an innate mental structure -- the **language acquisition device (LAD)** -- which makes learning easier.
- According to Chomsky, the LAD contains a set of features common to all languages, which he termed a **universal grammar**.
- Universal grammar refers to the entire set of rules or linguistic parameters which specify all possible human languages.
- The learning of grammar occurs when the LAD operates on speech to abstract out the linguistic parameters which underlie the particular language used in the child's environment.
- Chomsky termed this process of determining the parameters or rules of one's native language **parameter setting**.

THEORIES OF LANGUAGE DEVELOPMENT

Nativist theory has been criticized on a number of counts.

- Linguists have failed to specify the nature of universal grammar. Many linguists have speculated that this may not be possible.
- Grammar is not learned as rapidly as one might expect if a great deal of innate knowledge is assumed.
- There is little evidence neurological evidence to support the existence of a biologically-based LAD. Presumably there should be some pattern of damage that hinder our ability to learn a language.

THEORIES OF LANGUAGE DEVELOPMENT

3. Interactionist Perspectives on Language Development

- **Interactionist theories** are concerned with the interplay between environmental & biological factors in the process of acquiring language.
- Interactionists tend to view children as having a strong biological predisposition to acquire a language.
- However, in contrast to nativists, interactionists stress the importance of both the **social support** that parents provide the young language learner, as well as the **social contexts** in which language-learning child is instructed.

THEORIES OF LANGUAGE DEVELOPMENT

Criticisms of Interactionist Perspectives

deVilliers & deVilliers (1992) suggest that parents rarely offer their children **direct feedback** on the appropriateness of their grammar.

Linguistic & social practices vary widely across cultures. Some cultures do not use anything like the practices described above and yet, their children still learn language at a similar rate to Western children.

CONCLUSIONS

Each of the three theoretical perspective adds something to the study of human language.

Learning theory provides some thoughts on plausible mechanisms that might underlie the acquisition of at least some facets of human language.

Nativist theory highlights the fact that now all aspects of a language can be learned in the time that humans typically do and thus, that an innate language mechanism must be a part of our equipment.

Interactionist theories highlight the important role of the social environment and the important role social input has in structuring our language-learning.