Development Theories

Kuliah 2

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Development

- Changes that occur in human beings between conception and death
  - Physical dev. – *changes in body structure and function over time*
  - Personal dev. – *changes in personality*
  - Social dev. – *changes over time in the ways we relate to others*
  - Cognitive dev. – *gradual orderly changes by which mental processes become more complex and sophisticated*
  - Maturation – *genetically programmed, naturally occuring changes over time*

Discussion

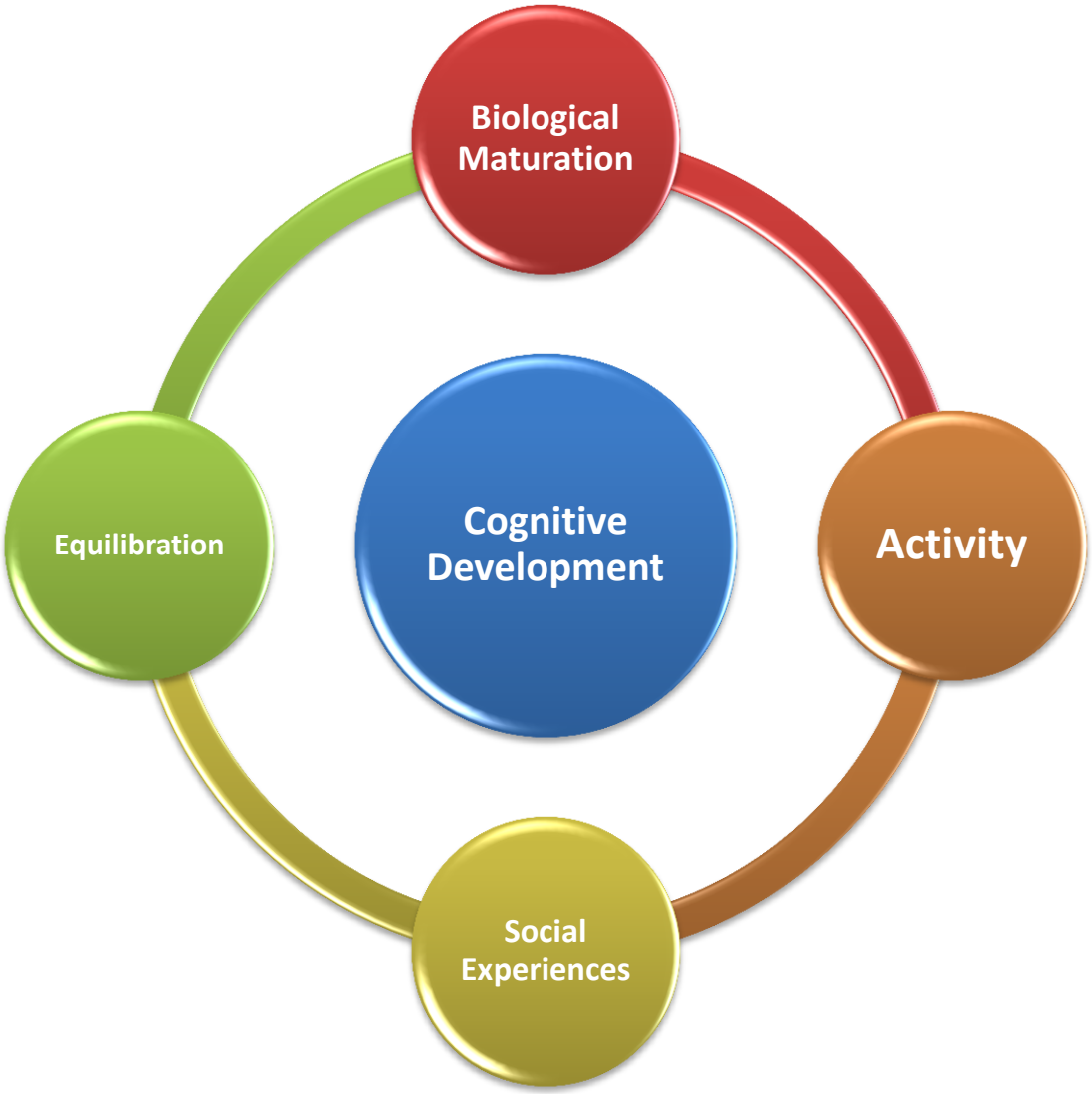
- **What is the source of development?**
  - Nature vs Nurture
- **What is the shape of development?**
  - Continuity vs discontinuity
- **Timing: Is it too late?**
  - Critical Periods and Earlier vs Later Experiences
  - Are there critical periods when certain abilities, such as language need to develop? If those opportunities are missed, can the child still “catch up”?

THEORY OF COGNITIVE DEVELOPMENT

BY PIAGET

1. Cognitive dev. is much more than addition of new facts and ideas to an existing store of information

2. Piaget identified four factors that interact to influence changes in thinking (Piaget, 1970)



3. All species inherit two basic tendencies – organization & Adaptation

- Organization
  - Ongoing process of arranging information and experience into mental systems or categories
  - The combining, arranging, recombining and rearranging of behaviors and thoughts into coherent systems
  - Ex. very young infants can either look at an object or grasp it when it comes in contact with their hands. As they develop, infants organize these two separate behavioral structures into a coordinated higher-level structure of looking at, reaching for and grasping the object.

Organization – schemes

- The basic building blocks of thinking called **schemes** *(mental systems or categories of perception and experience)*
- **As a person's thinking processes become more organized and new schemes develop, behavior also becomes more sophisticated and better**

Adaptation

- Adjusting to environment
- Two basic processes are involved in adaptation: **Assimilation & Accomodation**
- Assimilation: when people use their existing schemes to make sense of events in their world
  - Ex. The first time many children see a raccoon, they call it a “kitty”. They try to match the new experience with an existing scheme for identifying animals

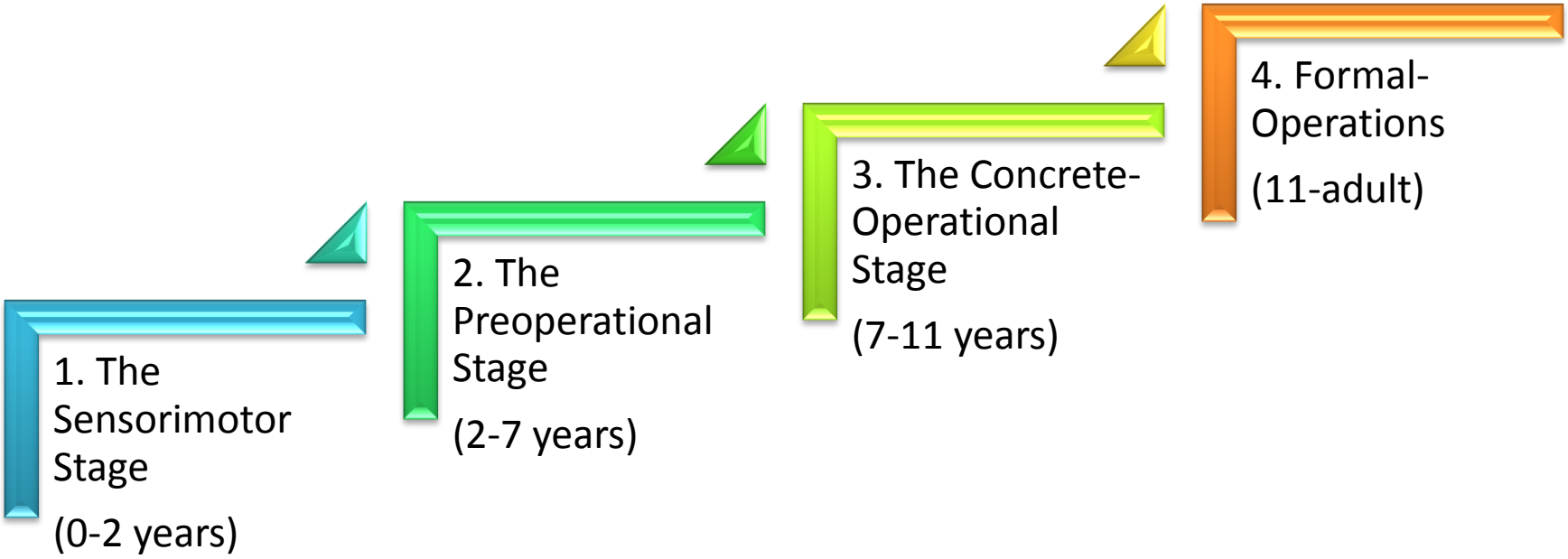
Adaptation

- Accomodation: when a person must change existing schemes to respond to a new situation
  - Ex. Children demonstrates accomodation when they add the scheme for recognizing raccoons to their other systems for identifying animals.
- **People adapt to their increasingly complex environments by using existing schemes whenever these schemes work (assimilation) and by modifying and adding to their schemes when something new is needed (accomodation)**

Equilibration

- Organizing, assimilating, accomodating can be viewed as a kind of complex balancing act
- The actual changes in thinking take place through the process of equilibration

The Four Stages of Cognitive Development



1. The Sensorimotor Stage (0-2 years)

- The child's thinking involves seeing, hearing, moving, touching, tasting, etc
- **Object permanence**: the understanding that object exist in the environment whether they perceive them or not.
  - Before infants develop object permanence, it is relatively easy to take something away from them…"out of sight, out of mind"
- **Intentionality**: moves from reflex actions to goal – directed activity

2. The Preoperational Stage (2-7 years)

- Gradually develops use of language and ability to think in symbolic form
- **Semiotic functions**: the ability to form and use symbols-words, gestures, signs, images.
  - Ex. Using the word horse or a picture of a horse or even pretending to ride a broomstick horse to represent horse that is not actually present.
- Rapid development of that very important symbol system, language – vocabulary, 200 – 2000 words

2. The Preoperational Stage (2-7 years)

- Able to think operations through logically in one direction
  - Limited to thinking in one direction only; **one-way logic**
  - It's very difficult for the child to "think backwards" or imagine how to reverse the steps in a task (reversible thinking)

2. The Preoperational Stage (2-7 years)

- **Conservation**: the principle that amount or number remains the same even if the arrangement or appearance is changed, as long as nothing added and nothing is taken away
- **Decentering**: she has difficulty considering more than one aspect of the situation at a time

2. The Preoperational Stage (2-7 years)

- Has difficulties seeing another person's point of view
- **Egocentric**: to see the world and the experiences of others from their own viewpoint.
  - Ex. If a little girl at this stage is afraid of dogs, she may assume that all children share this fear

3. The Concrete-Operational Stage (7-11 years)

- **Concrete operation**: 'Hands-on' thinking/ mental tasks tied to concrete objects and situations.
- Understand laws of conservation and is able to classify and seriate
  - The recognition of the logical stability of the physical world, the realization that elements can be changed or transformed and still conserve many of their original characteristics, and the understanding that these changes can be reserved.

3. The Concrete-Operational Stage (7-11 years)

- The ability to solve conservation problems depends on an understanding of three basic aspects of reasoning
  - Identity: if nothing is added or taken away, the material remains the same
  - Compensation: the principle that changes in one dimension can be off-set by changes in another
    - Ex. If the glass is narrower, the liquid will rise higher in the glass.
  - Reversibility: the ability to think through a series of steps, then mentally reverse the steps and return to the starting point/ **reversible thinking**

3. The Concrete-Operational Stage (7-11 years)

- **Classification**: grouping objects into categories
  - Ex. That buttons can be classified by color, than reclassified by size or by number of holes (*related to reversibility*)
- **Seriation**: the process of making an orderly arrangement from large to small or vice versa
  - this understanding of sequential relationships permits a student to construct a logical series in which A<B<C (*A is less than B is less than C*) and so on

3. The Concrete-Operational Stage (7-11 years)

- Concrete-Operational stage has finally developed a complete and very logical system of thinking, but still tied to physical reality
  - The logic is based on concrete situations that can be organized, classified or manipulated
  - Isn't yet able to to reason about hypothetical, abstract problems

4. Formal-Operations Stage (11 - Adult)

- Mental tasks involving abstract thinking and coordination of a number of variables
- The focus of thinking can shift from what is to what might be
- Situations do not have to be experienced to be imagined

4. Formal-Operations Stage (11 - Adult)

- **Hypothetico-deductive reasoning**
  - A formal-operational thinker can consider a hypothetical situations (people don't sleep) and reason deductively (from the general assumption to specific implications, such as longer workdays, more money to spent on energy and lighting, smaller house without bedrooms, or new entertainment industries)

4. Formal-Operations Stage (11 - Adult)

- **Adolescent egocentrism**
  - Adolescent realize that other people may have different perceptions and beliefs; they just become very focused on their own ideas

SOCIOCULTURAL THEORY OF COGNITIVE DEVELOPMENT

BY VYGOTSKY

The Social Sources of Individual Thinking

- Piaget:
  - Social interaction was more than influence, it was the origin of higher mental processes such as problem solving.
  - Higher mental processes, such as directing your own attention and thinking through problems, first are co-constructed during shared activities between the child & another person
  - Co-constructed process: a social process in which people interact and negotiate (usually verbally) to create an understanding or to solve a problem. The final product is shaped by all participants

The Social Sources of Individual Thinking

- Vygotsky assumed that:
  - **Social interaction was more than influence, it was the origin of higher mental processes such as problem solving.**
  - Ex. A six year old has lost a toy and asks her father for help. The father asks her where she last saw the toy; the child says “I can’t remember”. He ask a series of questions – ‘Did you have it in your room? Outside? Next door? To each question, the child answer “no”. When he says, “in the car?” she says “I think so” and goes to retrieve the toy
  - The remembering & problem solving were **co-constructed**-between people- in the interaction. But the child may have internalized strategies to use next time something is lost. Higher functions appear first between child and a ‘teacher’ before they exist within the individual child
  - **Co-constructed process**: a social process in which people interact and negotiate (usually verbally) to create an understanding or to solve a problem. The final product is shaped by all participants

Piaget vs Vygotsky

- Piaget saw different role for interaction
- He believed that interaction encouraged development by creating **disequilibrium**- that cognitive conflict motivated change
- He also believed that the most helpful interactions were those between peers, because peers are on an equal basis and can challenge each other's thinking

- Vygotsky suggested that children's cognitive dev. Is fostered by interactions with people who are more capable or advanced in their thinking – people such as parents and teachers
- Students can learn form both adults and peers
- Vygotsky placed more emphasis than Piaget on the role of learning and language in cognitive dev.

Cultural Tools & Cognitive Development

- Cultural tools
  - Material tools (printing presses, plows, rulers, abacuses, graph paper, PDAs, computers, the internet)
  - Psychological tools (signs &symbol system; numbers &mathematical system, braille &sign language, maps, work of art, codes, language)
  - That allow people in a society to communicate, think, solve problems, and create knowledge.
- The tools that particular cultures provide to support thinking, and the idea that children use the tools they're given to construct their own understanding of the physical and social world

The Role of Language and Private Speech

- Language is critical for cognitive dev. Because it provides a way to express ideas and ask questions, the categories and concepts for thinking, and the links between the past and the future.
- Thinking depends on speech, on the means of thinking, and on the child's socio-cultural experience
- Using language to accomplish important cognitive activities: directing attention, solving problems, planning, forming concepts & gaining self-control

Private Speech

- Young children often talk to themselves as they play
- In a group of children – each child talks enthusiastically, without any real interaction or conversation-collective monologue/self directed talk “egocentric speech”
- Rather than being a sign of cognitive immaturity, Vygostsky suggested that these mutterings play an important role in cognitive development by moving children in stages toward self-regulation: the ability to plan, monitor and guide one’s own thinking and problem solving.

The Zone of Proximal Development

- Phase at which a child can master a task if given appropriate help and support
- At any given point in development, there are certain problems that a child is on the verge of being able to solve.
- The area between the child's current development level "as determined by independent problem solving" and the level of development that the child could achieve "through adult guidance or in collaboration with more capable peers."
- "magic middle" – somewhere between what the student already knows and what the student isn't ready to learn.

IMPLICATIONS OF PIAGET'S & VYGOTSKY'S THEORIES FOR TEACHERS

- Piaget:
- Understanding and building on student's thinking
- Individuals construct their own understanding; learning is constructive process

- Vygotsky:
- The role of adults & peers
- Assisted learning
- Teaching and the "magic middle"

THE DEVELOPMENT OF LANGUAGE

Developmental Ages	Language Characteristics
0-6 months	Sense the emotional state and reflect that trough intonations Crying is a baby's first form of verbal communication Have the capabilities to produce all language sounds Able to differentiate and reproduce, according to the sounds the child hears from people close to her **Put in his mind that talking is a two-way street- have conversations with the baby, taking turns**
6 months-1 year	Babbling/jargon talk stages Ready to utter his first words in months to come Critical stage to practice the sounds and intonations of his native language Learning that language is a social tool as well as means of getting what you want **Talk a lot! Surround the child with meaningful language about what he is seeing in front of him. Describe everything that you are doing with him.**

Developmental Ages	Language Characteristics
6 months – 1 year	Early literacy-early exposure to appropriate books helps to create eager and competent readers in later years He learns that pictures are symbols that represent real things
Toddler	Start naming familiar objects and saying common social phrases: “Mama”, “Doggie”, “Spoon”, “Bye Bye” Pronounciation isn’t accurate yet- make any attempt to correct pronounciation His receptive is more develop than his productive language **Surrounding the child with meaningful talk- they absorbing language rules of syntax and sentence structure**
2 year	His has vocabulary of about 200 words or more Start to put together two-, three-, and four-word sentences and questions Enjoy chanting, repeating syllables over and over in a sing-song way, and generally playing with sounds

Developmental Ages	Language Characteristics
2 year	Early literacy-beginning to recognize letters – beginning to notice differences in lines and shapes
3 year	Fluent talk Have basic grammatical structure mastered Early literacy- pre reading exercise-read aloud for pleasure, vocabulary dev., listening skills Can learn to recognize shapes, sizes, and colors
4 year	Noisy age-they are loud in almost everything they do Enjoy playing with words and making up new, funny words and sounds Enjoy extremes in their voices, shouting, whispering, and telling secrets They can talk about things thay can't see at the moment-ideas, "What if's" Their language is now directed at other children rather than adults Some of them go through a period of stuttering Also known as the age of "Why" Early literacy-becoming interested in naming letters

Developmental Ages	Language Characteristics
5 year	Language are well developed, and they enjoy talking about a wide range of subjects Learning to read
6-8 year	The main structures of language are mastered and able to communicate well