



# What Is Constructivism In Education? Piaget's Pros & Cons

By Chris Drew (PhD) / January 20, 2023



The constructivist learning theory explains that we learn by ‘constructing’ knowledge in our minds. Constructivism argues that learners have an active role in thinking things through, mulling them over, and coming to conclusions based on logic and critical thinking. We also build on our prior knowledge, like a builder constructing (and sometimes deconstructing) his skyscraper.



## Key Concepts In Constructivist Theory

### 1. Learning Is A Cognitive Process

**Students learn through thinking things through and trial-and-error, not by simply repeating facts.**

Prior to the rise of Constructivism, teachers would teach using a behaviorist approach: we would hammer ideas into students' heads by getting them to repeat answers over and over again. Students would sit in classrooms and repeat what the teacher says. We often call this old approach the [banking model of education](#).

Then constructivism came along and argued that children use *cognition* – or mental processes – to come to logical conclusions. Students need to think things through in order to truly understand them.

Thinking things through means mulling them over, seeing if they really make sense, comparing and contrasting them to what they already know, and coming to your own independent conclusions ... not just repeating what your teacher says.

***Interesting Fact:*** *Even though constructivist theory was developed in the late 1800s and early 1900s, it wasn't until the late 1960s that constructivism was taken seriously in schools.*

## 2. We Learn Through Experiences (Piaget)



Piaget came up with some fundamental constructivist concepts. He theorised that learners get more knowledgeable by thinking about new experiences and comparing them to old experiences.

Piaget is the most famous constructivist theorist. He came up with many of the fundamental ideas in constructivism.

According to Piaget, there are six key components to how we learn:

- **Learning through experience:** Whenever we come across a new experience, we process it in our minds. We will use that experience to understand our worlds. Piaget called learners 'lone scientists' who go out into the world and investigate to learn.
- **Prior knowledge:** Each new experience is compared to previous experiences we have had. We will look at our new experiences and use them to understand what we're looking at.
- **Cognitive Schema:** Piaget stated that a cognitive schema is a packet of knowledge that we have in our mind. We can add to a cognitive schema (assimilation) or change it (accommodation).
- **Assimilation:** Piaget used this term to explain 'adding new knowledge' to our knowledge bank (cognitive schemata). If I come across new knowledge that I can add to my knowledge bank, I'll place it into a cognitive schema. For example, if I see a new breed of dog, I'll recognize it as a dog, so I'll add this new breed of dog to my 'dog' cognitive schema in my mind.



- **Cognitive disequilibrium:** When we come across a new experience, it may contradict our prior knowledge. A learner will be confused and not understand what they can see. At this point, a learner is in a state of cognitive disequilibrium. We always want to be in a state of *cognitive equilibrium* where everything makes sense.
- **Accommodation:** To overcome cognitive disequilibrium (confusion), we need to ‘fix’ old or broken prior knowledge. We will need to recall a cognitive schema and repair it. For example, if I see a horse for the first time, I may think it’s a dog because it has four legs. Then, someone will tell me it is a different animal called a ‘horse’. Now I need to fix my ‘dog’ schema by breaking it up so I don’t bank all horses into the dog schema. I might create two new schemata: one for dogs and one for horses. I’ll try to remember key features of horses (their height, their body shape) so that in the future I can tell the differences between horses and dogs. *I learned through experiences!*

### 3. There Are Four Stages Of Learning (Piaget)

**Many constructivists also believe that biological development is central to learning. We tend to learn certain things at key stages in our childhood. This is because our brains need to be developmentally ready to learn.**

Several constructivist theorists believe in [stages of learning](#). Piaget’s stages are the most famous, but there are others. Here are just a few:

- **Montessori:** Maria Montessori was a constructivist. She believed in four [planes of development](#).



- **Froebel:** Friedrich Froebel believed that we go through several stages, and at each stage we should give children special toys that help them overcome the challenges at each stage.
- **Kolberg:** Kolberg's stages were based on moral development. As our brains become more cognitively advanced, we can explore more and more complex moral problems.
- **Piaget:** Piaget's 4 stages mainly explore scientific and mathematical skills that emerge at different stages in our lives.

Piaget's four famous stages are:

- **Sensorimotor stage (0 – 2 years):** Babies develop cognitive skills such as [object permanence](#), goal directed action, and deferred imitation (see *image below*).
- **Preoperational stage (2 – 7 years):** Young children develop [cognitive skills](#) such as symbolic thought (such as language use and [symbolic play](#)) yet remain egocentric (meaning they cannot see things from others' perspectives).
- **Concrete stage (7 – 12 years):** Students develop more complex [logical thinking skills](#) and master the skill of conservation (see image below).
- **Formal operations stage (12 – 18 years):** Teenagers start developing [deductive reasoning](#), [metacognitive skills](#), abstract thought, and complex moral reasoning.

**Quick Note:** *Not all stage-based theories are based on cognitive theories. A cognitive stage-based theory must believe stages are based on our brain's*

growing ability to think in new ways. For example, Freud's and Erikson's stages are not cognitive – they're psychodynamic stages.



Go Deeper: [18 Examples of Cognitive Development](#)

#### 4. We Learn Through Social Interaction (Vygotsky)

Vygotsky came up with 'Social Constructivism'. This theory highlights the important role of [social interaction](#) in constructing new ideas in our minds.

Vygotsky and Piaget both believed that experience is important for our learning. But while Piaget thought of learners as 'lone scientists', Vygotsky thought of learners as social beings.

By talking with others, we can think through ideas. We will hear other perspectives and how different people describe things. These social experiences are important for helping us to come to strong logical conclusions.

When we discuss ideas, we also 'socially construct' knowledge. This means we pool all our thinking together and come to shared agreements about what the facts really are.

Vygotsky and Piaget agreed on a lot (they were both constructivists), but they disagreed on many things, too.



Vygotsky didn't believe that we learn in stages. He thought we all learn differently depending on our social interactions. In some non-Western societies, for example, a child may learn really difficult skills required for hunting that a Western child wouldn't learn until they are much older. This observation undermines Piaget's idea that we all learn in generally the same biological stage-based way.

## Role Of The Teacher And Learner

**The teacher shouldn't lecture students but rather guide them as they learn through hands-on experiences.**

Constructivism believes learning involves trial-and-error and discovery.

Therefore, the teacher shouldn't just lecture students while the students listen (we call this [passive learning](#)).

Instead, the teacher needs to expose children to many active, hands-on experiences. The teacher will observe their students' learning and give them gentle guidance and nudges. But, if a class is well designed and structured for the right developmental level, the students will be able to learn simply through their experiences alone.

Here is a quick comparison of a traditional teacher role vs. a facilitator role:

### Traditional Teacher

Monologue (teacher talks)

### Teacher as Facilitator

Dialogue (teacher and students discuss)

Tells the answers

Asks questions and guides



Expects one 'correct' answer

Lets students come up with their own answers

Believes they know everything

Sees themselves as a co-learner

Teacher-centered classroom

[Student-centered classroom](#)

Teaches theories

Links theories to practical experiences

One size fits all lessons

Differentiated lessons to meet students' cognitive needs

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## Constructivist Teaching Methods

Use a Learning Theory: Constructivism





# 1. The Zone Of Proximal Development



The [zone of proximal development](#) helps teachers to identify the target difficulty levels for their lessons.

Vygotsky's Zone of Proximal development explains how to create a lesson that is at the perfect difficulty level.

We also sometimes call this the Goldilocks principle:

- A lesson that is too easy will not help a student progress;
- A lesson that is too hard will not stimulate learning;
- A lesson that is challenging but achievable with help will help students progress.

That skill level that's challenging but achievable is called the 'zone of proximal development'.

This approach involves getting a teacher to assess prior knowledge. Then, the teacher create lessons that are just a step harder than the student's current abilities.



The teacher will need to provide support as the student moves into the 'zone of proximal development'. That's where scaffolding comes in...

## 2. Scaffolding

**Scaffolding** involves providing guided support to a student. Guidance is removed when a student's abilities improve.

Scaffolding is an approach developed by Jerome [Bruner](#).

It gets its name from the supports that are placed around buildings while they are being constructed. Once the building is finished, the scaffolding is removed and the building can stand on its own.



The same goes for learners: a teacher should provide support to students while they are learning a concept. Then, when the student is capable with the concept, the support is removed so the student can learn on their own.

### 3. Problem And Inquiry Based Learning

**The teacher and students come up with a problem that needs to be addressed through an inquiry process.**

[Problem based learning](#) is an approach where the teacher presents students with a problem. Students then need to address the problem by talking things through, conducting experiments, and going through a process of discovery.

Inquiry based learning focuses on using systematic and scientific methods to collect data and come up with answers to problems.

Both approaches (which are used in conjunction) help students to learn through student-led and [student-initiated](#) discovery. Students use their cognitive skills and trial-and-error to reach their own conclusions and construct new knowledge in their minds.

You can [read more about inquiry based learning here](#).

### 4. Guided Practice

**Guided practice involves an educator gradually releasing responsibility to a student in a four-step process. It starts with [explicit instruction](#) and ends**

with independent work.



The guided practice model is also known as the '[gradual release of responsibility](#)' or 'I Do, We Do, You Do' method.

In this approach, the teacher starts with explicit teaching. The teacher might model something in front of the students while they observe ('I Do'). Next, the teacher and students do the task together ('We Do'). An additional 'We Do' step may be to get students to do tasks together in groups. Lastly, the student gets to do a task independently ('You Do').

You can [read more about the I Do, We Do, You Do approach here](#).

## 5. Cooperative Learning

**[Cooperative learning](#) involves students working together to come up with solutions to problems.**

A cooperative learning approach will involve a teacher getting students to [work in groups](#) to complete a task.

One way to do this is to get students to work in groups (tip: [let them name their group](#)) based on ability level or learning style.

Another approach may be to get each student to develop expertise in one specific area of a topic. Then, the students get together to share what they learned. In this model, every student in the group is an expert on one aspect of the task. We call this the 'expert jigsaw' approach to cooperative learning.

For more on the role of social interaction in learning, see my post on the



[sociocultural theory of learning](#).

## 6. Play-Based Learning

A [play-based approach to learning](#) involves getting students to discover new things through play. While often reserved for early childhood, play-based learning really could be good for just about any age!

Constructivism is all about learning through exploration, interaction, discovery and thinking things through.

That's exactly what we do when we play. We make mistakes, learn new ways to do things, think creatively, and gain new experiences.

Maria Montessori, a famous constructivist, argued that educators should set up well-equipped play-based environments. Froebel, another constructivist, argued that play was the “highest form of learning”. [Forest schools](#) and other [contemporary learning perspectives](#) also embrace a play-based approach.

Some versions of play include:

- [Risky play](#).
- [Unstructured play](#)
- [Parallel play](#).
- [Cooperative play](#).

For more, see my article on the [17 different versions of play](#).

# Pros And Cons Of Constructivism



## Pros

## Cons

1. Students are seen as capable 'agentic' learners

1. It's Time Consuming

2. It's Student-Centered

2. It doesn't Fit with Standardized Tests

3. It provides a Guide to Children's Expected Developmental Levels

3. It requires differentiation, which is resource intensive

4. It's an enjoyable approach to learning

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## 1. Pros (Advantages)

A constructivist approach to education sees students as active, powerful, capable and competent. It tends to encourage students to learn through 'doing', which helps with engagement, [critical thinking](#), and memory retention.

Benefits of constructivist theory include:

- Students are treated as capable learners and are encouraged to exercise creative, critical and independent thinking.
- Educators recognize that students require targeted, differentiated lessons that match their cognitive needs.



- Using Piaget's stages, new and fill-in educators can quickly get an estimate of children's ability levels based on their age.
- Students often find constructivist approaches to be more enjoyable because they learn through doing rather than sitting and memorizing.

## 2. Cons (Disadvantages)

**Constructivism can be time-consuming and does not prepare students well for standardized tests.**

Disadvantages of constructivist theory include:

- Learning through trial-and-error is a time consuming process. In the age of a crowded curriculum, teachers often don't have the time to organize sustained problem-based learning lessons.
- International testing regimes that push standardized curriculum encourage conformity and memorization over inquiry-based critical thinking.
- Constructivism requires differentiation so that students learn at the optimal cognitive level. Differentiation for each child is exceptionally difficult and often impractical for educators.

## Alternative Approaches

**There are many different theories of learning. While constructivism is the dominant theory today, other theories of learning offer important insights and should not be dismissed.**

Alternative theories of learning include:



- **Behaviorism:** Constructivism is often juxtaposed to behaviorism. The behaviorist approach does not care for what goes on in our minds. It only cares for our ability to memorize and repeat information. [Read more about behaviorism here.](#)
- **Humanism:** Humanists believe constructivism does not pay enough attention to the role of students' emotions and holistic well-being in learning. [Read more about humanism here.](#)

[Read More: 31 Prominent Learning Theories](#)

## Final Thoughts

Constructivism in education is the dominant [educational theory in the 21st Century](#). It helps students to develop 21st Century skills such as collaboration, cooperation and creativity.

Central to this theory is the idea that we learn by 'mulling over' new ideas in our heads and come to our own conclusions through logic and reasoning. To achieve this sort of learning, students need to engage in active learning, learning by doing, and personal experiences.

It is juxtaposed to other theories like behaviorism which uses teaching methods that are more teacher-centered and fail to cater lessons to students' cognitive needs.

For more, explore the ideas of key constructivist theorists:

- Jean Piaget





- John Dewey (see: [Pragmatic Education](#))
- Maria Montessori
- Lev Vygotsky
- Jerome Bruner

## References And Further Reading

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