Constructivism as a theory for teaching and learning

What is constructivism?

Constructivism is ‘an approach to learning that holds that people actively construct or make their own knowledge and that reality is determined by the experiences of the learner’ (Elliott et al., 2000, p. 256).

In elaborating constructivists’ ideas Arends (1998) states that constructivism believes in personal construction of meaning by the learner through experience, and that meaning is influenced by the interaction of prior knowledge and new events.

What are the principles of constructivism?

Knowledge is constructed, rather than innate, or passively absorbed

Constructivism's central idea is that human learning is constructed, that learners build new knowledge upon the foundation of previous learning.

This prior knowledge influences what new or modified knowledge an individual will construct from new learning experiences (Phillips, 1995).

Learning is an active process

The second notion is that learning is an active rather than a passive process.

The passive view of teaching views the learner as ‘an empty vessel’ to be filled with knowledge, whereas constructivism states that learners construct meaning only through active engagement with the world (such as experiments or real-world problem solving).

Information may be passively received, but understanding cannot be, for it must come from making meaningful connections between prior knowledge, new knowledge, and the processes involved in learning.

All knowledge is socially constructed

Learning is a social activity - it is something we do together, in interaction with each other, rather than an abstract concept (Dewey, 1938).

For example, Vygotsky (1978), believed that community plays a central role in the process of "making meaning." For Vygotsky, the environment in which children grow up will influence how they think and what they think about.

Thus, all teaching and learning is a matter of sharing and negotiating socially constituted knowledge.

For example, Vygotsky (1978) states cognitive development stems from social interactions from guided learning within the [zone of proximal development](https://www.simplypsychology.org/Zone-of-Proximal-Development.html) as children and their partner's co-construct knowledge.

All knowledge is personal

Each individual learner has a distinctive point of view, based on existing knowledge and values.

This means that same lesson, teaching or activity may result in different learning by each pupil, as their subjective interpretations differ.

This principle appears to contradict the view the knowledge is socially constructed.

Fox (2001, p. 30) argues (a) that although individuals have their own personal history of learning, nevertheless they can share in common knowledge, and (b) that although education is a social process, powerfully influenced by cultural factors, nevertheless cultures are made up of sub- cultures, even to the point of being composed of sub-cultures of one. Cultures and their knowledge-base are constantly in a process of change and the knowledge stored by individuals is not a rigid copy of some socially constructed template. In learning a culture, each child changes that culture.

Learning exists in the mind

The constructivist theory posits that knowledge can only exist within the human mind, and that it does not have to match any real world reality (Driscoll, 2000).

Learners will be constantly trying to develop their own individual mental model of the real world from their perceptions of that world.

As they perceive each new experience, learners will continually update their own mental models to reflect the new information, and will, therefore, construct their own interpretation of reality.

What are the three main types of constructivism?

Typically, this continuum is divided into three broad categories: Cognitive constructivism based on the work of [Jean Piaget](https://www.simplypsychology.org/piaget.html), social constructivism based on the work of [Lev Vygotsky](https://www.simplypsychology.org/vygotsky.html), and radical constructivism.

According to the GSI Teaching and Resource Center (2015, p.5):

Cognitive constructivism states knowledge is something that is actively constructed by learners based on their existing cognitive structures. Therefore, learning is relative to their stage of cognitive development.

Cognitivist teaching methods aim to assist students in assimilating new information to existing knowledge, and enabling them to make the appropriate modifications to their existing intellectual framework to accommodate that information.

According to social constructivism learning is a collaborative process, and knowledge develops from individuals' interactions with their culture and society. Social constructivism was developed by [Lev Vygotsky](https://www.simplypsychology.org/vygotsky.jpg) (1978, p. 57) who suggested that,

Every function in the child's cultural development appears twice: first, on the social level and, later on, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological).

The notion of radical constructivism was developed by Ernst von Glasersfeld (1974) and states that all knowledge is constructed rather than perceived through senses.

Learners construct new knowledge on the foundations of their existing knowledge. However, radical constructivism states that the knowledge individuals create tells us nothing about reality, and only helps us to function in your environment. Thus, knowledge is invented not discovered.

The humanly constructed reality is all the time being modified and interacting to fit ontological reality, although it can never give a ‘true picture’ of it. (Ernest, 1994, p. 8)

Constructivist approaches to teaching

Constructivist learning theory underpins a variety of student-centered teaching methods and techniques which contrast with traditional education, whereby knowledge is simply passively transmitted by teachers to students.

What is the role of the teacher in a constructivist classroom?

The primary responsibility of the teacher is to create a collaborative problem-solving environment where students become active participants in their own learning.

From this perspective, a teacher acts as a facilitator of learning rather than an instructor.

The teacher makes sure he/she understands the students' preexisting conceptions, and guides the activity to address them and then build on them (Oliver, 2000).

[Scaffolding](https://www.simplypsychology.org/Zone-of-Proximal-Development.html) is a key feature of effective teaching, where the adult continually adjusts the level of his or her help in response to the learner's level of performance.

In the classroom, scaffolding can include modeling a skill, providing hints or cues, and adapting material or activity (Copple & Bredekamp, 2009).

What are the features of a constructivist classroom?

Tam (2000) lists the following four basic characteristics of constructivist learning environments, which must be considered when implementing constructivist teaching strategies:

1) Knowledge will be shared between teachers and students.

2) Teachers and students will share authority.

3) The teacher's role is one of a facilitator or guide.

4) Learning groups will consist of small numbers of heterogeneous students.

| **Traditional Classroom** | **Constructivist Classroom** |
| --- | --- |
| Strict adherence to a fixed curriculum is highly valued. | Pursuit of student questions and interests is valued. |
| Learning is based on repetition. | Learning is interactive, building on what the student already knows. |
| Teacher-centered. | Student-centered. |
| Teachers disseminate information to students; students are recipients of knowledge (passive learning). | Teachers have a dialogue with students, helping students construct their own knowledge (active learning). |
| Teacher's role is directive, rooted in authority. | Teacher's role is interactive, rooted in negotiation. |
| Students work primarily alone (competitive). | Students work primarily in groups (cooperative). |

What are the pedagogical (i.e. teaching) goals of constructivist classrooms?

Honebein (1996) summarizes the seven pedagogical goals of constructivist learning environments:

1) To provide experience with the knowledge construction process (students determine how they will learn).

2) To provide experience in and appreciation for multiple perspectives (evaluation of alternative solutions).

3) To embed learning in realistic contexts (authentic tasks).

4) To encourage ownership and a voice in the learning process (student centered learning).

5) To embed learning in social experience (collaboration).

6) To encourage the use of multiple modes of representation, (video, audio text, etc.)

7) To encourage awareness of the knowledge construction process (reflection, metacognition).

Brooks and Brooks (1993) list twelve descriptors of constructivist teaching behaviors:

* 1. Encourage and accept student autonomy and initiative. (p. 103)
* 2. Use raw data and primary sources, along with manipulative, interactive, and physical materials. (p. 104)
* 3. When framing tasks, use cognitive terminology such as “classify,” analyze,” “predict,” and “create.” (p. 104)
* 4. Allow student responses to drive lessons, shift instructional strategies, and alter content. (p. 105)
* 5. Inquire about students’ understandings of the concepts before sharing [your] own understandings of those concepts. (p. 107)
* 6. Encourage students to engage in dialogue, both with the teacher and with one another. (p. 108)
* 7. Encourage student inquiry by asking thoughtful, open-ended questions and encouraging students to ask questions of each other. (p. 110)
* 8. Seek elaboration of students’ initial responses. (p. 111)
* 9. Engage students in experiences that might engender contradictions to their initial hypotheses and then encourage discussion. (p. 112)
* 10. Allow wait time after posing questions. (p. 114)
* 11. Provide time for students to construct relationships and create metaphors. (p. 115)
* 12. Nurture students’ natural curiosity through frequent use of the learning cycle model. (p. 116)

Critical evaluation

Strengths

Constructivism promotes a sense of personal agency as students have ownership of their learning and assessment.

Limitations

The biggest disadvantage is its lack of structure. Some students require highly structured learning environments to be able to reach their potential.

It also removes grading in the traditional way and instead places more value on students evaluating their own progress, which may lead to students falling behind, as without standardized grading teachers may not know which students are struggling.