

# A Study of the Influence of Connected Societies on Teaching-Learning Practices in Higher Education during Covid-19 Times

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**Abstract---** Technology and digital transformations are changing the way society is being connected and higher education at universities are being impacted in COVID-19 times. The digital advancements have assisted us to navigate through and be proactive with the least amount of disruption even in the wake of covid-19 period to keep continuing the business teaching and learning at universities. This is relevant in the higher education sector where online teaching and learning processes are digitally continuing with a higher success compared to other industries experiencing a complete shutdown. Important issues need careful understanding such as digital network issues, digital reach, digital infrastructure, digital safety, and privacy issues etc are stumbling blocks. The stakeholders such as the universities can successfully connect with students online with financial support from government and with secure systems still new challenges are being encountered. Digital transformation has made it essential for educational institutions to strategize resources according to emergency pandemic situation and in short and long term seek a sustainable model of digital education online which is expected to be a virtual reality very soon. The study uses qualitative research combined with a questionnaire to find out the effect of technology on education.

**Keywords---** Digital Technology, Digital Education, Digital Learning, Online, Internet of Things, Internet of People, Digital Transformation, Safety, Strategy, Online Education.

## **I. Introduction**

In difficult covid-19 times the role and practices of connected societies is increasingly driving the Business Teaching and Practices at higher education institutions and the universities. A hyper connected society means one where people themselves or people to machine are connected digitally (Chung et al, 2017). The pace at which this is happening at present covid-19 times will make information accessible across different groups of people. Internet usage which is the connecting link in the world is roughly half of the population connected and number of mobile users are increasing at a fast pace every day thus providing a digital platform for teaching learning online. More than five billion people in the world have mobile phones and over a half of them use smartphones (Silver, 2019). The portability of the mobile phones being compact and digitally secure makes it a very attractive platform through which a user can simultaneous conduct several activities including teaching and learning with in the comfort zone such as their home. Internet of Things (IoT) and Internet of people (IoP) influence digital connection between

societies. This will have impact on teaching learning process during covid-19 when social distancing has become the norm and people must maintain safe distances when out of their homes and being in public spaces.

Digital transformation is now influenced by pandemic like Covid-19. Artificial intelligence, industry 4.0 and other changes in technology have changed the world drastically. This has brought people “digitally closer” to each other but “physically far apart” thus maintaining safer distances between people to control and eliminate the risk of the pandemic covid-19. Enterprises and educational institutions are now ever before and increasingly relying digitally and working online due to the influence of the pandemic and will continue to do so in the future. Digital transformations and innovations in the educational sector have facilitated the teachers to redesign their teaching methodologies. Rapanta et al (2020) explains the process of learning through online and importance of content, knowledge, and societal factors for effective teaching digitally in the wake of covid-19 pandemic.

The study has analysed some of the articles to get ideas about application of digitisation in education and other sectors. Covid-19 pandemic is a very recent event which just in few months have changed the direction of people living as it just happened so quickly in a very short time. Also, the literature on Covid-19 is not fully out there yet to suggest the best practices and the course of action that can be taken. This study largely will triangulate literature from covid-19 impacts, then connect it to technology, which would then provide deeper understanding of digital use, for teaching and learning at universities.

Reis et al (2018) has studied literature on digitisation and found it to be essential for business. But it is more relevant in industries like education. Nettal Livari et al. (2020) explains the importance of basic education, understanding the challenges of digital education and ways to improve both basic and higher education by optimum utilisation of opportunities provided by the digital medium especially during covid-19.

Verhoef et al (2019) analyzed digitization and its impact on consumer thinking. The paper gave information about different factors of digitization. A study by Redman and Davenport (2020) gave insights into different features and technicality of digitisation in companies.

The studies mentioned above emphasize digitisation, its importance of connecting people and challenges. Education sector also will depend on digitisation in future. The authors would like to discuss this and influence of digitisation in education sector especially during the pandemic. This study may help in formulating and directing future research in this area.

## **II. Methodology**

This is a qualitative study using literature review and preliminary findings from a pilot questionnaire. The objectives are to find out the impact of interconnected society on education and the major challenges and benefits of online education. Papers from different facets of interconnected society and digitisation are taken into consideration as a basis for this paper. Literatures on connected society and digital transformation for teaching and learning in covid-19 times are studied for the providing readers with a deep understanding of issues and trends. The researchers adopted a qualitative approach as this can unravel important information about behaviours, attitudes of teachers, learners at the universities to drive digital transformation for teaching and learning during covid-19 times.

The study has also used an exploratory questionnaire (more of a pilot study) to check the benefits, challenges, and helpful factors in online education. The study was primarily done among students of MBA in Bangalore and sample size was 109 (More than 150 questionnaires were sent using google form and finally 109 students responded). The sampling method used was convenience and sampling population was students of higher education.

### **III. Objectives of the Survey**

1. To study the challenges and benefits of online education.
2. To understand the major factors which facilitate online education.

### **IV. Literature Review**

Mobile connectivity during covid-19 times is still less in developing countries whereas the developed countries are having a population of 75% who enjoys the privilege of internet connectivity using smartphones. (Bahia and Suardi, 2019). Automation, digitalization, and Internet of things have helped the population to connect with each other easily and with increased efficiency.

Digitalisation has become the essential method to connect people digitally without physical contact which is not a safer option due to the risk of covid-19 spreading faster than previously thought. Digital technology has helped in deeper penetration of methods and models which has helped the societies to connect easier and better. This technology is also very important for education sector so that students can be better served online through digital connectivity.

A connected society at covid-19 times can safely and digitally connect through internet of things which help the people to make smarter and faster decisions by sitting at home which ultimately reduces pollution which is evident as shown by examples from different cities across the world. Digital technology and advent of new applications have helped the organizations and institutions to deliver services better in all sectors including education.

The objective of the paper is to understand the influence of digital transformation and connected society on the teaching- learning process and helps the readers to understand digitisation and its influence using research papers. This research investigates the impact of digitalization on teaching learning process during covid-19 times. Teaching-learning process can be made more effective if experts in the field of education can understand and suggest effective and efficient usage of digital methods and technology in imparting better inputs to the students and create more value for them. This will provide a basic understanding for the academicians to channelize the content which will enable for online teaching-learning process.

“The Connected society means a society in which different constituents including people, objects and things, online and offline, are interconnected digitally. Changes in digital area is making connected society, a reality.”

Jan van Dijk (1991) have coined the term ‘Network Society’ and defines it as “a society in which a combination of social and media networks shapes its prime mode of organization and most important structures at all levels (individual, organizational and societal)”.

Wellman et al (2003) have emphasized the role of information technology in the development of hyper-connected society. Berry Wellman (2001) gave insights into the concept of connectivity and influence of it on society in his paper “Physical Place and Cyberplace: The Rise of personalized networking”. Connection can be between people or places or on a global level.

Globally we are moving towards interconnected society which is possible due to technology and virtual Information. These changes have huge impact and has paved way for new methods various sectors like health care, transportation, education, energy etc.

Table 1: Evolution of the Concept of Connected Society

<b>References</b>	<b>Concept</b>
Wellman, 2001	Computer networks and its application in connecting the society together.
Fredette et al, 2012	Better information and connection have made it so easy that time and space have become less important.
Choi, 2014	Internet of things and its importance

Connected society using technologies comes with its own advantages and disadvantages. Though it can accelerate the profitability of the company, it is prone to cyber-attacks and elimination of job opportunities.

Various points of view are explained by different experts (Djik, 2012; Castells, 2006; Wellman, 2001; Hiltz & Turoff, 1978). Web services like Facebook helps the society to be interconnected. This concept helps us to trade information which benefits users to sit at home and complete the work. This is also useful for students to access learning applications like LinkedIn learning. The concept of digitisation has also helped in development of online education platforms like zoom to penetrate the market and capture the market. Education is now user friendly due to the development of these applications and online platforms as one can sit at home and learn.

Smartphones help in enhancing economic revival as it helps people connect socially which in turn helps in increasing advertising revenue for companies. 3.8 billion people are connected by mobile connectivity which enhances the growth of interconnected society.

The world is changing at a faster pace by creating a technologically well-connected society around us. These connections will help us generate more knowledge for sharing with each other. More than ten billion devices are connected More than 21 billion devices are there in today’s world, and these devices with the help of new technologies will create seamless transfer of information which will make world more connected and pave way for a global network.

Online conferences, seminars etc have become very much integral part of communication now. Online platforms like Zoom are helping the institutions to connect with students daily. These are now replacing physical contact sessions though it will take time for complete makeover as it will take for the people to adopt online classes completely. The platforms help us to teach, discuss, execute online tests and exams, and can be recorded for further use and for documentation. They also help in meetings and regular interactions which help the employees to work from home. These platforms are becoming more popular in academia due to its advanced technology and user-friendly approaches. Blended learning has now become a norm and is going to be the future as far as education is concerned.

Mhlanga et al (2020) discussed various tools of digital transformation used in South Africa for various classes in education sector and the benefits of them. The study proposes government funding in much broader manner to provide better online education system. The authors point out fiscal expansion to provide better and wider online education for all students. Konig et al (2020) found that digital knowledge and competence of teachers are the most important factors in making sure that online teaching is effective. There are challenges in adapting to technologies

but at the same time digital transformation is going to drive the education forward. Soni et al (2020) reveal the significance of e-learning in the wake of the pandemic. The importance of UNESCO PORTAL for the benefit of online learning is discussed in the paper. As the world is moving towards digital transformation online learning is going to be the future and adapting ourselves to this as a society is important for the education system. Arora et al (2020) compared teachers who were using online classes with those who were not. In higher education using questionnaire. The benefits using online classes were found to be less due to absence of awareness and adequate training facilities and due to internet network problems. The lack of personal interaction was also a reason which is the main challenge for a digitally transformed society.

## **V. Changing Roles of Teaching-Learning Process in Covid-19 Times**

Faced with the pandemic, the world has witnessed a drastic change in teaching learning process. The teaching learning process in physical setting was clearly understood by the teachers and students. But the pandemic has made all the schools and universities to quickly switch over the teaching mode from physical to digital. The information and communication technology has already paved a path for blended learning in the last few decades.

The digital transformation of teaching and learning process within a short time of few months have impacted many universities to organise quickly their resources for delivering education. Teaching learning process encompasses all the methods through which teachers impart their knowledge, skills, and attitude to the students. In physical environments such processes were clearly understood by teachers and students for years but doing them digitally in a short time of few months has led to changing the process to customize those processes within a digital environment. The effectiveness of a student's professional development depends on how well a curriculum has been crafted, planned, and implemented which can be delivered digitally. The teaching learning process have changed significantly since last one decade and the integration of digital tools had a significant impact. Most of the educational institutions have introduced a blended learning approach to deliver the content to its target audience. The internet and digitalization play an important role in imparting the new ways of learning techniques. Online teaching has accelerated digitalization during this recent covid-19 pandemic. Many universities have adopted this method to conduct classes for their students. But the major challenge faced by many of the developing and underdeveloped countries are the availability of the digital resources. Most of the parents are not able to afford the smartphone, internet subscription, the cost of mobile data being very high and unaffordable, and in some cases lack of digital infrastructure, and unreliable internet connection. The latest report from the media shows that India has witnessed an increase of 45% internet connectivity between 2020 to 2021. The availability of cheapest internet connectivity has boosted the rural Internet and the reports show that rural kids between age group of 5-11 go online using their family members mobile phones.

## **VI. Important Technology Tools and Developments for Connected Society in Covid-19 Times**

This section discusses some of the important technology tools and developments that drive the connected societies during covid-19 times.

Internet of Things - This helps in reducing the gap between physical and virtual worlds to make sure the interconnection between the people.

Artificial Intelligence - Here the tasks required to be done by human intelligence are done by advanced computer systems which will help in increased agility and sustainability for businesses.

Industrial Revolution 4.0 - This has helped in changing the look of business making it highly modern and technologically advanced. All industries including have been benefitted by this innovation.

Internet of People - IoP consists of an interconnected society using digitization which aids in promoting their continuous empowerment, preserving their control over their online activities. It is internet of things in combination with people. The usage of internet helps in improved sociability and internet and social autonomy seems to have a direct relationship (Castells et al 2007; Cardoso & Araújo, 2010; World Internet Project, 2012; Rainie & Wellman, 2012).

Robotics- Design, Operation and Application of Robots used in business.

E-Commerce and M-Commerce - These are methods which have improved speed, agility, and efficiency of transactions.

These methods discussed above which have come because of technology are instrumental for an interconnected society lately which has helped in managing the challenges faced during pandemic in a better fashion. This has helped educational establishments to be more adaptable and more profitable. There are bound to be more innovations around digitization which will also help education industry immensely.”

## **VII. Connected Society - Ethical Dimension During Covid-19 Times**

In recent times the world is shifting towards digitized society which is interacting using technology. But these changes have also brought into limelight the question of legal aspects. Ethical and privacy issues will have to be dealt in future if we want to go forward as an interconnected society. Business insider has done a study which suggests that there will be roughly 64 billion IoT users by the year 2025 which means that business will be connected virtually. Neaman (2017) has spoken about the ethical and social aspects of automation and internet of things. He is of the opinion that technology, automation, internet of things etc. along with frauds, cyber terrorism and invasion of privacy are here to stay for a long time. There must be a balance between benefits and challenges. Employees must be trained on digital applications, and they must be technologically updated. At the same time ethical and social issues must be considered before implementing any new technology advancements.

There is need to keep a balance between online technology and offline teaching in educational institutions so that students and other stakeholders are benefitted. Sufficient training must be given to all stakeholders before using any new technology. This will ensure proper usage of digital applications which will help the ethical and social side of things. This is especially true in the wake of covid-19 pandemic.

Ryakkers et al (2018) in their article mentioned about the importance of digitization is and ethical dimensions. It is important to understand these issues and privacy and data protection are important from the point of view of users. These articles mentioned in the study talks about the utility of ethical practices and their effective implementation. Any digitisation techniques can be considered only when ethics and people’s privacy is given careful consideration.

**VIII. Results**

The authors have conducted a pilot study among 109 students to know the perceived effectiveness of online teaching. 55% of respondents believed online education is useful. 41% of the respondents felt that internet connectivity is the biggest challenge in India and 48% felt that the main challenge is communication and interaction in the class as far as online education is concerned. 53% felt that reduction in travel is the biggest benefit which is obvious. 44% felt that online platforms like zoom has helped in better online education whereas 38% felt that supporting technological advancements is equally necessary. There is need for improving infrastructure and usage of online methodologies for education. Subjects based on quantitative angle are difficult to be taught using online delivery mechanism and they opined that the effectiveness could be better in offline mode. Majority of people felt that offline education is better which means blended learning is here to stay.

**IX. Connected Society and Teaching-Learning Process in Covid-19 Challenges and Solutions**

**Times-**

Transparency in education is very important. Equally important is the judicious use of social media so that teaching learning process can be made more effective. Unethical usage of the social media and technology must be reduced. Also, from the survey we can find that reach is a big problem due to improper internet connectivity, especially in villages. Usage of digital methods by harnessing the power of internet is very important. Also, internet connectivity must be improved, and awareness creation and education of stakeholders is very important. Training must be given to all stakeholders so that interaction in class using online medium becomes more effective. Online platforms must become more user friendly which will encourage more to take online education. More investment is required so that technology will help in conducting classes and examinations more effectively using online mode. Overall better awareness, technology advancements, investment from academic institutions and better internet connectivity will help online education to become more effective. Social media is very crucial here to educate people about the advantages, ethical dimensions etc. of online education which will help students to become more satisfied with the content provided.

Table 2: Challenges and Solutions

<b>Challenges</b>	<b>Solutions</b>
Issues of safety.	Proper and systematic training. Technical expertise with the help of public. Proper and safe measures.
Reach.	Technology utilization and usage of social media and proper investment will help in increasing reach.
Adoption.	Using social media for creating awareness and educating stakeholders.
Network Issues	Better infrastructure More Investment
Lack of Government Support & Investment.	Teaching stakeholders about the advantage of digitization in teaching-learning process
Lack of Awareness	Education

## **X. Future Research**

This paper provides a basic understanding about the concept of connected societies and its role on teaching learning process. The authors have conducted a pilot study on this topic to identify the major challenges faced by the students while participating in digital learning process. The study shows the challenges of online education related to infrastructure and teaching-learning process which must be addressed. A similar study can be conducted by selecting a large sample size with a better geographical spread.

The following areas can be tapped for the future research:

- Study which involves more parameters and more segments of students and other stakeholders
- focus on exploring the various factors affecting the effectiveness of connected societies through an empirical study.
- A comparative study between urban and rural students in adopting technology and giving a true meaning to the concept of connected society.
- The role of technology and infrastructure in realizing the concept of connected society.
- Country specific studies can also be conducted for digital transformation and impact on connected society.

## **XI. Conclusion**

This paper provides a basic understanding on the concept connected society and the challenges faced by the different stakeholders while implementing it in teaching learning process. Though the digitalization has made the process easy in many of the sectors, it has its own vulnerability when it comes to the safety aspects. The pandemic has ensured that we must make our infrastructure and legal laws so compact that virtual learning can now become a source of sustainable competitive advantage and digital transformations and hyper connectivity of society are the major steppingstones for success in this endeavor. The different methodologies using technology will help us to work online and offline (or with physical proximity) will not be required in future. We are now in a global world and so these advancements will be essential to work together as a team. Even in teaching, online mode will be the future and digitization and through that interconnected society are the funnels of growth for competing and excelling globally. Integration of culture and eradication of different challenges mentioned in the paper are vital for online methodologies to be sustainable. Educational institutions must be ready for these digital transformations and for the connected societies to make sure they remain sustainable and efficient in this challenging era.

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