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CHANGING PARADIGM IN ONLINE EDUCATION TO SUCCEED POST PANDEMIC: METAMORPHOSIS, THREATS AND OPPORTUNITIES

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Abstract:
Quarantine and large-scale shutdowns are typically met with a rapid transition to online learning by education systems and their stakeholders. However, since a pandemic of this magnitude and scope is unprecedented, there is a knowledge gap about how teachers and students can react, as well as the potential effects and post-pandemic key considerations for education. This study aims to extrapolate the existing knowledge base about the use of online Learning, as well as provide high-level guidance for policymakers and educators who are expected to make decisions in fast-paced and very challenging circumstances with little guidance or relevant experience. The pandemic opens a panorama of metamorphosis, opportunities, and threats that can be seen through the prism of the Industrial Revolution (IR), and it is more than just a learning experience. The research study investigates the evolving paradigm for post-pandemic education using the Document Analysis methodology as a research design.

Introduction:

The Key feature of the 21st century education is *Education in Innovation* and *Innovation in Education.* The urgency of revamping the Education system in the post pandemic scenario needs the changing paradigms for *'right education'* and *'right way of education'*. In a demanding world that is marked by rapid progress in scientific technologies, industrial revolution and job disruptions, the only way to be successful is by acquiring skills and competitiveness of global standards. Furthermore, if we must innovate for our own sake, we must keep track of global developments when doing so in order to remain competent and relevant in the present and future. Our innovations and technological advancements will help not only India, but the entire world, if they become trend setters.There is no scope for reluctance in transforming our education system or being apologetic about it. Education system being the 'organic entities' cannot afford to remain static and become fossilized. (Saidapur, 2020)

The world has recently faced the outbreak of an existential crisis. Since December 2019, many facets of life have changed owing to a catastrophic pandemic, COVID-19. The second wave started spreading in different parts of the globe. (Elrahman, 2020). Academic life, as perceived screeched to a halt andeducation resume in fully remote mode. This sudden imperative to shift the modality of education constituted emergency online teaching and learning. By definition, online education uses variety of delivery modes and technological resourcesto supplement or substitute for in-person instruction(Ching, 2015). Online education refers to training that is delivered online by design, using technical resources and a pedagogical environment that is conducive to distance learning. Due to the pandemic situation educational institutions mandated that all face-to-face classes be converted to online, they often only had

a week or less toengineer this metamorphosis.(Schwartzman, 2020).Opportunities arise as a result of disruptions. It is up to teachers to seize these opportunities in order to provide students with rigorous, just, and caring educational choices. While profit-driven interests may take advantage of the pandemic crisis to boost their bottom line, educators should focus their efforts on engaging all students as active participants in a revitalized, collaboratively designed teaching-learning experience. More than a mere learning opportunity, the pandemic opens panoramas of possibilities. The pandemic forces confrontation with vulnerabilities while also driving capability expansion and skill development.

Impact of Industrial Revolutions on Education

Education and Industrial Revolutions (IRs) impact each other as they are closely interlinked. IR 1.0 took place in England and was characterized by mechanization of production using water and steam power, and weaving looms. The IR 2.0 took place in America which enabled mass production with assembly lines using electrical energy. The IR 3.0 enabled automation in the production of goods and advancement in the fields of electronics and computer sciences(Prisecaru, 2016). The ongoing IR 4.0 has a massive impact on people, education, jobs, skill development and so on as it utilizes complex digitization technologies (cyber physical systems). It has made significant breakthrough in internet related developments, robotics, driverless autonomous vehicles, 3-D printing, quantum computing, material science, nanotechnology, biotechnology, energy and data storage facilities, artificial intelligence (AI). Rapid development in IR 4.0 paved a way for mass production of goods, increase income levels and, enhanced quality of life(Walters, 2020). Simultaneously, the consequence of IR 4.0 is technology driven disruption in jobs, simple smart phones can now replace multiple devices and people. With specific apps in place, smart phones perform unprecedented number of tasks with ease and swiftness (Prisecaru, 2016) The major drivers of IR 4.0 are: increased use and application of computational technology, Artificial Intelligence, rise in smart machines and systems, communication tools, new media literacy and media ecology, super-structures Organizations, Global connectivity. These necessitates the development of new skills such as critical thinking, creativity, emotional intelligence, cognitive flexibilities, ability for co-working, co-creating with men and machine(Lucreţia Dogarua, 2020). As a result, it calls for major changes in the education system, thinking, logistics and management. Making innovationswill continue to be a priority in the future.

Redesigning Future Education:

Everything around us evolves over time, be it lifestyle, automobiles, rules, politics and technology. Education is no exception to this rule as it has transitioned from the *Gurukul* system (E 1.0) practiced over many centuries to the present model (E 3.0) around the last quarter of the 20th Century(Jackie, 2015).The education landscape has significantly evolved over the years, with web-based teaching-learning.Learning through the web is assuming a new dimension and revolutionizing education, given the enhancement it has made possible in education delivery and innovative pedagogic strategies. It has tackled time and place barriers to teaching, as it stretches traditional brick and mortarclassrooms into learning spaces with computer and communication technologies to connect teachers and learners across time and space. A growing number of schools globally are now offering digital education programs. Across the web, we also find a significant number of platforms offering virtual/online courses and resources for customizing and delivering courses online.A major agent of this change is the current industrial revolution. It is now imperative that the educationist and policy makers recognize the urgency and develop new education model to complement with the current and foreseeable pandemic situation. (Stella, 2020)

Statement of Problem:

The spread of the Coronavirushas triggered disruptions to normal life; countries have mandated temporary school closures, leaving a significant number of students out of school. Extended school closures carry the potential to trigger not only short-term effects such as loss of learning, but also medium to long term human capital loss and weakened economic opportunities. To help mitigate the loss of learning, stakeholders in the education and teaching/training system are now pursuing options to utilize online learning to manage and cope with the crisis.

Despite the above, very little research attention has been paid to analysing the post pandemicchanging paradigm on educators and education systems, as they move quickly and at scale to provide online education.

Objective of the Study:

Learning dynamics have been significantly influenced on many levels by the swift expansion of the internet and increasing software capabilities. With pandemic in the mix, there is an ambiguity as to the impact it will have on online learning. This is critical, as the crisis has delivered a changing paradigmof metamorphosis, opportunities and threats.

This study aims to extrapolate the existing knowledge base about the use of online Learning, as well as provide high-level guidance for policymakers and educators who are expected to make decisions in fast-paced and very challenging circumstances with little guidance or relevant experience.

This study examines online learning with an emphasis on how the pandemic opens up a panorama of metamorphosis, opportunities, and challenges that can be seen through the lens of the Industrial Revolution (IR), as well as what post-pandemic education would look like.

Research Design:

In this research study, the Document Analysis technique was used. Document review entails the examination of materials containing details about the incidents under investigation.

Metamorphosis of Education through Web Technologies

It is a well-known fact as to how education emerged from oral communication to written communication through the slate boards to computer-enabled learning. Then online learning methods emerged which got access to education through social media, resulting in a paradigm shift ineducational technology. With the rapid development of Information and Communication Technology (ICT), technology has gradually seeped into all sectors of society, and all walks of life have experienced changes due to technology. The introduction of web technology in education has the potential to alter the process of learning and teaching. (Sharma, 2019) This massive transformation, which puts forth a journey from the conventional classroom teaching learning practices to ICT enabled education processes, is worth mentioning. For instance, education system throughout the world started from the stage of ‘Education 1.0’ and has now reached the stage of ‘Education 4.0’. Education 1.0 was focused on lectures and memorization and the teaching-learning was teacher-centric. Education 2.0 arose from the integration of internet and technology making their way into the system, resulting in internet enabled learning. Education 3.0 emphasized on creating knowledge with the help of technology in education. Education 4.0, which is currently in bloom, focuses on bringing in new innovations which will transform how teaching-learning takes place in Education system especially in post pandemic times. (Sharma, 2019)

Although the internet and technological tools can increase access to education through distance learning, enabling a knowledge network for students, support teacher training, and broaden the availability of quality education materials, it is pertinent to note that implementation requires significant time, resources,

and efforts to make it a worthwhile and useful exercise. COVID-19 was a sudden shock to Teachers and Learners, even the most prepared was hit by the sudden need to adapt with little or no time to prepare a phased migration or expand capacity for Web-Based Teaching and Learning(Stella, 2020)

The purpose of education is the same even today, but the only difference is the change in paradigm of education due to transformation in all its aspects, which are now technology enabled. This had led to a radical reform in education more so ever now due to the pandemic. Technology is indeed changing the way educators think about education and the way students think about learning.

Opportunities for Reimaging Future Education:

Providing the students with the best quality of education should always be an educator's priority, especially in an age wherein knowledge and innovations are becoming imperative to the teaching-learning process. In line with this it is fair to elaborate the opportunities for reimaging the future education.

- *Embracing New Education System*

The new paradigm broadly includes Blended Learning, lifetime learning as well aslearning to play a constructive role in the society. This envisages a shift from 'brain as storage' to 'brain as processor' model(Martha, 2018). Obviously, the new education system must focus on collaborative learning with discussion and question and answer sessions, quizzes and seminars, problem solving, community learning, and project-based learning. The traditional classrooms will have to be transformed into virtual and flipped classrooms to make them suitable for adoption of new pedagogies.(Brigida, 2020)

The drivers of future education are mainly the future skills, digital networks and devices, personal data, shared content and resources, collaboration platforms, talent investment, millennial mindset and social progress.

- *Transmute mind and mindset*

A shift to education 4.0 envisages a change in the mind and the mindset of teachers, learners and the education managers. It is imperative to adopt more and more learner-centric teaching by meticulously planning to foster innovative thinking, community learning and making innovation. Obviously, the teachers have to be creative and continue to be lifetime learners, a teacher is no more a sage on the stage but only a guide on the side.(Elrahman, 2020)

- *Pandemic possibilities: embracing a resilient opportunity frame*

  The ability to recognize weaknesses, withstand hardship, and persevere characterizes resilience as endurance. The endurance component of resilience increases tolerance for failure, and learning from failures has been shown to be crucial in the development of new ideas. Adaptability increases tolerance for ambiguity, allowing for versatility and imagination in the face of adversity. Shifting from a loss frame to an opportunity frame,however, activates a mindset that energizes innovative approaches built upon the strengthsthat online education and digital tools offer

- *Future Trends in Teaching-Learning Process*(Saidapur S. , 2019)

The major components of the future education scheme would be:

1. Learner-centric teaching that is skill based and involves group learning.
2. Teachers need to adopt to new pedagogies to promote self-learning, group-learning, blended learning and flipped classrooms. Use of proper Learning Management Systems, smart phones and virtual labs to monitor the progress of each learner
3. The new skills and methodologies of teaching like 'creative thinking' 'gamification' and 'problem-solving' will assume paramount importance in the future teaching processes(Brigida, 2020).

4. Learning through project mode and group learning will become vital in Education.
5. A future teacher will become more of a facilitator, mentor, guide and confidence builder.
6. Teachers have to be life-time learner as to avoid widening of the digital divide between them and the learner
7. Teachers need to be tech-savvy, creative as well as keep enhancing their own professional competencies so as to stay relevant and sustain their own importance in the society
8. Continuous assessment is more desirable than the semester-end examination.

Post-Pandemic Threats:

COVID-19 was a sudden shock to teachers and learners, even the most prepared were caught off guard by the sudden need to adapt quickly with little or no time to prepare a phased migration or increase capacity for Web-Based Teaching and Learning.Many learners in the developing countries suffer a form of digital inequality whereby they lack the communication technology, devices, and skills to learn remotely. It is difficult to foresee what the educational landscape will look like after COVID-19 passes, in part because of the magnitude of the community transmission hazard posed by campus interactions

Divulging digital divides: access, equity, inclusion

Rapid escalation of digitally based educational activity left many students—and some instructors—in the chasms of the digital access divide. Beyond access issues, skill levels also pose barriers. The challenges of transferring skills across multiple media and platforms can deter digital natives from embracing online courses. Lateral thinking across different technologies requires practice and cannot be assumed as innate to digital natives (Morgan, 2020). Where income levels are still low, and a vast majority of the populace still inpoverty. The digital divide therefore still acts as a challenge for education, and more specifically web-based learning environments.

Post-pandemic pedagogy unthinkably may deprive the education sector of the opportunity for open discourse for all students, perpetuating systematic inequalities of class and race (Murphy, 2020)

IT Capability of platform managers

When personnel handling the web-based platform (including the instructional aspect) of institutions are inexperienced, it could create more trouble for both the institution and the users.

The approach to design and delivery strategies and methods by teachers and institutions shifting Content online- will need to accommodate a wider pool of students and learners; this will be more critical in developing countries, where the adoption of Web-Based Learning had been largely by students of upper-class families(Martha, 2018). Institutions that are transitioning to or already using Web-based teaching would need to increase their human and technological capital to ensure that their platforms are maintained quickly and with minimal downtime.

Time constrains to design a robust web-based learning course

Given the shock of the COVID-19pandemic, and the rush to move learning online by most institutions, insufficient time spent on course development and design would most likely arise, and it will be a big contributor to poorly development learning experience and a critical challenge for both e-learning instructors and for learners. (Schwartzman, 2020)

Platform Security

The increasing utilization of web-based learning platform has created a new target for criminals, who hack into servers, or hijack platforms for selfish gains. This challenge is real, especially as the web-based learning platform mostly has a lot of information ranging from courseware, school information, student's information etc. Technology-wise, while a range of technological platforms are propping up for learners

and teachers alike to utilize, there is a growing threat to the security of these platforms, especially as regards data and privacy issues. Teachers and learners will be impacted by the cost of subscriptions to the online learning platforms, as well as to Internet Service providers.(Lucreţia Dogarua, 2020)

Infrastructure availability

Power and Internet are key issues, and their availability are critical requirements to successfully adopt a web-based learning platform. This creates an added layer of cost for the institutions that are rolling out web-based learning platforms.(Schwartzman, 2020)

Learners Adaptability

A rapid switch from a traditional classroom face to face learning to an online environment makes the learning experience entirely different for learners. For instance, while passive listening and note taking are expected in a traditional classroom, online discussions fostered by web-based learning demands moving to action immediately. It is often difficult for students with the "traditional" mindset to adapt. (Demirbilek, 2014)

Inaction from flexibility

The flexibility that comes with web-based learning has the potential to trigger inaction from learners. Most times, students can take courses when and where they like, at their own pace and with no physical limitations and this may result in student not accessing the learning platform or completing the course. There is the psychology element to this, as they assume they have so much time and flexibility and may never actually find time to do it.(Prisecaru, 2016)

Evaluation and assessment of students

Teachers will face increasing challenges in evaluating students, especially those who use self-paced and independent learning methods.

Internet addiction

Most parents have the same confusion of how to guide their childrens' over use of computers and internet.(Candamio, 2014)

Hypermedia thinking

The digital learners develop hypermedia thinking due to the long-term immersion in the digital and network environment.(Demirbilek, 2014)

Conclusion:

What will it take for education system to move forward after the pandemic? Infrastructure is essential but not sufficient. Institutions that prepare teachers for the future must consider all available resources, pedagogies and authentic activities in reaching the goal. Policies and practices must support risk taking, innovation and creativity both by teachers and students(Neal, 2016). This paper shapes the thinking of stakeholders as it sets out the factors that will drive the effectiveness of learning when taken from the classroom and transposed to technological devices.The developing phases ofIndustrial Revolution, Web, Internet, Social Media, and the evolving, emerging technologies have created a perfect storm or convergence of resources, tools, open and free information access. The result is not only a change in what individuals learn but how, why, and where they learn.

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