# Schema/schemata

### Key Words

* Schema: knowledge structure the brain makes when organizing information from experiences.
* Schemata: plural of schema, allows the brain to work more efficiently.
* Assimilation: the cognitive process of making new information fit in with your understanding of the world.
* Accommodation: when new information or experiences cause you to modify your existing schemas.

### What is Schema Theory?

Schema theory is a “branch of cognitive science concerned with how the brain structures knowledge,” as explained by Harvard Research Assistant Charlotte Nickerson. A schema is a knowledge structure the brain makes when organizing information from experiences, while a schemata allows 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. They are 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

* 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.

### Who Developed Schema Theory?

Although the concept of a schema can be traced back to Plato and Aristotle, Jean Piaget, a Swiss psychologist, was the first to create a cognitive development theory that included schemas.

### How can this be applied in the Classroom?

There are various ways schema can be built in the classroom. One way educator Julie Stern has discovered to build schema is through an index card. First, you start with individual concepts that students know, because they are “the building blocks of schema.” (Stern) Once students understand the concept, they can consolidate their understanding on the index card through the State, Elaborate, Exemplify, Illustrate, and Talk strategy, or “SEE-IT.” This allows them to correct any misunderstandings they may have. Once all of this has been collected, the students can now connect the various concepts they have learned to see how they are related.

### How is this Relevant to Current Events?

Our schemas will always be relevant. They help us interpret the world. Educational consultant and psychosocial rehabilitation specialist Kendra Cherry explains that they can also “...contribute to stereotypes and make it difficult to retain new information that does not conform to our established ideas about the world.” Being aware of schemas and the way they affect us can help us understand why we have certain feelings about things, and hopefully prevent us from treating others differently because of them.

### Resources

Cherry, K. (2023, March 12). Schema in Psychology: Definition, Types, Examples. Verywell Mind; Verywell Mind.

<https://www.verywellmind.com/what-is-a-schema-2795873>

Nickerson, C. (2023, November 5). Schema Theory In Psychology. Simply Psychology; Simply Scholar.

<https://www.simplypsychology.org/what-is-a-schema.html>

Stern, J. (2019, October 20). What Is Schema? How Do We Help Students Build It? (Opinion). Education Week; Education Week.https://www.edweek.org/education/opinion-what-is-schema-how-do-we-help-students-build-it/2019/10

[Piaget’s Schema: Accommodation and Assimilation of New Information](https://youtu.be/EYbCE1udazw?si=vffIMMQGxTMK8QbA)

Read this online at <https://books.byui.edu/the_science_of_learning/schema_schemata>