
***Constructivismo, tecnología y capacitación docente
para la inclusión de alumnos con trastorno del espectro
autista***

***Constructivism, technology and teacher training for
inclusion of students with autism spectrum disorder***

Karen Ellean Domínguez-Galván

Universidad Autónoma del Carmen, México

Correo electrónico:

k.ellean_088@hotmail.com

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Resumen: El constructivismo y las tecnologías permiten a los aprendices tener acceso a información ilimitada, transformar y darle su propia dirección al aprendizaje. En este ensayo se explica cómo el constructivismo se encuentra vigente dentro del proceso de enseñanza-aprendizaje, y se resalta el valor y las ventajas que tiene el uso de las tecnologías para la preparación continua de los docentes.

Palabras clave: Constructivismo; Tecnologías; Proceso enseñanza-aprendizaje; Educación en línea

Abstract: Constructivism and technologies allow apprentices to have access to unlimited information, transform and give their own direction to learning. This essay explains how constructivism is current in the teaching-learning process, and highlights the value and advantages of the use of technologies for the continuous preparation of teachers.

Keywords: Constructivism; Technologies; Teaching-learning process; Online education

This essay reflects on the contributions of educational technology and online courses for teacher training through a virtual space, since throughout the process of educational inclusion it has been observed that children with Autism Spectrum Disorder (TEA) have been segregated from regular schools, that teachers are not trained to offer them an education with quality, and when interacting with many of these students there is frustration because they do not know how to handle their situation in an appropriate way.

Although education in Mexico is a human right for all - as mentioned in the third article of the political constitution of the United Mexican States of 1917 - addressing the issue of

educational inclusion has become a challenge since it continues to be deficient. An important factor is that teachers, who are the main guides of teaching, do not receive the adequate training to cover the needs of these students and consequently their education has become a growing challenge.

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO) (2017), inclusive education "is a process that helps to overcome the obstacles that limit the presence, participation and achievements of students, with the objective of strengthening the capacity of the education system to reach to all students "(p.7). Although this definition is recent, its bases go back to 1994 when members of Unesco, and representatives of 92 countries and 25 international organizations met in Salamanca, Spain, with the aim of promoting education for all, and favoring the Integrative education approach that was intended to reaffirm that all people with or without special needs have the right to education and equal opportunities.

In such a meeting it was proclaimed that educational systems should be designed according to the characteristics and needs of the students, and above all that people with special needs should have access to ordinary schools, with the intention of avoiding discriminatory attitudes and achieve creating inclusive societies.

According to UNESCO, Mexico has created awareness of the transformative vision of guaranteeing an inclusive, equitable and quality education, as well as promoting lifelong learning opportunities for all from public policies, the Development Plan (PND), the Sectoral Education Program (PSE), and the New Educational Model (NME), valid in 2018. These establish as one of its axes inclusion and equity, with which the education system proposes to eliminate barriers to access, participation, permanence, graduation and learning of all students; and in this way provide the basis for all to have effective opportunities for the development of all their potential.

What role does the teacher have in the learning process? To face the challenges imposed by the globalized world of the twenty-first century and make the educational approach a reality, in the educational model for compulsory education it states that:

... It is essential to strengthen the professional status of teachers in service, and build an initial training that ensures the good performance of those who join the teaching profession. The teaching task faces important challenges and the authorities must bring to the teachers the elements to be able to perform successfully and continue to promote the development of our country. (Official Gazette of the Federation, 2017, page 32)

Therefore, the teacher must contribute to the construction of suitable environments to promote the achievement of learning expected by students, to obtain the knowledge they need and develop the skills, attitudes and values raised in the curriculum.

To achieve these purposes the teacher has to possess the pedagogical knowledge of the contents that he uses and organizes in appropriate teaching processes; he has to know how to guide learning through interactions within the classroom where students are constantly impelled and the commitment to learn is established as a systematic behavior; and also monitor and provide feedback on the learning that is obtained and developed. (Secretariat of Public Education, 2016)

According to Meirieu (2019) the necessary competences to assume the challenge of teaching effectively today, is that teachers must be able to plan and organize learning situations, as well as to motivate the students to get involved and create a commitment with themselves that allows them to formalize their own learning, as well as make use of material, documentary and technological resources that are necessary, participate in the management of the school, inform and involve parents and especially work as a pedagogical team .

What role does teacher training play in education?

The Undersecretariat of Basic Education (SEB), through the General Directorate of Continuing Education, Updating and Professional Development of Teachers of Basic Education, issues the document National System of Continuous Training, Updating of knowledge, Training and Professional Overcoming for teachers of Education Basic. National Strategy 2018, which shows the regulatory instruments to implement the continuous training of teachers, teaching technicians, personnel with management functions,

supervision and pedagogical technical advice of the country, as a key component of the Educational Reform and the strengthening of knowledge and capacities of educational personnel for the effectiveness of the right of all students to a quality education, with equity and inclusion (Secretary of Public Education, 2018, p.7).

To comply with the General Law of the Professional Teaching Service (2018), article eight establishes that the local educational authorities are responsible for:

Offer free, appropriate and relevant programs and courses that are consistent with the levels of performance to be achieved, for ongoing training, updating of knowledge and professional development of teaching staff and personnel with management or supervisory functions that are in service. (p.6)

Since education lasts a lifetime, for teachers, who are the main mediators in the teaching-learning process, it is not enough to have completed university education, but they need systematic training that allows them to be updated throughout the entire period pedagogical, scientific and technological work.

Currently one of the areas of greatest attention in special education is the Autism Spectrum Disorder (ASD). In Mexico it is difficult to obtain accurate statistics of autism since there are very few specialists who use the research tools properly to make a diagnosis in this sense, and training can be very expensive. However, it is estimated that one in every 115 children has ASD. (Government of the State of Mexico, 2017)

A US association called Autism Speak, dedicated to the dissemination of information and awareness about this disorder of development, in 2016 conducted an investigation in León, Guanajuato, the first research on this topic, and concluded that almost one percent of all children in Mexico - around 400,000 - have autism, which leads us to consider it a very important and urgent public health problem.

Autism Spectrum Disorder develops in the infant stage, lasts throughout life, its main characteristics are the difficulty to interact socially and communicate with others, "the symptoms themselves include alterations in interaction, communication and repetitive behavior, restrictive and stereotyped "(Mulas and Roca, 2018, p.91). Autistic children are

often described as lost in their own world because they are socially isolated, and they are often called rare. The Confederation of Autism in Spain (2014) shares that:

ASD is characterized by a triad of symptoms: alterations in social interactions, alterations in communication, as well as restricted interests and repetitive behaviors. Some people with ASD present alterations in the processing of sensory stimuli, which can manifest in intense discomfort with certain sounds, smells, lights, tastes or textures; unusual interest in sensory aspects of the environment, fascination with lights, shining or spinning objects or apparent indifference to pain or temperature.

The Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association (American Psychiatric Association, 2000) contains descriptions, symptoms and other criteria for diagnosing mental disorders. It states that:

Generalized developmental disorders are characterized by a severe and generalized disturbance of several areas of development: skills for social interaction, communication skills or the presence of stereotyped behaviors, interests and activities. The qualitative alterations that define these disorders are clearly inappropriate for the level of development or mental age of the subject. (p 69)

The symptoms dependent on age and sex are:

... The nature of the alteration of social interaction can change over time, and may vary depending on the level of development of the individual. In young children, there is an inability to hug; indifference or aversion towards manifestations of affection or physical contact; absence of eye contact, facial responses or socially directed smiles, and inability to respond to the voice of their parents. As a result of all this, parents may be initially worried about the possibility that their child may be deaf. Autistic children can treat adults as interchangeable beings or mechanically cling to a specific person. Throughout development, the child may become more willing to participate passively in social interaction and may even be more interested in such interaction. (American Psychiatric Association, 2000, p.72)

The constructivist theory: a didactic proposal for teacher training

For Guerra (2003), constructivism in education is a broad body of theories that have in common that people -both individually and collectively- construct their ideas about their physical, social or cultural environment: it is the result of a construction process of reality, which has as origin the interaction between people and the world.

Piaget and Vygotsky are the main theorists of constructivism, which have similar positions. Regarding the contributions of Piaget, learning is evolutionary according to the growth and maturation of the individual, which progresses as the child grows, maturing physically and psychologically.

This means that Piaget thought that children actively construct knowledge of the environment using what they already know and interpreting new facts and objects. Piaget's research focused primarily on the way in which they acquire knowledge as it develops. In other words, he was not interested in what the child knows, but how he thinks about problems and solutions. He was convinced that cognitive development involves changes in the child's ability to reason about their world (Autonomous University of Barcelona, s.f., p.2).

Therefore, biological maturation allows the child to evolve in the environment in an easier way since their cognitive structures with the passage of time are more complex, which allows greater learning and adaptation to the environment that surrounds it.

In this regard, Lamata and Dominguez (2003) share that learning has three essential aspects: the logical, the cognitive and the affective. The logician explains that there must be internal coherence that favors learning so that, with cognitive development and processing of information is carried out; and the affective aspect takes into account the emotional conditions of the apprentice, which favor or hinder the processing of information.

The theory of Vygotsky, who argues that learning is the result of interaction with the environment, is added to this theory. For these authors, Papalia, Wendkos and Duskin (2007), it is essential what they have called the zone of proximal development, that is, the distance between what a person can learn for himself and what he could learn with the help

of an Expert on the subject. It is in this area where the learning of new skills that the human being puts to test in different contexts takes place. In this sense; constructivism is the theory of learning that by its characteristics best suits the real and possible conditions of schools in Mexico. Therefore, it is intended that the teacher obtain teaching strategies through educational technology in order to improve the quality of teaching and learning because once acquired knowledge, the teacher will be a mediator between learning and a suitable student and trained to build his own knowledge.

To achieve these processes through online education, according to Adelle and Castañeda (2010), the tools offered by the Internet, combined with traditional communication formulas, are transforming teaching-learning strategies by becoming the gateway and the support structure in regard to the presentation, development and even evaluation of resources.

Distance education is in a huge development due to advances in information and communication technologies that enable interaction between students and teachers for the development of skills, motivations, online socialization, management and exchange of information, and construction and knowledge development.

The main advantages of online training through the use of TICs are: the elimination of space-time barriers, since it allows learning anywhere, anytime, provided by a mobile device is available and navigation on the Internet; the self-administration of time, the reduction of transfer costs to the place where the teaching process takes place, the access to study materials such as books, statistical data, journal articles for free, the exchange of information in a fast manner among teachers, students, and people who are connected through the textual modalities of audio, video and many other media that the network provides, the increase of interest and motivation to perform tasks.

In the words of Hernández (2008): "New technologies refer to recent technological developments. The result of the contact of people with these new advances is to expand the capacity to create, share and dominate knowledge "(p.28). Therefore, the development of

teacher training with the use of tics is a possible way to achieve the inclusion of students with autism spectrum disorder of the basic school level in Mexico.

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