Digital Transformation in Higher Education Sector in India

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Abstract: The fourth industrial revolution and the development of artificial intelligence are changing the way we work and learn Globally, institutions of higher learning have positioned themselves in line with quality standards and trendsetters. Higher education institutions may face a variety of difficulties, such as significant changes in funding sources brought about by extensive structural changes in the economy that necessitate greater accountability at all levels and the pressing need to adopt modern technology in order to increase effectiveness and efficiency. India is not an exception to the global issues that the Covid epidemic has brought forth for higher education. Many students who hoped to continue their education in prestigious colleges in India and other nations have had their hopes dashed by the pandemic, in a nation where many still lack access to higher education. Although it is no longer novel, online learning is increasingly required in India. The manner that education is transmitted has undergone a significant transformation in the past several months. While some colleges quickly adopted the shift, others found it difficult because they lacked the necessary technical know-how and fundamental infrastructure to switch to online instruction. This study aims to provide an overview of the unique features of the digital transformation implementation process that have occurred in the higher education industry. The primary conclusions demonstrate that it is, in fact, a developing field in India's educational system. In order to gather secondary data for different sources of data analysis and concepts, this study collected data.

Keywords: Higher Education, Online Learning, Digitalization

Introduction:
Technological advancement has made education easy and approachable. Online learning, open learning, web-based learning, computer-mediated learning, blended learning, m-learning, offer an opportunity to learn from anywhere, anytime and with any means. This innovation in teaching and learning process along with speedy changes in mode of delivery has highlighted the optimistic approach in education sector. Presently, the real time classrooms and interaction have been replaced by the virtual classrooms, with the help of chat rooms occurring through online channels. The virtual classrooms are being planned using the platform such as video conferencing (Google meet, Google handout, Webinar jam, Microsoft Team, Zoom, Slack, Cisco WebEx) and customized cloud-based learning management platform (ELIAS/ MOODLE).The flipped classroom provide online study material, pre-recorded videos and lecture link before the commencement of lectures. Online learning established trust and level of comfort as it provides flexibility for participation and interaction.
1. To study the emerging trends and challenges of higher education.
2. To understand the digital transformation from physical classroom in higher education.

Digital technology transformation is considered as one of the current trend in industry. In Indian education system there is an enormous scope for digital transformation especially in schools, universities and colleges. Though, digitization and digital approaches are way to digitizing the content of lectures and to opening access to education or learning modules by providing them online. It involves modern methods of working, not just new technology. The rarest resource in education world is not essentially technological know-how, but also with control of leadership. Today's leaders, potential students need to be able to judge through an mass of digital initiatives, manage speed up innovation cycles, and reform the organization around new approaches. Wide use of digital resources has become the needs of modern learners. The potential students always look for advanced learning opportunities beyond the typical traditional classroom-method. Keeping mind the emerging

needs and situation of youngster's schools and colleges need to develop alternative and advanced ways of teaching for quality education. The power of technology can never be under-estimated. With a huge population of 1.31 billion people in the country, the ratio of technology has highly increased in the last few years. With around 140 million mobile phone users and being a country for the second most social site users, India has a huge opportunity to grow in this field and to grasp the positive vibes of technology in the field of education. With huge responsibility in digital technology, Prime Minister Modi has introduced initiatives like Digital India. This is to transform India into a digitally empowered society and knowledge economy. Digital India is a concept to change the education system in India. It gives an opportunity to access learning sources to a global platform. Nowadays students are spending lot of time on the internet and smart phone to get a lot of content online and upgrade their knowledge. Educational institutes, Schools College and Universities are left with no choice but to adapt these new technologies. The latest technology has provided a different and a new platform for students. Regular advancement of technology as well as the increasing popularity of social media and the Internet of Things, (IoT), Artificial Intelligence (AI), Augmented Reality, Virtual Reality are giving new hope to Indian education system.

In India, various digital tools piercing heavily day by day, close to a billion people and many of them connected to the internet. In education industry also, there is a huge potential to educate the students to give better knowledge. In coming years, there has been an increase in the usage of Digital and Live Virtual

Classrooms at different levels of learning. By leveraging Open Educational Resources, students and teachers will have flexibility to attend the session at any time and get the better knowledge. At the same time to have better clarity, more accountability, better engagement in learning, Augmented Realty and virtual reality concepts has also started by which students can understand the concept in real situation.

Research Methodology
Sources of Data Collection: The data for the study has been collected through relevant research journals, magazines and present available literature on websites. Various government reports have also been considered.

Review of Literature
Pulkit (2020) explain the current education system in his paper. He wrote India holds a very important place all over the world in education industry. The nation has more than1.5million schools with more than 260 million students enrolled and around more than 800 universities and 65,000 colleges. Although, lot of scope for continuous improvement in the education framework. Indian education industry is ready to face significant development in the years to come, as India have world's biggest tertiary-age population and second biggest graduate ability internationally. Korableva (2019) highlighted on the benefit of online courses over the traditional class room based teaching. In extend of the study, more insight was on the latest two online platforms, MOOC and Course era, to understand which more user convenience is as well as give the best solution in terms of knowledge. R. Raja (2018) did a research on the importance of technology in education system with reference to schools in Chennai and found that with the onset of latest technology like ICT, and other digital tools are very helpful to impart knowledge to our students and process of teaching and learning can be more enjoyable. Dr. Radhika Kapur (2018) in her study focussed on the problem faced in Indian education system like importance of quality education, challenges in the traditional mode of Education system, lack of Student engagement etc. In extend of the study author found education quality, trained teachers, the curriculum & instructional methods are not well developed and these are also contributing as major issues in Indian education system. Arnab Kundu, Dr. Kedar Nath Dey (2018) in their article wrote that the Government of India has played a major role in the development of e-learning in India and the Department of Electronics and Information Technology is developing tools and technologies for promotion of e-learning by supporting Research and Development projects at various academic and educational institutes revolving around content development, Research and Development technology initiatives, human resource development projects and faculty training initiatives to improve literacy through distance education in order to improve general literacy and education levels in the country. Rs. 17000 crore has been allocated for this purpose in the Year 2017-18 by the Government for boosting the Skill India Mission. This investment has had a beneficial effect for the domestic and foreign product and services providers in the e-learning market in the country. Omer (2018) in his research on academicians view on need of transformation digitally in education sector focused on that academicians strongly feel that as world is moving towards complete digitalization; it's also required to take step forward in education system and transform in digital education. In extend of study, academicians give their view point on effective learning can also be achieved through digital tools like Artificial intelligence, learning analytics, online learning, virtual learning as well as its also required to redesign the physical environment & infrastructure equipped with Information and Communication Technology. © 2021 JETIR September 2021, Volume 8, Issue 9 www.jetir.org (ISSN-2349-5162) JETIR2109507 Journal of Emerging Technologies and

Innovative Research (JETIR) www.jetir.org f42 Arvind Kaur (2018), in his Ph.D thesis mentioned about the limitation in our academic curriculum, like many government university do not update the syllabus as compare to Private University. Skill education is lagging, less focus on industry academia interaction in our curriculum, many colleges and schools still go with typical traditional mode of classes, less focus on improving the quality of higher education in India. Reeves, Jennifer L., Glenda A. Gunter (2017) in their research focused on influencing student-teacher collaborative efforts and increasing engagement while learning through digital tools, completing assignment, worksheets online as well as taking the help of user-friendly professional educational apps to enrich their knowledge. Chahal (2015) found in her study that due to many problems like poor teaching methods are, less number of professional and trained teachers, the curriculum, the old teaching-learning methods are not well organized, no proper and appropriate communication between the teachers and students regarding the lectures , shortage of modern and innovative techniques and financial problems, the teaching in our educational institutions is not better quality due to above mentioned reasons and some strong measures need to get implemented to make

The digital transformation of education is a process of integrating digital technologies into the education system to enhance the quality of education and make it more accessible, affordable, and inclusive. The digital transformation of education in India is being driven by the Government of India's Digital India initiative, which aims to provide digital infrastructure, digital literacy, and digital services to all citizens of India.

The digital transformation of education is taking place at all levels of education, including primary, secondary, and higher education. Digital technologies such as e-learning, online courses, virtual classrooms, and digital textbooks are being used to enhance the learning experience of students.

The use of digital technologies in education has several advantages. Digital technologies have made education more accessible to students, especially those in remote areas. E-learning platforms and online courses have enabled students to access education from anywhere at any time. Digital technologies have also made education more affordable by reducing the cost of textbooks and other educational materials. E-learning platforms and online courses are also more cost-effective than traditional classroom-based learning.

Digital technologies have also enhanced the learning experience of students by providing interactive and engaging content. Virtual classrooms, video lectures, and digital textbooks have made learning more interesting and enjoyable for students. Digital technologies have made education more inclusive by providing equal opportunities for students from all backgrounds. Students with disabilities and those from economically disadvantaged backgrounds can access education on digital platforms.

However, the digital transformation of education is also faces several challenges. The digital divide between urban and rural areas and between different socio-economic groups is a significant challenge for the digital transformation of education in India. The availability of digital infrastructure such as internet connectivity, electricity, and digital devices is another challenge. The training of teachers in the use of digital technologies is crucial for the successful implementation of digital education. However, many teachers in India lack the necessary skills and training. The development of high-quality digital content requires significant investment and expertise.

Key Digital Technologies in Education Transformation
The digital transformation of education is being driven by a range of digital technologies that are being used to enhance the quality of education and make it more accessible, affordable, and inclusive. Some of the key digital technologies that are transforming education in India are:

- **E-learning Platforms:** E-learning platforms are digital platforms that provide online courses, study materials, and resources to students. E-learning platforms offer a range of courses on various subjects, from primary to higher education levels. Students can access e-learning platforms from anywhere, anytime, and at their own pace.
- **Online Learning Management Systems:** Online learning management systems (LMS) are digital platforms that provide a comprehensive set of tools and resources to manage online courses. LMS platforms enable teachers to create and manage online courses, monitor student progress, and provide feedback.
- **Virtual Classrooms:** Virtual classrooms are digital platforms that enable students and teachers to interact in real-time using video conferencing tools. Virtual classrooms provide an immersive learning experience, enabling students to participate in class discussions, ask questions, and collaborate with other students.
- **Digital Textbooks:** Digital textbooks are electronic versions of traditional textbooks that can be accessed on digital devices such as tablets, laptops, and smartphones. Digital textbooks offer interactive and engaging content such as videos, animations, and quizzes, making learning more interesting and enjoyable.

- **Educational Apps:** Educational apps are digital applications that offer a range of educational resources and tools such as language learning, math games, and science experiments. Educational apps provide a fun and engaging way for students to learn and develop their skills.
- **Online Assessment Tools:** Online assessment tools are digital platforms that enable teachers to create and conduct online tests and quizzes. Online assessment tools provide a convenient and time-saving way to evaluate student performance.
- **Learning Analytics:** Learning analytics is the use of data analysis tools to evaluate student performance and provide insights into learning outcomes. Learning analytics can help teachers identify areas where students are struggling and provide targeted interventions to improve learning outcomes.

Advantages of Digital Transformation in Education in India

The digital transformation of education is changing the Indian education landscape in several ways. Digital technologies are revolutionizing the way education is delivered, making it more accessible, affordable, and inclusive. Here are some of the ways digital transformation is changing the Indian education landscape:

- **Increased Accessibility:** Digital technologies have made education more accessible to students, especially those in remote areas. E-learning platforms and online courses have enabled students to access education from anywhere at any time. Students can also access educational resources and study materials on digital devices such as tablets, laptops, and smartphones.
- **Enhanced Learning Experience:** Digital technologies have enhanced the learning experience of students by providing interactive and engaging content. Virtual classrooms, video lectures, and digital textbooks have made learning more interesting and enjoyable for students. Digital technologies have also made education more personalized by enabling students to learn at their own pace.
- **Cost-Effective:** Digital technologies have made education more affordable by reducing the cost of textbooks and other educational materials. E-learning platforms and online courses are also more cost-effective than traditional classroom-based learning. Students do not have to incur the cost of commuting to school, and they can save money on accommodation and other expenses.
- **Inclusive Education:** Digital technologies have made education more inclusive by providing equal opportunities for students from all backgrounds. Students with disabilities and those from economically disadvantaged backgrounds can access education on digital platforms. Digital technologies have also made education more gender-inclusive by providing equal opportunities for male and female students.
- **Innovative Teaching Methods:** Digital technologies have enabled teachers to use innovative teaching methods to engage students. Teachers can use virtual classrooms, videos, animations, and quizzes to make learning more interesting and engaging for students. Digital technologies have also made it easier for teachers to track student progress and provide targeted interventions to improve learning outcomes.
- **Collaborative Learning:** Digital technologies have enabled students to collaborate with each other and with teachers. Students can participate in online discussion forums, share resources, and collaborate on projects. Digital technologies have also made it easier for teachers to collaborate with each other and share resources.

Challenges Faced in Digital Transformation of Education in India

While digital transformation has brought about several positive changes in the Indian education landscape, there are also some challenges that need to be addressed. Here are some of the challenges faced in the digital transformation of education in India:

- **Unequal Access:** One of the main challenges of digital transformation is unequal access to technology and the internet. Many students, especially those in rural areas, do not have access to digital devices and reliable internet connectivity. This makes it difficult for them to access digital learning resources and participate in online classes.
- **Digital Literacy:** Another challenge is the lack of digital literacy among students and teachers. Many teachers are not trained to use digital technologies effectively, and many students do not have the necessary digital skills to participate in online learning. This can lead to a digital divide where students who are comfortable with technology have an advantage over those who are not.
- **Quality of Content:** The quality of digital content is also a challenge. With the increasing availability of online courses and resources, it can be difficult for students to determine the quality of the content they are accessing. There is a need for quality assurance mechanisms to ensure that the content meets the required standards.

- **Teacher Training:** To effectively integrate digital technologies into education, teachers need to be trained to use them effectively. Many teachers lack the necessary training to use digital technologies in the classroom, which can hinder the effectiveness of digital learning.
- **Assessment and Evaluation:** Digital learning also presents a challenge in terms of assessment and evaluation. Traditional assessment methods may not be suitable for digital learning, and there is a need for new assessment methods that take into account the unique characteristics of digital learning.
- **Security and Privacy:** Digital learning also presents security and privacy concerns. The collection and storage of student data and the use of online platforms can pose a risk to student privacy. It is essential to ensure that adequate security measures are in place to protect student data.

In conclusion, while digital transformation has brought about several positive changes in the Indian education landscape, there are also some challenges that need to be addressed. Addressing these challenges will require a collaborative effort from policymakers, educators, and technology providers to ensure that digital transformation benefits all students and contributes to improving the quality of education in India.
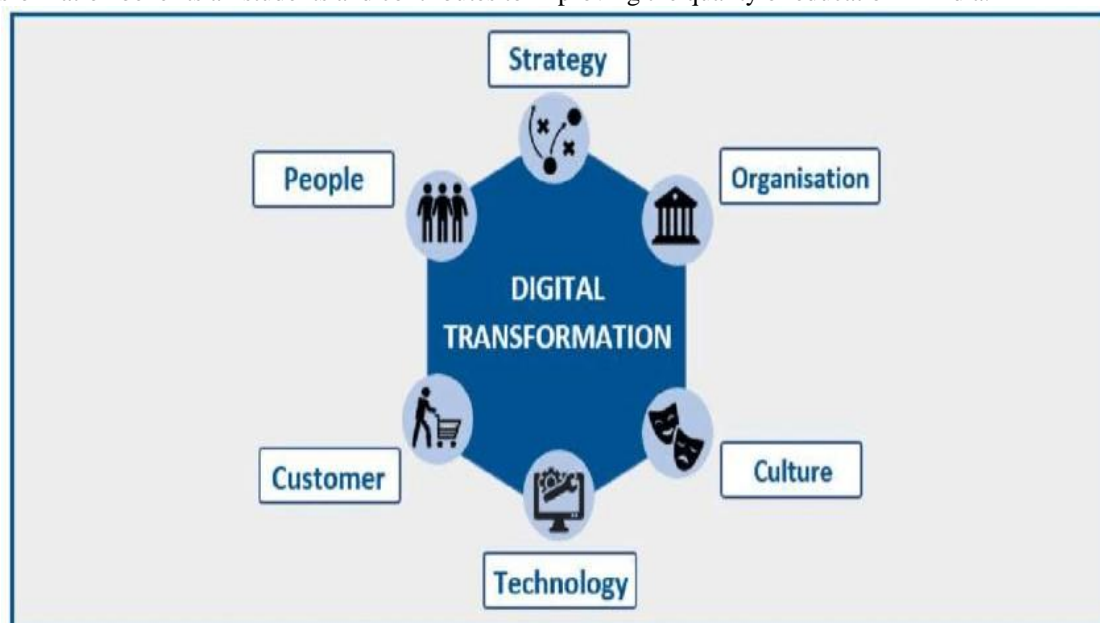
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