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Childhood and Growing up

PIAGET'S STAGES OF COGNITIVE DEVELOPMENT

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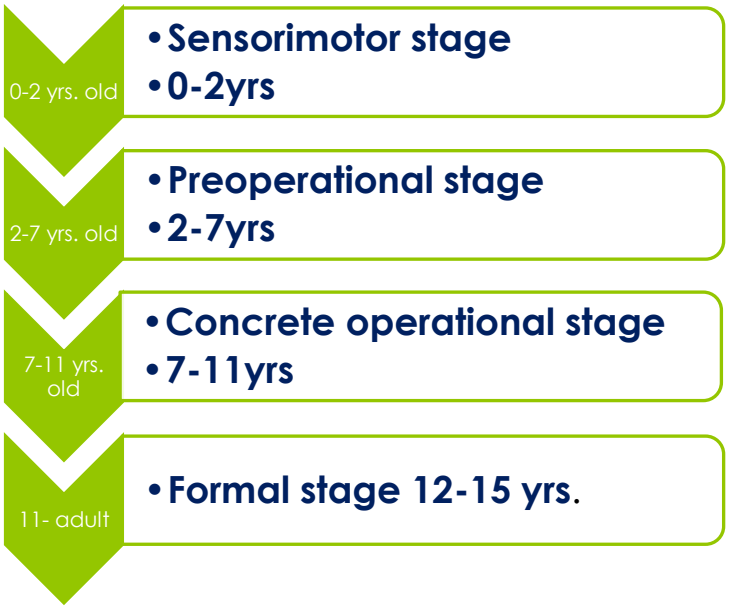
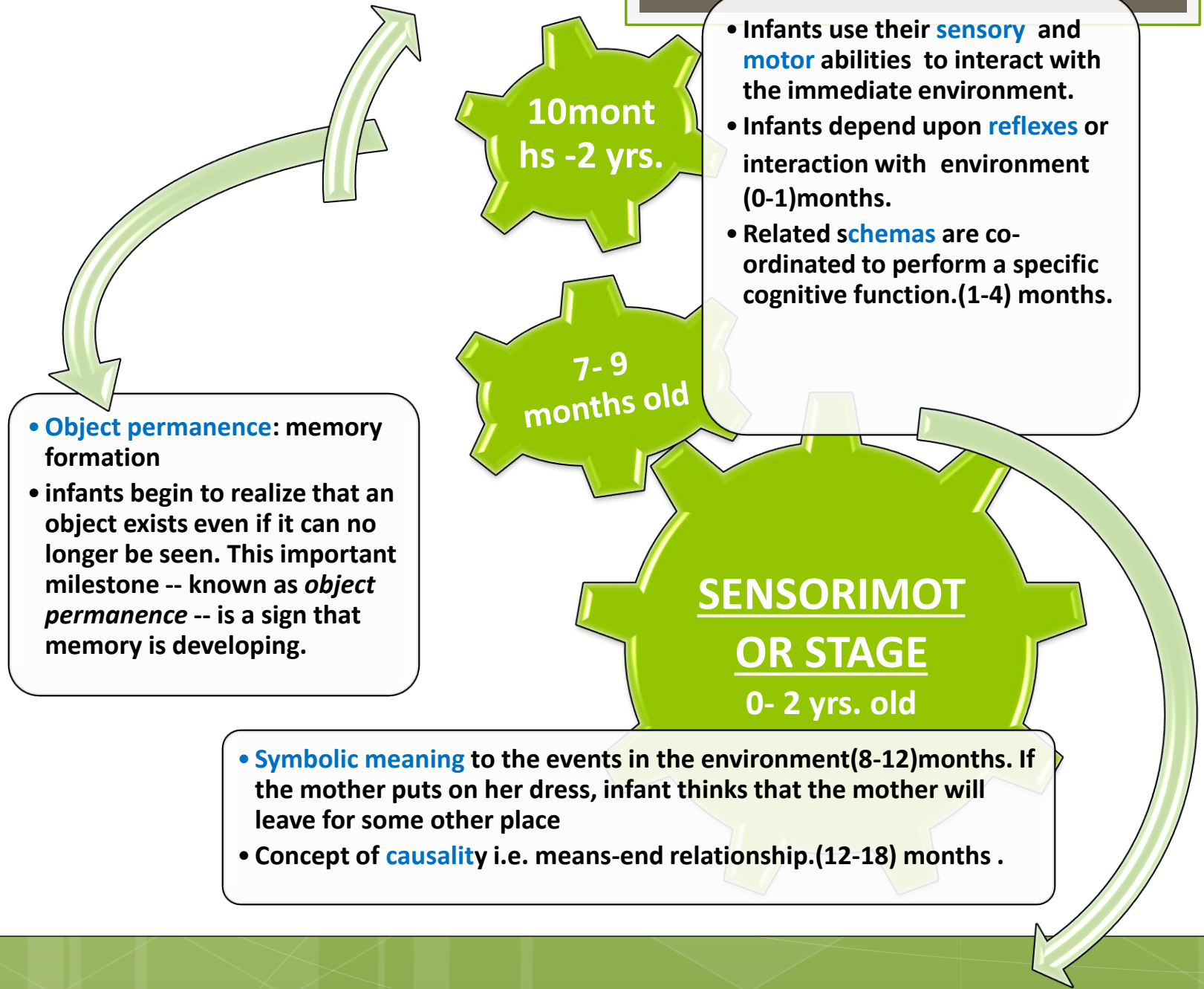
- **Jean Piaget** was a Swiss biologist and psychologist born on 9th August 1869 in Neuchatel Switzerland. He developed new field of scientific study **Cognitive Psychology and Developmental Psychology.**
- **Theoretical Notions:**
- **Cognitive Structure(संज्ञानात्मक संरचना)**
- Human baby is born with certain **instincts** and **reflexes** such as sucking ,looking reaching and grasping. Initial cognitive structure is supposed to incorporate only those cognitive potentials which help them to do such acts such as look ,reach and grasp. Piaget named this potential as **Schema**. It is a **general potential** to perform a particular class of behaviour like sucking and grasping.

- **Cognitive Functioning**:
- An individual has to adapt to his environment for his survival as well as proper growth and development. The key to his cognitive development lies in the **constant interaction** with an **adaptation to his physical and social environment**. The task of such adaptation is carried out through the process of **i)assimilation and ii) accomodation**.
- **Assimilation** :It is a kind of matching between the already existing cognitive structure and the environmental needs as they arise.
- **Accommodation**: When the child tries **to accommodate or adjust to new ways of thinking by making change or modifications in one's existing cognitive structure.**
- **Equilibration** :It is **an innate tendency or continuous drive on the part of an organism to organise its experience through (assimilation or accommodation) to adapt to the changing demands of its environment** by maintaining a **proper balance** between its cognitive structure and the changing demands of the environment.

Stages of Cognitive Development




10months -2 yrs.
7- 9 months old
SENSORIMOT OR STAGE
0- 2 yrs. old
• Infants use their sensory and motor abilities to interact with the immediate environment.
• Infants depend upon reflexes or interaction with environment (0-1)months.
• Related schemas are co-ordinated to perform a specific cognitive function.(1-4) months.
• Object permanence: memory formation
• infants begin to realize that an object exists even if it can no longer be seen. This important milestone -- known as *object permanence* -- is a sign that memory is developing.
• Symbolic meaning to the events in the environment(8-12)months. If the mother puts on her dress, infant thinks that the mother will leave for some other place
• Concept of causality i.e. means-end relationship.(12-18) months .

1. **Pre-operational stage**
   a. **Pre-conceptual period(2-4)Yrs.**
   b. **Intuitive period(4-7)Yrs.**

- **Children achieve the capacity to form and articulate mental symbols for absent things, people or events..For ex. the word cat represents an object with four legs, two eyes two ears one tail and creating mew sound.**
- **Egocentrism: perceives the world from his perspective and is not concerned what others perceive.**
- **Symbolic thinking: The child pretends to be train or bus and creates sound of the train or the bus.**
- **Transductive reasoning: It is reasoning from particular to particular. "Daddy is getting hot water so he is going to shave."**

CONCRETE OPERATIONAL STAGE (7-11) YRS.

Cognitive development of the children between the age group of 7-11 years is regarded as concrete operational stage.

Piaget believes that during this phase child can mentally manipulate and organize information. This stage differs from pre-operational stage as the child starts thinking logically. Whereas pre-operational stage is a pre-logic stage Concrete operational stage is marked by logical operations.

TYPES OF COGNITIVE DEVELOPMENTS IN CONCRETE OPERATIONAL STAGE:

- ***Use of written words &numbers:*** The child expresses his feeling and experience through speaking and writing words &numbers.
- ***Development of relational &combinational procedure*:** The child carries out addition, subtraction, multiplication division, counting, measuring, differentiating and other relational, combinational procedure.
- ***Development of Conservation ability***: The child realizes that there is no change in quantity of matter, when they are transformed into different shape, size or length.

Decentration: Decentration of a concrete operational child is the ability to pay attention to multiple attributes of an object or situation rather than attending to one single attribute.

Development of reversibility: Piaget defined it as "the permanent possibility of returning to the starting point of the operation in question"(Inhelder and Piaget,1958). Reference- https://youtu.be/M244b2aDcz8

Reversibility **is linked with the conservation as the quantity volume, area, mass weight and length of any object when transformed can also be reversed. So conservation, decentration and reversibility are the some of the important developments of concrete operational stage.**

- ***Development of Seriation Concept*** **:**
- **The child at his stage can arrange similar objects in a series according to some defined property.**
- **Similarly they can classify balls of different weight from light to heavy. Reference- https://youtu.be/RLDWLvCA3BE**

Development of inference

- **The ability to infer from a given set of information is developed during concrete operational stage.**
- **For example , if a child is told Ram is taller than Shyam but is shorter than Anil the child can infer from the given information that Shyam is the shortest boy.**

Development of the Classification Ability :

- **The child develops the ability to classify the objects according to their common characteristics.**

- . If a child is given different objects like banana, a potato, an apple, a brinjal, a pencil and a pen he can easily classify them into fruits vegetables and writing objects .

- ***Development of Class Inclusion***

- During concrete operational stage the child acquires the ability to perform class inclusion. A concrete operational child can think about actual physical objects and cannot handle abstract reasoning. They have difficulty in understanding abstract or hypothetical concept which develops after 11yrs at formal operational stage.

- ***Formal Operational Stage***:
- i)Deal with **abstraction** by **logical thinking**
- ii)**Generalization** and framing of **rules**
- iii)**Hypothetical thinking**.
- iv)Explore **hypothetical problems** in **systematic** and **logical** way.
- V)**Interest** in dealing **with things that do not exist in reality**.
- **Metacognition** or **reflective thinking**

- **Educational implications:**

i) **Practical definition of intelligence: Intelligence can be assessed by the nature of adjustment (balance between him and his environment a child is making at a particular time under prevailing circumstances. This means that one's intelligence is a dynamic function.**

2) Importanceof drive,motivation and equilibration in the field of education. Piaget ‘s equilibration can be equated with Freud’s sex-gratification and Jung’s self-actualization for activating one’s behavior.

3)Advice on curriculum planning and scheme of studies: An ideal curriculum should provide the appropriate experiences at the proper time. For ex. It is no use teaching world Geography to children studying at first or second standard because at that age they have not yet acquired the necessary concepts like city, states, country etc. It is more appropriate to teach them local geography.

4)Valuable for the teachers and parents to make them aware of the nature of thought process of the child at a particular level of maturation or chronological age.

5)Provides optimal conditions for individual learning and development by introducing the concept of assimilation ,accomodation and equilibraton.

6)For acquiring learnng the material presented to the learner must be new and moderately challenging to initiate the phenomenon of accomodation but at the same time these experiences should be linked with one's old learning so that they may be reasonably easy for being assimilated and understood by the learner.

7)Role of physical and social experience is quite indespensible for intellectual development .Role of teachers as well as parents to arrange most appropriate and suitable environment for their children.

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Implications for children of Montessori and nursery schools:

9) Allow to experiment with concrete materials in order to acquire new understanding and new learning.

For instance to give the idea of fractions ¼ it would be best to cut an apple into four equal and then show one piece physically to show that the meaning of the fraction ¼ is 'one out four parts'.

10)Implications for children of Montessori and nursery schools:

11Try to emphasize discovery learning.The teacher should not tell each and every part of information

- **Symbolic thinking** in child is prominent. **So not only through language but through images and relationship** learning can be provided to them
- **Individualization of Education** and **child-centred education.**It has advocated that the educational experiences must be built around the learner's cognitive structure. What is suitable, appropriate and challenging to his cognitive structure must be given from him to acquire new experiences and develop his cognitive abilities. Since cognitive structure varies from child to child for this purpose the teacher has to know the level of functioning of each student and tailor the educational material according to each child's cognitive structure.


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