

CONNECTIVISM AS A LEARNING THEORY:

Advantages and Disadvantages Based on Teachers' Views

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In our generation, knowledge is a growing so fast in parallel with the information and communication technology. According to this, a vast amount of spontaneous knowledge exchange is possible at least at technical level at present. Old and new knowledge on one side, old and new generation on the other side are combined with the help of connectivism. This study aims to explore the nature of connectivism in terms of advantages and disadvantages based on the views of teachers. The study is a comparative one based on the article published by the first author. The second author uses the same method of research so as to form a comparative research. The findings are based on the views of the teachers working at Selcuk University in Turkey, & Dammam University in Saudi Arabia in which some teachers characterized connectivism as useful, less satisfying, and in need of individualized materials; Students in connectivism increased their social interaction, engaged in more peer tutoring, and learned to work independently, they also reported that students received insufficient oral instruction, less individualized attention, and more interruptions.

Keywords: *Connectivism, nature of connectivism, Comparative study, Learning theory, advantages and disadvantages*

1. INTRODUCTION

Many educationalists agree that the role of traditional educational institutions today is to be questioned. Considering that the Internet access has become speedy, thus large numbers of people using high-speed internet have increased. Besides, various new, free, mobile tools and open resources have come into the service of learning. Social networks are also spreading rapidly. Thus, it is not hard to say that this flow of knowledge together with the technological changes is not possible for school curricula to follow as the curricula need frequent updating in parallel with the new changes. According to Castells [1], the basic paradigm of the information age is networking and the space of flows which “reigns above the historically constructed space of places ... In other words, flows become the units of work, decisions and output-control, instead of organizations”.

For Siemens [2], the key changes facing learners and organizations today include Societal changes, Technology, Globalization, Rapid pace of information development and Decentralization. This can be both the potential and challenge of lifelong learning. Using technology in teaching and learning has transformed traditional learning theories into technology integrated ones like web based learning, internet based learning, etc.

We draw our competence from forming connections as we can no longer personally experience and acquire knowledge. According to Stephenson [3], experience has long been considered the best teacher of knowledge and since we cannot experience everything, other people's experiences, and hence other people, become the surrogate for knowledge.

When we consider that the teaching and learning conditions in 21st century are entirely different from the ones when the traditional theories were put forward, it is natural and essential to form new theories in accord with the changes and advances in our age. That is why; Connectivism is regarded as the learning theory of 21st century as the digital age. It is a clear fact that nowadays knowledge is growing faster than ever before and the official and private organizations using knowledge, especially educators and employers, spend a significant amount of time on continuing education programs for students or employees as taking theory is not enough because the traditional ways are not able to keep the pace with a changing knowledge and work environment. Lately, with the spreading of information and communication technology, the dream of network learning has become a reality, at least technically, and now a vast amount of spontaneous knowledge exchange is taking place through ICT.

In Connectivism, learning occurs when a learner connects to a learning community and feeds information into it. A community is a rich learning network of individuals who in themselves are completed learning networks [4]. These individuals can be compared to nodes, which are connective elements "through which new information is routed, or may instead simply permit connections between ideas and concepts that previously did not have connections with each other" [4]. Siemens [2] defines learning "as chaotic, continual, co-creation, complexity, connected specialization, continual certainty". In connectivism, the rationale is that previous theories of learning (behaviorism, cognitivism or constructivism) were created during a time when learning was happening in different technological contexts. However, the learning models that served previous generations are replaced for greater relevance to present's needs, which include technology and connection making as learning activities.

Connectivism provides insight into the dynamics of networks, environments, and ecologies that supports a continual learning process. In this context, Connectivism means network forming process and it relies on the theoretical plane on the integration of principles explored by chaos, network, complexity, and self organization theories. According to Connectivism, the basic level of learning theories based on network theory is concerned with the organization of individual knowledge. For an individual's knowledge organization, strong ties are represented by knowledge elements that have been connected into a formal system. Just like the function of brain in the individual, nodes within networks follow similar aspirations. Established beliefs and learning often ensure that new information is routed through the existing network. New information is evaluated and coded reflective of the existing memory of the learning network." [4]. Thus, using the tendencies of the network as a basis, Siemens founded Connectivism a learning theory [4]. In this theory, Siemens surpasses the traditional theories such as behaviorism, cognitivism and constructivism.

According to Verhagen [5], Connectivism is not a learning theory, but a pedagogical theory. For Giesbrecht [6], Connectivism presents itself as a pedagogical approach that affords learners the ability to connect to each other via social networking or collaboration tools. Siemens [6] states that the role of the

educator is to create learning ecologies, shape communities, and release learners into the environment. Giesbrecht [6] stresses some limitations about course environments, which are represented as one point of view of a subject and presented in isolation. In addition, Giesbrecht [6] points out that Connectivism is founded in connections where learners should interact with elements that extend the learning practice beyond the classroom and allow real life experiences. Under the Connectivism principles, education is holistic, where balance between learner needs and institutional needs is essential. Spencer [7] mentions some positive aspect of using technology for instance and expresses that ideas and discussions among students can continue beyond the classroom meeting time, dialogical participation is encouraged, students gain new options for participating, among others. In addition, Suppens [8] defines theory as a scientific set of principles that provide frameworks for interpreting environmental observations and serve as bridges between research and education. Merriam et al. [9] point out that learning is a process rather than an end product. Thus, Connectivism can be regarded as a learning theory, because Siemens explains and interprets what happens when learning is taking place, specifically within a network. However, according to William [5], Verhagen suggests that Connectivism is not a learning theory, but instead may be a pedagogical theory. However, since Connectivism is a relatively new and emerging learning theory, formal literature on the topic is limited. In order to obtain data to determine the pros and cons of Connectivism, focus group discussion was used as a qualitative research technique.

ICT has been in use so widely that, in the 21st century, the world has become interconnected and more complex. From learning perspective, in such an interconnected environment, younger and older learners need to generate new ideas, new products and need to become innovative, which reminds us “lifelong learning” or “learning to learn” as well as “digital competency” terms. Thus, the theories of eLearning and Connectivism are mentioned as network participation, access to information and software make an entirely new, cooperative and self-organizing form of learning possible by interpreting and contextualizing information. Connectivism integrates principles explored by chaos, network, and complexity and self-organization theories [4]. In Connectivism, learning is a process of drawing connections between seemingly disparate pieces of data in order to form a more complete comprehension of a subject; nurturing and maintaining connections is needed to facilitate continual learning; ability to see connections between fields, ideas, and concepts is a core skill. There is a fast flow of information and new information is continually being acquired. However, the ability to draw distinctions between what is important and unimportant is vital. Besides, what is right today may be wrong tomorrow due to fast flow of information? Therefore, Siemens put the following seven principles for Connectivism [10]:

- Learning and knowledge rests in diversity of opinions.
- Learning is a process of connecting specialized nodes or information sources.
- Learning may reside in non-human appliances.
- Capacity to know more is more critical than what is currently known
- Nurturing and maintaining connections is needed to facilitate continual learning.
- Ability to see connections between fields, ideas, and concepts is a core skill.
- Currency (accurate, up-to-date knowledge) is the intent of all connectivism learning activities.

The aim of the study

The study is based on the article published by the first author under the title "Pros and Cons of Connectivism as a Learning Theory" [11]. In that article, the participants are the professors working at a university in Turkey. In this paper, the author included the professors working at a university in Saudi Arabia to form a comparative study and see the differences of opinions on connectivism in two different countries. This study aims to explore the advantages and disadvantages of Connectivism based on the views of teachers working in two different countries. Thus, the study aims to describe the advantages and disadvantages of Connectivism as it is conceived by the educationalists. Therefore, the research focuses on one question: What are the advantages and disadvantages of connectivism?

2. METHOD

The study is a comparative one based on the article published by the first author under the title "Pros and Cons of Connectivism as a Learning Theory" [11]. The second author uses the same method so as to form a comparative research at her University- Dammam University - and her findings are based on the views of teachers working at Dammam University in Saudi Arabia. Focus group discussion was used as a qualitative research technique to obtain the data. The objective of the group discussion is to gain knowledge about a particular topic or need by interviewing a group of people directly affected by the issue. According to Lederman [12], a focus group technique involves the use of in-depth group interviews, the group being 'focused' on a given topic. In addition, according to Kvale [13], a qualitative research interview is an interview whose purpose is to gather descriptions of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomena.

The researcher can explore the depth and nuances of opinions regarding an issue and understand differences in perspectives. In this research, the group members discussed the Connectivism as a learning theory to determine its weak and strong visible sides in terms of using instructional technology in education. In this context, a seminar was organized by the researchers separately in their respective organizations to give detailed information about Connectivism to the group members so that the level of knowledge they have should be leveled. The researchers formed the proper setting for the interview so that they could feel comfortable, neutral, private, free from distractions and easily accessible. The researcher asked questions emerging from the explored ideas of the group members. Interview was tape-recorded for accuracy with the permission obtained from the interviewee. Notes were also taken during interview to check the questions and answers recorded for subsequent transcription. Then, the information generated was coded and summarized for analysis and discovery. Transcripts were carefully read and the data were phrased and grouped into categories. The list of participants from either country is as follows:

Organization	Number of Participants (Seminary)	Number of Participants (Interview)	Experience of teaching (Years)
Selcuk University, Turkey	11	7 (A1, B, M1, N1, R1, Y, Z)	4 (20 years) 3 (5 years)
Dammam University,	12	9 (A2, A3, A4, F, H, L, M2, N2,	3 (20 years)

Saudi Arabia		R2)	3 (10 years) 3 (3 years)
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Each participant was given a symbol using their initial letter of the name to remark their ideas. Thus, the participants at Selcuk University were A1, B, M1, N1, R1, Y, and Z. The participants of Dammam University also coded in the same way. Thus, the participants at Dammam University were A2, A3, A4, F, H, L, M2, N2 and R2. The researchers acted as a moderator to guide the discussion so as to obtain data for analysis.

3. FINDINGS AND DISCUSSION

1. The participants agree with the claim that behaviorism, cognitivism and constructivism fall short especially when non-formal and informal learning are concerned. However, B, N2 and R2 mention that connectivism cannot be an alternative to cognitivism, considering the learning stages used in cognitivism, as it uses the same learning stages and schemes in the process. N1 and M2 disagree with this idea and they say that "Connectivism can be an alternative to these traditional theories considering the informal learning processes". N1, N2, M2 and Z emphasize "the place of connectivism in the learning process is out of the formal education environments". R1, R2, Y, A4 and H stress the common use of connected tools in daily life and they claim that "in the formal class, students focus on the connected tools and in this way they are distracted from lessons. In this way, in the formal learning environment, connected tools can prevent learning as students make themselves busy with them ignoring what is given during lessons". Connectivism is regarded by the participants as a tool for informal learning but not enough in itself to explore everything involved in learning.
2. Some participants emphasize that the tools used in the context of Connectivism cannot be limited to the tools used today. As technology advances, there will be more tools. According to A2, B, N1, M2, Y, F, H, L and Z, connectivism is related with technology and thus the technological advance is the main factor to determine this limit. All the participants accept that the internet and mobile telephones are the main tools that can be used in instruction today. However, all the participants are not sure what other tools will come out tomorrow and which of them will take the place of current tools.
3. B, N, F, H, L and Y stress on digital literacy for those who have difficulty in using even simple connected tools. Digital literacy is the ability to locate, organize, understand, evaluate, and analyze information using digital technology. Taking the rapid advances in technology and that Connectivism is the learning theory of the digital age into account, digital literacy appears to be a problem. However, according to M and A2, "the digitally literate individuals can turn out to be illiterate if they cannot catch up with the new advances". Prior to the 21st century, "literate" term defined a person's ability to read and write, separating the educated from the uneducated. With the advent of a new millennium and the rapidity with which technology have changed society and the concept of "literacy" has got new meanings.
4. R1, A4, B, Y and M2 claim that, with the use of connected tools, individuals can make well use of their personal academic learning time. If individuals feel like learning something, Connectivism helps them to have access to the sources immediately. Conversely, when an individual does not want to work on a planned activity, Connectivism can give him the chance to do that in the right time he or she likes. Thus, according to A3, A4, B, R2, Y and N3, flexibility in learning is provided in the best way. A1, A4 and Z mention that a

businessman, even while travelling, can make use of connected tools and can learn something he needs or likes to know. That business man does not need to create extra time for learning activities". Flexible learning is an option available for those who cannot attend theory to learn in formal and organized programmes due to work, location difficulties or family commitments.

5. All the participants agree that Connectivism has a major role in learning to learn. Individuals can learn more effectively and they become learners for life. B, Y, M2 and N stress that Connectivism helps individuals to know how they prefer to learn and their learning strengths, how they can motivate themselves and have the self-confidence to succeed, how they can improve their memory or make sense of complex information". N, R2 and Y agree that the ability to learn is possessed by humans, animals and some machines but learning is not compulsory. So, when individuals know what and how to learn, they themselves meet this need using especially connected learning tools.
6. R1, M2 and N2 uses the term "Media Psychology", which is the study of media, technology and how and why individuals, groups and societies behave. They stress the risk of "getting addicted to technology and thus getting isolated from social life". In this case, it can be a harmful way for the individuals as they prefer virtual reality whenever they have problems in society and life. B, R2 and N2 agree with the psychological problems it can cause if it is not used in the right way.
7. B, R, N1, N2 and Y claim that Connectivism is not well known both by the instructions in the formal learning environment and individuals in the informal learning process. They give examples of "teachers who cannot use even smart boards placed in the classrooms, the software packages used in the theory with the help of computer technology". They agree that the young generation is more informed about their use than the older generation. This may emerge from both the reluctance to learn and digital illiteracy. This means that there should be experts in governmental or non-governmental organizations to encourage the individuals to make use of connected tools in a favorable way. Otherwise, there will be teachers who are not reluctant to use technology in instruction and there will be students who can use the most recent technological devices in and out of classroom. That is why; individuals who live in the middle of this connected world should have at least some expertise. Otherwise, according to M and Y, connected implementation can also be time consuming and the life of individuals will be full of postponed activities.
8. A4, B, R1 and R2 see Connectivism as a potential area of addiction to technology. They claim that to be so much connected is not good for the physical and psychological health of the individuals. There is the risk of avoiding the real world by hurrying into the virtual and technological world. Considering that human beings will never be machines that we use connectively, Connectivism should be limited to the extend we need. If we let them penetrate into our social and private life, there will be no other space for our personal life. N, Y and Z also agree on this risk and they remark that however hard we are connected, all technology runs depending on electric energy. When we plug a connected tool out, nothing works. Therefore, we can say that no electricity, no technology and no Connectivism. Another point stressed by M is the importance of sources to be used in the context of Connectivism. He says "lack of proper training, limited access to sufficient quantities of sources and the extra time required for many implementations should be taken into account as the drawbacks of Connectivism".

4. CONCLUSION

Most of the participants regard connectivism as a learning theory that can be best applied in the teaching, and training through group work and class discussion. The teacher should act more as a facilitator than an instructor as students are expected to be acquiring knowledge and determine the facts and fiction through their interactions with one another as opposed to knowledge being dictated to them. To put clear lines between the advantages and disadvantages of Connectivism is nearly impossible, as something that seems to be advantage in one context can be a disadvantage in another. Therefore, it is proper to sum up the research without forming a clear-cut classification.

In fact, the discussion applied to obtain data about the advantages and disadvantages of Connectivism is limited to how the members conceive the term “Connectivism”. However, the participants agree that behaviorism, cognitivism and constructivism fall short especially when non-formal and informal learning are concerned.

The place of connectivism in the learning process is out of the formal education environments as in the formal class, students focus on the connected tools and in this way they are distracted from lessons. Furthermore, in the formal learning environment, connected tools can prevent learning as students make themselves busy with them ignoring what is given during lessons.

All the participants accept that the internet and mobile telephones are the main tools that can be used in instruction today. However, it is not clear what other tools will come out tomorrow and which of them will take the place of current tools. In addition, digital literacy appears to be a problem especially for the elderly or digitally illiterate individuals. Furthermore, it is probable that the digitally literate individuals can turn out to be illiterate if they cannot catch up with the new advances.

In Connectivism, flexibility in learning is provided in the best way. Flexible learning is an option available for those who cannot attend theory to learn in formal and organized programmes due to work, location difficulties or family commitments. Connectivism can be a tool in “learning to learn” by helping individuals to know how they prefer to learn and their learning strengths, how they can motivate themselves and have the self-confidence to succeed, how they can improve their memory or make sense of complex information.

On the other hand, Connectivism has the potential addiction to technology as being so much connected is not good for health. There is also the risk of avoiding the real world by hurrying into the virtual and technological world. The main point that is regarded as the main disadvantage is the risk of getting addicted to technology and thus getting isolated from social life. Individuals may prefer virtual reality whenever they have problems in society and life. In addition, connected tools may cause psychological problems if not used in the right way. Media Psychology is the study of media, technology and how and why individuals, groups and societies behave. In this case, it can be a harmful way for the individuals as they prefer virtual reality whenever they have problems in society and life.

Although young generation is more informed about the tools in connectivism, there should be experts in governmental or non-governmental organizations to encourage the individuals. Otherwise, connected implementation can also be time consuming and individuals will have the habit of postponing daily activities. In

addition, lack of proper training, limited access to sufficient quantities of sources and the extra time required for many implementations are other limitations.

5. SUGGESTIONS

In conclusion, Connectivism is a new theory both in terms of the time and in terms of the literature. Connectivism is not the final statement in educational theory. The discussion about if Connectivism is really a learning theory will probably continue. It is natural that there will be new learning theories. Half of what is known today was not known 10 years ago. Therefore, there should be more researches about the use, benefits and drawbacks of Connectivism.

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