How We Learn Language:

- Babies respond emotionally to positive and negative tones
- Babies prefer strangers with the native language and without a foreign accent
- When babies were listening to language played backwards, brains weren’t stimulated
- Babies can tell differences between languages
  - Done with pacifier sucking experiment that elicited recordings of language
  - Eventually got habituated and bored but excited and dishabituated when language changed
- Babies have sensitivity to frequency of syllables that occur with one another even before understanding meaning
- Babies look at parents’ eyes when they say a new word to find what it is it’s referring to
- Basic-Level Word – A concept at some accessible, middling degree of abstractness or inclusiveness
  - Learn “whole” before parts (eg: know “dog” before “ear”) and before more general terms (eg: animal)
- Superordinates – Concepts that are more abstract or inclusive than basic-level concepts (eg: animal)
- Subordinates – Concepts that are less abstract or more particular than basic-level concepts (eg: poodle)
- Learn words for whole objects first
  - Group objects by shape and not material, size, or color
- Even small toddlers learn language decontextualized (without immediate evidence from senses)
  - When asked “where’s the doggie” when there is no dog there, they understand
- Children understand verb/noun functions
  - Can identify fake verbs by the “ing” endings for instance
- Children first learn past tense words by memorizing each individual past tense form of each word and thus can say irregular past tense words like “ran”
  - Some time after, children realize that there are patterns and try to apply them and then say “ranned” and other errors by this mistake

Language Learning in Changed Environments:

- Children “raised” by animals could only learn to speak a few words at maximum
- Isabelle, a 6 year old girl with little contact by parents, was rehabilitated because she was as smart as a 2 year old and had no language. In a year, she was just as smart and lingual as other children
- Genie, a 14 year old girl who had lived tied to a chair and abused, could make sentences but with poor semantic composition
- Age is a factor in learning language (puberty)
- American Sign Language (ASL) – The manual-visual language used by most of deaf persons in the United States
- Children and babies learn ASL just as any spoken language
- Children in a healthy environment but denied of language made up their own gestural languages
- Blind children learn language as rapidly as seeing children
- When a blind child is told to “look up,” he will raise her hands up instead of moving the head up
- Blind children can learn about what objects have colors from experience and that abstract concepts do not have colors
- Children in bilingual homes learn both languages just as fast as any other child would learn a single language even though each individual language does not get 100% priority
  - Children in these homes sleep less
- Crib Bilingual – A paralinguistic infant who is exposed to two or more languages in the home environment
- Bilinguals achieve executive control earlier than other children because they have to learn to inhibit one form of linguistic information and monitor and switch to the other
  - In the Dimensional Change Card Sorting Task, cards were to be described by shape and then color but were sorted
  - Children with one language slowed down when the sorting between the two categories occurred but bilinguals did not
  - Both performed the pre-sorting phase the same
- Bilinguals can understand puns at earlier ages because they can switch between structural interpretations easier and higher cognitive control
**Cognitive Development:**

- Children need to understand meanings of world such as facts about events and physical world and about people
- Piaget studied the cognitive development of child’s understanding
- Object Permanence – The conviction that an object exists when it is out of sight
- Dissociation between what the infant know and does
  - A-Not-B-Effect – The tendency of infants to reach for a hidden object where it was previously hidden rather than where it was hidden most recently while the child watched
- Object permanence is formed from increasingly sophisticated schemas – ways of interacting with the world and ideas about the world
- Assimilation – Developing child’s process of interpreting the environment in terms of the schemas he already has
- Accommodation – Developing child’s process of changing his schemas based on his interactions with the environment
- 2 Year Olds, even though they have object permanence, do not interrelate their mental representations in a coherent way (operations)
- Do not understand conservations (eg: starting with two glasses of equal amounts of water, if one is emptied into a tall, thin glass, they think that one has more water)
- Preoperational children do not interrelate multiple dimensions (eg: width and height as factors)
- Habituation Procedures – Methods for studying infant perception. After some exposure to a stimulus, an infant becomes habituated and stops paying attention to it. If the infant shows renewed interest when a new stimulus is presented, this reveals that the infant regards the new stimulus as different from the old one
- A rod moving horizontally behind a box was habituated to infants. Then two steps were shown: one has a rod moving back and forth and one had two halves of the rod (as seen as if behind the box) moving back and forth in unison
  - Babies understood that it was not two halves of a rod when behind the box and attended to the split rod
- Some researchers feel Piaget was mistaken and infants do understand that objects continue to exist when hidden from view but lack full understanding of how to deal with it
  - With A-not-B-effect, they say that they have been primed and habituated to grabbing in spot A even if they see it in spot B that it is hard to override
    - Sometimes look at B but grab for A
    - Believe it requires maturation of prefrontal cortex in front of motor projection area
- Infants can actually grasp the concept of numbers as seen through habituation techniques
- Toddlers have a slight grasp on counting (eg: Might count 1, 6, 10, but it will be consistent and when two items are shown, the toddler will consistently say 6)
- Piaget’s tests might have been slightly misleading because he asked the same questions twice
- Infants understand intentions
  - In one experiment, infant is habituated to the grabbing of an item. Then, the person grabs the item but from the other side. The infant isn’t interested. When the person grabs a different item, this is what surprises the infant.
- Theory of Mind – The set of interrelated concepts we use to make sense of our own thoughts, feelings, and behaviors, as well as those of others
  - Also involves preferences
    - Babies would give food to a person that the person has a “yum” face for then a “yuck” face for even if the baby prefers the “yuck” food
  - Also involves beliefs
    - Isn’t perfect though because young children still think they can tell a color by touching or know something all along even if just told
- False belief test
  - A child and bear stuffed animal are shown a toy in a red box. Then the experimenter takes the animal out of the room and moves the toy to the green box and shows the child. When the animal is brought back and the child is asked where the bear will look, the child knows only its own beliefs as true and says that the bear will look in the green box because that’s where it is
    - Understand at 4.5 or so years of age