Revolution 4.0 Across Education sector

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According to **Dr. Abdul Kalam**

"*Education is endless journey through knowledge and Enlightenment*"

Education is a systematic process through which a child or an adult acquires knowledge, experience, skill and sound attitude.

Education refers to the discipline that is concerned with methods of teaching and learning in schools or school-like environments, as opposed to various non-formula and informal means of socialization.

Meaning of Education 4.0

We all are enter in the new era of education, i.e. Education 4.0. it was launched in India in **May 2020 by** bringing together over 40 partners from government , different academics & start-ups.

Education 4.0 is define as;

➢ a most purposeful approach to learning that lines up with the fourth industrial revolution and about transforming the future of education using advanced technology and automation.

➢ it supports & helps students learn in a fun and interesting way.

➢ It provides theoretical knowledge and prompts students to learn different skills like skills of time management , organizational skills, collaborative skills, and many more management skills, which are needed for their employment for the road ahead.

Education in Pandemic

As we look back on the past two years and the harsh repercussions of the pandemic that continue until today.The COVID-19 pandemic disrupted the world in ways unthinkable, it is apparent that one of the most impacted sectors was education. Neither the world nor educational institutions were prepared to embrace the shift to online platforms brought on at lightning speed.

Education moved Online

Educational institutions around the world expeditiously reacted to the widespread by going online. In record time, understudies moved from physical spaces that given them with much-needed social intelligent, to being situated behind a screen for hours on conclusion. In Lebanon, the move to online stages happened at a slower pace, and was primarily driven by the educational institution that as of now had advanced learning stages in put, and the implies to function them.

Globally, over 200,000 cases of the corona virus have been reported in more than 160 countries, which have resulted in more than 8,000 deaths and left several States dealing with severe outbreaks. The COVID-19 pandemic will adversely impact the progress some governments were making around increasing the education budget. Therefore, this is a crisis that requires urgent attention and collective action by all Governments, stakeholders and communities.

Each day millions of children do not go to school due to emergencies and ongoing humanitarian crises. The outbreak of COVID-19 has compounded the plight of learners in countries affected and or emerging from conflict and disaster. While the Global Campaign for Education (GCE) acknowledges the public health decision to close schools, we believe that contingency plans should be in place to ensure the right to education even in times of crisis. GCE is convinced that all learners no matter where they live and circumstances have a right to education. Education is an essential right for children, young and adults in emergencies and must be a priority from the very beginning of any and all emergency responses.

COVID-19 has the potential to radically reshape our world, but we must not passively sit back and observe what plays out. Now is the time for public deliberation and democratic accountability. Now is the time for intelligent collective action.

There is no revolution without disruption. Its consequences shatter traditions, behaviors, relationships, ways of thinking and, of course, of educating. Over time, societies have undergone major transformations due to the advance of technology, which brought about important changes in their structures and altered the existing statism. Since the industrial revolution, education began to contribute to the economic development of countries, focusing on pedagogy for the working class.

The technological development driven by the industrial revolutions has a direct impact on education.

➢ *Education 2.0*: Technology began to have a place in educational processes.At this stage, students begin to acquire more knowledge the teacher was not only dedicated to teaching, but also acted as a moderator to promote interaction in the classroom, to discover the talents of his students

➢ *Education 3.0*: Increases the variety of knowledge and sources. With the globalization of the internet, It has allowed (ICT) to be incorporated into educational processes, thus integrating of new tools that helps to improved the form of education . Learning was self-directed and the search for information was encouraged in a 100% digital way.Virtual platforms appeared, connectivity and interaction between students and teachers increased.

➢ *Education 4.0 :* The key element of Education 4.0 is innovation, and it brings the drastic modification in the individuals way of living, work style and establish relationships with others.

Today, the world is continuously in the process of transformations. The transformation of learning activities by students, use of application of different methodologies and techniques teachers used .This innovation process is a bet on the development and evolution of science
and technology over time until it now evolves into Education 4.0.

Education in the 21st century is facing the negative effects of teaching skills, not only with the accelerating p ace of technologies, but also a global health crisis due to the pandemic. The arrival of Education 4.0 represents the best way to combine the fourth revolution with education;develop ment on robotics, smart technology, artificial intelligence, augmented reality, gamification, teacher evaluation and student self-evaluation, Big data, use of digital platforms;which support our daily lives is all due to the industrial revolution.

In this way the learning approach will continuously be based on the better approaches of studying and their application within the new work situations.

Through Education 4.0, graduates can be equipped with the skills needed to become innovative and creative workers; ability to adapt to new technologies.

Characteristics of Education 4.0

Some of the characteristics of Education 4.0 are the following:

➢ The basis of teaching is the cooperation between teacher and student.
➢ The main way of learning is through communication.
➢ Problem solving is exercised as close to real life as possible.

> ➢ One of the main drivers of learning is games and the creation of real environments.
> ➢ The use of ICT as a tool for accessing, creating, organizing and disseminating content.

Transformation of Education from Traditional to Digital

Today's advances in science and technology are part of the Fourth Industrial Revolution,known as Education 4.0. E-commerce and cellular communication led society to enter a world of technological. The development of new information and communication technologies, facilitating the way in which the individual learns and teaches the new generations.

Conventional/ Traditional education advanced into an education with input forms for the under study who had get to to a few sources of information and was able to differentiate the data given by his educator. Education 4.0 requires instructive models that are distinctive from the conventional/Traditional models still in drive, as well as instructors who gotten to be mentors and facilitators of get right approach to learning.

Face-to-face, blended and virtual education, with the use of applications and educational platforms, has allowed the generation of learning environments that assist the educators to implement efficient technologies and encourage new skills and abilities in students, inside and outside the classroom. The modern-day teacher influences the student to be inserted in the education of the 21st century, education 4.0 and considering rhythms and learning styles of students, generates changes to be implemented in both public and private educational institutions, with redesign of teaching-learning strategies within the student-teacher relationship.

Impact of Education 4.0 on Various Sector of Education

> ➢ Education 4.0, requires digital transformations on a par with the technological era, to meet the needs of the information society at the pace of scientific and technological transformations and innovations, framed in a new educational model.
> ➢ The co-responsibility of the teacher and educators in the development of new model for training and professionalization, the continuous acquisition of knowledge and all with the use of technological tools inside and outside the classroom as a transversal axis.
> ➢ According to Education 4.0, students need to be trained not by conventional teaching. This is the aim of remote based education system. Both Education 4.0 & Industry 4.0 must be aligned together in order to create job opportunities in more demand. The future education system will be more transparent in nature, in which all the information will be stored in the form of cloud.
> ➢ Education 4.0 improves the freedom of learning and also freedom to innovate, think and implement by proving promising results in any fields.
> ➢ Education 4.0 brings many job opportunities to students in line with latest technological tools like Machine learning, Deep learning and Data science, etc.

Martinic & Villalta, (2015) states that Education 4.0 is based on ten technological pillars, which are explained as follows:

Integration systems, which integrate operational technologies with those of information and communication, impacting both the internal and external management of a company. Robots, or intelligent systems that automate tasks that were previously performed by humans. This pillar seeks to strengthen and increase collaborative robotics.

Outcomes of Education 4.0

Cloud. This pillar offers online storage, access and use of IT services. In this way, business access existing technologies with little administrative effort and in a flexible and agile manner.

Simulation of virtual environments. This pillar has to do with a joint way in which machines, people and processes work in a direct way. It prevents breakdowns, saves money and evaluates the final results in a controlled environment.

Artificial intelligence. It refers to a set of algorithms fed with information and previous experiences, improving them to provide machines with cognitive skills similar to those of the human brain.

Cybersecurity. Technological advances require the use of cybersecurity mechanisms in industrial environments, detecting, anticipating and neutralizing threats.

Augmented reality. It complements a real environment with a digital one.

However, these disruptive technologies exert a strong influence on education and have changed the way teaching and learning takes place*.* The rapid spread of the COVID-19 pathology is closely linked to the immense network of global movement of people. Contagious disease were unavoidable. . In the field of educational , the huge closure of educational institutions globally to rationalize the spread of the virus posed an new risk to education, and the individual's well-being . Education is affected due to the closure of primary schools ,seconday schools, college as well as university level   , especially those belonging to vulnerable group.

Education 4.0 and Covid 19

Despite of the pandemic, technology continuously maintain the status of educational process, causing a change in people's way of life, if a country's investment on educational area were low, the development and implementation of Education 4.0 would not be globalized beyond small business and academic spaces. Societies around the world benefit daily from technology, as it brings a series of advantages, especially in the educational field where it has revolutionized the way of teaching and learning. However, in the transition from the pandemic, drastic changes occurred in face-to-face education, e-commerce and delivery sales.

The arrival of Education 4.0 are the Massive Open Online Courses (MOOCs), the same that appeared with Education 3.0. This model revolutionized at the time the way in which teachers acquired knowledge and skills to improve their practices. According to Núñez-Peña et al., (2015); (Jiménez-Valverde & Núñez-Cruz, 2009)the first MOOC was implemented by the University of Manitoba, Canada, in 2009, with around 2,000 students enrolled.

The platforms on e-learning education have evolved so much that the environment that creates a virtual classroom and the virtual university campus, provide facilities for the learning of the student of the new era and inserts it to the rhythm of the world market. The projection of job offers and acceleration of the application of science and technology, we are already living in our days, even as an effect of the confinement caused by the pandemic caused by Covid 19. There has been such a serious school desertion, caused by causes such as the lack of access to computer equipment, whether laptops or desktops, the lack of access to the Internet, by elderly teachers who refuse to join virtual education and therefore cannot apply pedagogies that allow students to enjoy virtual classes.

According to Rodríguez et al., (2014); Mendoza-Rojas, (2015) it is to be expected that there will be an increase in school dropout in the world of approximately 24 million children. According to the entity, in Ecuador alone there are more than 90 thousand students who have left the education system, and approximately 15% of the student body that has not left the system, indicates that they have not had regular contact with teachers in at least two weeks. UNICEF emphasizes that it is important to consider that the loss of contact between teacher and student increases the possibility of the student dropping out, and that the experience of such a high number of dropouts only increases the 268 thousand children who had already dropped out of the education system and the 187.3 thousand who were already behind in school.

Therefore, it is concluded that despite the increase in connectivity, with 74.8% of students with access to public Internet, only 1 out of 8 students have computers or some equipment that facilitates access to the Internet for personal use. This reality, as stated by the WB, has a significant impact on students' online learning.

The year 2020 brought with it important changes, especially in the traditional forms of the teaching-learning process, leading the world population to the inclusion of virtual education to remedy the limitations due to the COVID-19 pandemic. This new way of working left important learnings, and the premise of continuing with the innovations that Education 4.0 has brought at a dizzying pace.

In Education 4.0, now have the great opportunity to become a reality and allow for both quality and equity in education. Therefore, it is recommended that in the immediate future, educational systems should be implemented that consider technology as their main resource, that are resilient, that can respond efficiently to emerging situations presented by this changing world, and that can face the challenge of reducing the inequalities that were aggravated as never before with the pandemic, through Education 4.0. The technological advances that the world is dealing with today, such as robotics, artificial intelligence, Big data, or the Internet of Things (IoT), which have greatly impacted the world, have resulted in the need to give it the importance it deserves and to prioritize the development and strengthening of teachers' technological competencies, as well as the equipment of institutions, and to implement an educational approach that considers Education 4.0 as the basis of the teaching-learning process.

Conclusion

Education 4.0 has had a great impact on education under the pandemic scenario that the world is experiencing, as it has allowed teachers to implement innovative strategies, and to seek adequate resources to maintain student participation and motivation, thus highlighting the importance of this fourth industrial revolution.

The evolution of e-learning education platforms guarantees a suitable environment for the virtual classroom, and even for a virtual university campus, since it offers all the facilities that student learning needs in modern times, and inserts it into the rhythm of the world market.

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