Connectivism

About connectivism

Connectivism[1] is a new learning paradigm or a learning theory introduced in **2004** by George Siemens[2]. This theory attempts to approach learning and knowledge in context of technological development during the last few decades, since the impact of technological achievements on learning and knowledge cannot be ignored.

Siemens' connectivism incorporates ideas from:

- **Chaos theory** - Recognizing complex patterns and deep sensitivity on small changes in initial conditions are important properties of learning and decision-making as well as key aspects of chaos theory.
- **Self-organization** - This term usually refers to "*the spontaneous formation of well organized structures, patterns, or behaviors, from random initial conditions.*"[3] Self-organization is according to Siemens a characteristic of knowledge on personal as well as on institutional or corporate level.
- **Networks** - Network models were acquired because of their applicability and simplicity. Networks are sets of relations between elements which integrate those elements into a whole.

Motivation for introduction of connectivism comes from notion that learning theories in frames of behaviorism, cognitivism, constructivism and humanism promote the understanding that learning occurs only inside a person. According to Siemens,

- "*These theories do not address **learning that occurs outside of people** (i.e. learning that is stored and manipulated by technology). They also fail to describe how learning happens within organizations... We can no longer personally experience and acquire learning that we need to act. We derive our competence from **forming connections**.*[4]"

Siemens defines learning as **actionable knowledge** which can reside in a person but also outside one, for example in a database or an organization. The process of learning is focused not on acquiring more knowledge into or from each of such information sources, but on **connecting** them **and maintaining those connections**. Connection forming is important since the body of **knowledge is nowadays rapidly changing** and the common approach of a structured course in which packed knowledge is transferred to students is not efficient anymore. It serves institutions, but not students.

Connections are formed between nodes, but also between networks of nodes. Nodes can represent virtually anything, like a community or an individual, and the stronger the connection is, the faster information will flow between the nodes. Aggregated nodes form the network, but the network itself can only have limited influence on the nodes. According to Siemens[5], elements and characteristics of a network include:

- Content (data or information)
- Interaction (tentative connection forming)
- Static nodes (stable knowledge structure)
- Dynamic nodes (continually changing based on new data, since knowledge can and does change over time)
- Self-updating nodes (nodes tightly linked to original information source)

- Emotive elements (emotions that influence the prospect of connection)

Connections between the nodes can depend on various factors which make them stronger or weaker[6]: motivation (impacts individuals determination to foster deeper connections), emotions (affect our evaluation of nodes and allow existence of contradictory perspectives), exposure (nodes grow and develop through forming connections to other nodes), patterning (recognizing the nature of different sources of information), logic and experience.

For an practical example of learning from perspective of connectivism see this example.

Keywords and most important names:

- **Connectivism**, **connections**, **actionable knowledge**, **networks**, **nodes**
- George Siemens, Stephen Downes

Criticisms

Connectivism is criticized for being more **a pedagogical approach** and a model rather than learning theory, since it doesn't really attempt to explain processes of how people learn.[7] It also describes learning as *actionable knowledge* emphasizing only the result, not the process of learning.

Lack of references to previous related works makes connectivisms contributions hard to identify. Some authors notice a number of connectivist ideas already present in earlier theories.[8]

- "*A paradigm shift, indeed, may be occurring in educational theory, and a new epistemology may be emerging, but it does not seem that connectivism's contributions to the new paradigm warrant it being treated as a separate learning theory in and of its own right.*"[9]

Bibliography

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Read more

Connectivism (George Siemens' blog).

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1) Not to be confused with connectionism.

2) Siemens, G. Connectivism: a learning theory for the digital age. Elearnspace. 2004.

3) Rocha, L. M. Selected self-organization and the semiotics of evolutionary systems. Kluwer Academic Publishers, 1998.

4) Siemens, G. Connectivism: A Learning Theory for the Digital Age. 2005.

5) 6) Siemens, G. Connectivism: Learning as Network-Creation - ASTD. 2005.

7) van Pløn Verhagen, Bijdrage. Connectivism: a new learning theory?" University of Twente, November 11, 2006.

8) 9) Kop, Rita, and Adrian Hill. Connectivism: Learning Theory of the Future or Vestige of the Past? International Review of Research in Open and Distance Learning 9, no. 3: 1-13. October 2008.