# Constructivism, Assimilation, and Accommodation, Schema

### Overview of Concepts

* Constructivism, Assimilation, and Accommodation

Constructivism is a theory of learning in education suggesting that learners construct their understanding of the world through active participation and personal experiences. This type of learning emphasizes hands-on activities, problem-solving, and collaboration as essential elements of the learning process. In constructivism, teachers play the role of facilitators, scaffolding and supporting students in their exploration and construction of knowledge. This approach promotes critical thinking, problem-solving skills, and a deeper understanding of subjects by fostering students' active participation and engagement in the learning process. There are three types of constructivism: cognitive constructivism, social constructivism, and radical constructivism.

**Cognitive constructivism**: Knowledge is constructed by learners through organizing, interpreting, and integrating new information on top of their existing mental frameworks or schemas. They make connections between new ideas and their prior knowledge, resulting in the development of more complex and sophisticated mental structures.

**Social constructivism**:  Social constructivism suggests that learning is a social process that occurs through interactions with others and the shared construction of meaning.

**Radical constructivism**:  Radical constructivism is where individuals construct their understanding of the world based on their experiences, perceptions, and mental frameworks.

Jean Piaget proposed two terms called assimilation and accommodation as part of his cognitive developmental theory. Both assimilation and accommodation are processes of adapting new information into schemas.

Assimilation is the process of making new information fit into one's existing understanding. When individuals encounter new information, they will often try to make sense of it by relating it to what they already know. This process can happen automatically and unconsciously, and it can help individuals make sense of the world around them. When encountering new information, individuals will often try to fit it into their existing schemas. This can help them understand the new information more quickly and easily, but it can also lead to misunderstandings or biases if the new information does not fit well with the existing schemas.

Accommodation is the process of changing or replacing one's existing understanding to incorporate new information. When individuals encounter new information or experiences that do not fit within their existing schemas, they need to adapt their thinking and create new cognitive structures to incorporate the new information.

### Teaching Connection

* Understanding constructivism can help teachers create more effective and engaging learning environments by focusing on student-centered, active learning and encouraging critical thinking and reflection.
* Understanding the processes of assimilation and accommodation can help teachers better support students in adapting to new information and developing a deep understanding of the material.

In teaching, assimilation, accommodation, and constructivism are interrelated concepts that help students to learn and construct new knowledge. Assimilation involves integrating new information into existing mental models or schemas. Accommodation involves modifying existing mental structures to accommodate new information that does not fit into pre-existing schemas. Constructivism emphasizes the active role of the learner in constructing new knowledge and understanding through interaction with the environment. Effective teaching involves providing students with opportunities to assimilate new information into their existing schemas, facilitating accommodation when new information challenges existing mental models, and fostering constructivist learning by allowing students to actively construct their knowledge through exploration and discovery. By using these approaches, teachers can help students develop a deeper understanding of the material and construct their mental models and schemas.

## Key Vocabulary

* Constructivism - A theory of learning that suggests individuals construct their understanding and knowledge through experiences and interactions with the environment.
* Schema - Mental structures or frameworks that organize knowledge and guide behavior.
* Zone of Proximal Development (ZPD) - The gap between what a learner can do on their own and what they can do with guidance or support.
* Accommodation - The process of modifying existing schemas or creating new ones in response to new experiences or information.
* Assimilation - The process of achieving balance or equilibrium between existing schemas and new information through accommodation and assimilation.

## Object Permanence

Object permanence is the understanding that objects continue to exist even when they are out of sight or reach. It is a significant developmental milestone for infants and young children, as it allows them to recognize and anticipate the presence of objects and people in their environment. According to Piaget's stage theory of cognitive development, object permanence is achieved during the sensorimotor stage, which occurs around 8-12 months of age. However, research has shown that infants may demonstrate some understanding of object permanence as early as 4 months old. Piaget - Object permanence failure (Sensorimotor Stage)

In addition to recognizing that objects continue to exist when they are out of sight, another aspect of object permanence is the understanding of invisible displacement. Infants and young children gradually develop the ability to comprehend that objects can be moved from their original position and still exist in a new location, even if they did not witness the actual movement. This understanding demonstrates their growing awareness that objects have an independent existence in space and can undergo spatial transformations. As their object permanence skills advance, children become capable of mentally representing the displacement of objects, which lays the foundation for more complex cognitive processes, including mental imagery, problem-solving, and planning. The development of the concept of invisible displacement further solidifies their understanding of the stability and continuity of objects in their environment.

Developing object permanence allows infants to engage in meaningful play, form attachments to objects and people, and understand cause-and-effect relationships. It also serves as the foundation for more advanced cognitive skills, such as problem-solving and spatial reasoning. Overall, object permanence is a crucial aspect of cognitive development that enables infants and young children to understand and interact with their surroundings.

In summary, object permanence is recognizing that objects still exist even when they are not seen and is developed during early childhood.

A schema is a knowledge structure the brain makes when organizing information from experiences. Schemata (plural of schema) allow the brain to work more efficiently. A schema can be discrete and specific or sequential and elaborate. One schema may be as specific as recognizing a dog, or as elaborate as categorizing different types of dogs. The processes through which schemas are adjusted or changed are known as assimilation and accommodation. An example of assimilation and accommodation may be when a child encounters a horse. They might assimilate this information and immediately call the animal a dog, since the child knows a dog has four legs. Accommodating the horse is when the child adapts the existing schema to incorporate the knowledge that some four-legged animals are horses.

Multiple types of schema are created for different experiences. Event schema, self-schema, object schema, and role schema.

Event schema describes behavioral and event sequences and daily activities. They are automatic and can be difficult to change. An event schema in the life of a young adult may be going to a college class. Leaving at the same time every day, walking the same route to the building, waiting for the previous students to leave, and sitting in the same seat. If someone sits in the seat that the student usually occupies, they may feel stressed or uncomfortable because they are forced to change their schema (at least for that day).

Self-schema is used to describe the knowledge that people accumulate about themselves by interacting with the natural world and with other human beings. These can be described by how we see ourselves, using adjectives like quiet, thoughtful, or joking. When a person is in a social situation, they may call on one of these schemata. One example may be at a party, a person is more 'joking' because they know that it has given them positive results before.

Object schema interprets inanimate objects. The everyday items used in a person's life have schemata attached to them. The way a pencil is held in hand, or how to type on a keyboard are object schemas. Object schemata are created and used when a new item is introduced. For example, learning to use chopsticks. One chopstick is held like a pencil, building off of an already-known schema. The other chopstick is pinched between two fingers, and the chopsticks are widened or narrowed to hold food.

Role schema invokes knowledge about how people are supposed to behave, based on their roles, in particular social situations. In the life of a child, a role schema may be at church, they are the listener. The role of the listener is to be quiet, look at the speaker, and sit still. This role schema can be used in multiple situations. A child may be a listener in the classroom during the explicit instruction part of the day.

## Additional Readings

Objective Permanence:

<https://www.simplypsychology.org/Object-Permanence.html>

<https://psycnet.apa.org/record/2007-10742-000>

<https://www.jstor.org/stable/1130803>

Read this online at <https://books.byui.edu/science_of_learning/mod_92_constructivis>