

# Constructivism

## A Philosophy of Learning

This short study will first define what Constructivism is and then investigate the ten principles that this philosophy involves. To conclude I will discuss how Constructivism relates with technology versus a traditional scheme of learning.

### Definition

“Constructivist theory views the student as one who acts on objects and events within his or her environment and thereby gains some understanding of the features held by the objects and events.”<sup>i</sup>

### Research

A constructivist would believe the underlying principle that knowledge is actively constructed.

There are many principles of constructivism, which I will now discuss:<sup>ii iii</sup>

1. **Knowledge is actively constructed by the individual** – The simple idea that learning is an active activity and that knowledge cannot be gained for example, from just being lectured to, but rather to get actively involved in a class discussion. There is no “osmosis” effect, that is, a person cannot just absorb information through passive learning.
2. **Learning is both an individual and a social process** – How we connect with other people through conversations, collaborations and interactions are all factors that affect learning. Self-Learning, group learning and 1:1 learning with a tutor will also affect a student’s ability to learn
3. **Learning takes time** – The straightforward idea that learning is not instantaneous. Individuals learn at different rates due both to their inborn characteristics like intelligence and to the external factors that affect them like the environment.
4. **Learning is an organizational process that enables people to make sense of their world** – The constructivist’s concept of equilibration whereby experiences or concepts that are encountered for the first time undergo one of two processes: *assimilation*, amassing a new idea into an existing schema or *accommodation*, creating new schema to contain original information.

5. **Cognition serves the organization of the experiential world, not the ontological reality. Truth as viability, not validity.** This is a principle that deals with how a person's experience of the world around has been a factor in how they have learnt.
6. **Reality represents an interpretation.** A principle that we create beliefs from interpretations of self-referent information and environmental contingencies. The construction of meaning relies on interpretation. E.g. to know the difference between sub-conscious dreams and our conscious "reality" we had to have found a way of interpreting the difference hence we know our state of consciousness.
7. **Learning is a socially situated activity that is enhanced in meaningful contexts.** The role of the other is emphasised in the learning process. A fairly simple idea that concepts that might otherwise not be discovered on one's own until later in life can be learned much earlier with assistance from another individual who has already developed those skills.
8. **Knowledge is needed to learn** - It is not possible to assimilate new knowledge without having some structure developed from previous knowledge to build on. The more we know the more we can learn.
9. **Language plays an essential role in learning. Thinking takes place in communication.** For the constructivist, language is a synthetic tool that enables individuals to make connections beyond what has been learned in the past because in the formulation of words, sentences, and paragraphs, learners must organize their thoughts into communicable ideas, a process that often results in knowledge.
10. **Motivation is a key component in learning.** Beyond the use of rewards and punishments, constructivists contend that the motivations possessed by individuals will greatly affect their abilities and capacities to learn as well as what it is that they learn. The most basic motivation for learning is an individual's desire to make sense of the world. Not only is the case that motivation helps learning, it is essential for learning.

## Constructivism meets Technology

Constructivism as a theory of learning has existed for over one hundred years but has not been widely accepted or applied in academic institutions.

I believe that there is a strong link between the theory of constructivism and the effective use of modern technology. For example, in order to learn software whether it's a simple word processor

or advanced animation package, the learner will have the greatest success in acquiring the knowledge they need with self-motivation, *active* hands-on experience and possible social collaboration as well rather than a passive way of learning.

I remember from personal experience when I did my module course on Java that it was a total failure that I now blame on the “traditional approach” used by the *senior* lecturer. Every week of the course would be a “full house” (as it was a popular course) with the lecturer trying to make us understand what he was rambling on about and then expected us to translate what we had *learnt* in the lecture to a practical example in the tutorial. To start with, I did not have the self-motivation to learn Java and however much I tried to make sense of it all; I could not keep the knowledge in my head. Therefore, I wonder now with a constructivist view that if the module were taught every week in a very hands-on active way then the case maybe different as the lecturer would become the tutor who helps us to construct our meaning in an active way and not just passively feed us useless information that we could not interpret. Every module that has involved learning software since then has been near enough the same with a traditional lecture and tutorial whereby only the practical session made any sense.

From my experience mentioned, I can conclude that a constructivist theory of learning is needed for *any* technology rich environment module and lectures should be “thrown out the window as obsolete”. It is unrealistic that the lecture is used to teach software to the masses instead of smaller much more focused tutorial learning groups.

Studies show that in technology rich classrooms there are many observable changes:

1. There is a shift from whole class to small group instruction.
2. Coaching occurs rather than lecture and recitation.
3. Teachers work with weaker students more often rather than focusing attention on brighter students as in traditional settings.
4. Students are more actively engaged.
5. Students become more cooperative and less competitive.
6. Students learn different things instead of all students learning the same thing.
7. There is an integration of both visual and verbal thinking instead of the primacy of verbal thinking.

Brooks&Brooks (1999)<sup>iv</sup> offer an interesting comparison of the visible differences between the traditional and the constructivist classroom:

<b>In the <i>Traditional</i> Classroom...</b>	<b>In the <i>Constructivist</i> Classroom...</b>
Students primarily work alone.	Students primarily work in groups.
Curriculum is presented part to whole, with emphasis on basic skills. (Bottom - Up)	Curriculum is presented whole to part with emphasis on the big concept. (Top - Down)
Strict adherence to a fixed curriculum is highly valued.	Pursuit of student questions is highly valued.
Curricular activities rely heavily on textbooks of data and manipulative materials.	Curricular activities rely heavily on primary sources.
Students are viewed as "blank slates" onto which information is etched by the teacher.	Students are viewed as thinkers with emerging theories about the world.
Teachers generally behave in a didactic manner, disseminating information to students.	Teachers generally behave in an interactive manner mediating the environment for students.
Teachers seek the correct answers to validate student lessons.	Teachers seek the student's point of view in order to understand student learning for use in subsequent conceptions.
Assessment of student learning is viewed as separate from teaching and occurs almost entirely through testing.	Assessment of student learning is interwoven with teaching and occurs through teacher observation of students at work and through exhibitions and portfolios.

## Conclusion

The real argument for a constructivist future is, “do teachers and lecturers need to become more constructive?” as they mostly only provide a passive learning environment.

I have always had this strong opinion as a student that if the student learns and acquires more knowledge than the teacher acquires himself or herself, it is only then, that they have succeeded in facilitating the student’s learning.

According to Mann (1994), the use of new technologies in an educational setting has caused the theory of learning, constructivism, to receive new attention. Students in these settings become empowered by gaining access to real data and work on authentic problems. Often, roles are reversed as teacher and student learn from one another.<sup>v</sup>

I believe that inevitably all technology-rich classrooms will be forced to take the constructivist approach to learning, as it will become increasingly impossible to use a traditional method that clearly doesn't help the majority of students who wish to learn in these modern environments.

## Author

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## References

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<sup>i</sup> Constructivism, <http://pds.uh.edu/~srmehall/theory/construct.html>

<sup>ii</sup> The Principles of Constructivism,  
<http://www.emory.edu/EDUCATION/mfp/303/303consprin.PDF>

<sup>iii</sup> Principles of Constructivism,  
<http://online.sfsu.edu/~foreman/itec800/finalprojects/eitankaplan/pages/principles.htm>

<sup>iv</sup> In Search of Understanding: The Case for Constructivist Classrooms, Jacqueline Grennon Brooks, Martin G. Brooks (1999) ISBN: 0871203588

<sup>v</sup> Constructivism and Technology, <http://pixel.cs.vt.edu/edu/fis/techcons.html>