



IMPACT ON STUDENTS AND TEACHERS BY AN UNKNOWN VIRUS (E-LEARNING EFFECTS AND PANDEMIC)

KRISHNAN UMACHANDRAN ^{a##}*

^a Org. Dev., Nelcast Ltd., India.

AUTHOR'S CONTRIBUTION

The sole author designed, analysed, interpreted and prepared the manuscript.

Received: 20 October 2021

Accepted: 27 December 2021

Published: 03 January 2022

Review Article

ABSTRACT

Life is a cycle, what goes up, comes back. This is much experienced by this generation of students in their early part of life, preparing them for a flexible adaptation for the evolving future. This paper aims to review research publications in educational and industrial settings that envisage making the students and teachers to benefit from the effort yielded knowledge and skills through online learning. Online learning, also known as e-learning has propped up the evolution of virtual universities to make educational experiences become customized to the needs of the students as well as for institutions which wanted to come out with new courses that are of demand in the employment market. Many including social groups in Facebook, LinkedIn and YouTube join the process of connecting its customer base in knowing and unknowing propagate the learning practices to percolate to even remote areas, and to those who have family commitments or disabilities. Thus, inclusiveness to the diversity of the new student body evolved providing solutions to all the physical and temporal hurdles which prevented the access to Higher Education with the aid of technology. The technology enabled learning potentially enhances the process of learning and naturally does not intend to remove or replace the teacher's position in the learning cycle. The implications of eLearning are well received by higher educational institutions (HEI) and universities, in the post pandemic. However, the drilling effort in creating more quality and flexibility orientations is on demand. Thus, to meet the ever-growing diversity needs of students' expectations and that demanded by the market in the new industry 4.0 scenario, makes emerging technologies obtain a prominent position in this evolutionary process. Inevitable are the tailoring options to suit various courses to suit varying and differing educational needs and aspirations, which make this type of learning a new sought after teaching and learning process that cannot be excluded from the educational settings in the imminent future.

Keywords: E-learning; learning types; technology driven education; continuous learning; teacher's employability.

1. INTRODUCTION

The conventional teaching and learning methods in HEI or universities are guided to move towards the virtual learning space, requiring a change that reconstructs the architecture of the educational institution. Institutional infrastructure which was photographed and published for high-octane

publicities will no longer stand to compete with similar high standing or competitive institutions or universities, as long as they don't develop quickly to offer such cutting-edge courses that are unique and of demand in the employability market. Cyberspace has taken over the physical space and infrastructure which the institutions boasted in the past. Legacy of being associated with top notch HEIs and universities which

[#] General Manager;

^{*}Corresponding author: Email: umachandran_k@hotmail.com;

are in are distant from the local habitat of the students, and that which featured as dream educations are now getting replaced for new skilling, upskilling and honing on existing skill sets that which can be adapted for lucrative placements in the industry. The sought-after skills development can be learnt from anywhere at any time, completely at the convenience of the students. Virtual learning experience through online learning courses can be reliably conducted by individuals or industrial establishments or universities leading to a certificate or diploma or a degree, as the documentation of process has a clear digital reliable footprint, unlike that traditional documentation which is highly questionable for its existence and practice. Recordings of the completed coursework's shall pave way for work flow and transition students to varied levels that are being continuously evolved in the educational structure.

2. TECHNOLOGY FACILITATED EDUCATION – A PROLIFERATE COVERAGE

All stakeholders, could streamline, create predictive models, experiment and obtain access to use the teaching or learning content as a common and powerful platform for innovative implementation and improvement among students, researchers, and institutions so that providing a scope for continuous value addition that is widely available as a continuous learning product or service, uncovering scalable new insights, to make more meaningful and informed continuous learning decisions as a system [1].

3. TECHNOLOGY HAD SHRUNK THE WORLD TO AN UNIMAGINABLE CONNECTION

The education sector should aim to help, develop and embed technology driven education to reduce workloads, facilitate efficiencies, eradicate barriers to education and finally push improvements in outcomes to support and develop to offer proven, premium quality services or products that shall achieve the educational expectations and gush as a pipeline for new ideas. Technology driven education offers various opportunities to drive changes, such as in administrative, assessment, teaching, professional development, and perpetual learning. Administrative processes require reducing the workload of tasks that are management oriented. Assessment processes need to make evaluation more effective. The teaching practices require all support and access to inclusion that can improve continuous learning outcomes.

Professional development should assist teachers and administrators with more flexibly innovating the educational process to the needs of the society. Perpetual learning or lifelong learning requires facilitations that can support decisions about job or further study to improve their standard of living through employment opportunities which the education system shall guide to gain new skills [2].

4. CHALLENGE THE TEACHERS ON EMPLOYABILITY

Considerable percentage of students will take courses at their institution scheduled classes in real and virtual time logs from any locations to avail themselves of continuous learning opportunities which suits their best with increased freedom to learn with any entree constraints such as educational requirements, prerequisites, and institutional affiliations [3]. The serious challenges hampering the educational process such as inadequate resourcing for needed curriculum materials, resulting in inequities and hinders institutional improvement efforts resulting in equity challenges such as urban-rural disparity, potentially impacting on student continuous learning. Next is the industry university partnerships, which operate to support context-specific strengths and challenges. Finally, the medium of instruction such as teaching in English, without specifically addressing students' continuous learning needs. All the above said challenges, would all the things of the past [4]. Many academic institutions have started blended learning, after the outbreak of a deadly COVID-19 disease [5]. Analyzing various causes of social behavior among teachers and suitable channelizing will contribute to increased cooperation in educational organizations [6]. Educational process should proactively use new resources and capabilities to achieve coherent transformation. Conventional course work no longer adequately prepares employees to face the challenges for today and tomorrow. The only constraint to overcome is the adequacy in follow-up and customization to reach the realm of personal design and continuous learning. The common complaints about education are that the skills and capabilities developed are not sufficient enough to get applied on the job. Therefore, the gaps in traditional education are creating space for new approaches that can be made more customized and democratic. There is a great demand education that is customizable, measurably effective, trackable, and competitively emerging. There are various players vying to provide skills development, but have certain inherent advantages and constraints [7].

5. CATERS BY INCLUSIVITY TO BOTH FORMAL AND INFORMAL EDUCATION

Pre-Pandemic had all state allocations for education landing to formal learning, as there was no learning type in national education frameworks which then led to devote more time, money and attention to traditional learning types, which suddenly vanished due pandemic and importance to informal learning type. This is one of the most equitable learning types, as it is practically possible for everyone to participate in as a lifelong or continuous learning process, irrespective of their socioeconomic status. Many of those who were excluded earlier, from the formal education system even in developing countries, are lured to participate by accessing mobile devices as a tool to get involved in the potential spread of informal learning opportunities, never as before. To realize the potential of informal learning through mobile networking the transformation should become a visible and valued component of the education system, linked to national budgets, and frameworks for equitable education participation. It is an irony that many developed countries look down on informal learning. Only with sufficient funding changes can be affected. Comprehending suitable ways to informal learning, can remove the barrier that absence of key performance indicators as that in formal learning type is evolved and publicized. Data on informal learning can help all educational stakeholders such as administrators, states and policymakers make guided decisions on resource planning, inclusive of the use of mobile technology driven education, as a booster to learning activity. All possible scaleups are possible only if leverage happens with the already planned infrastructure and simple customizations that can affect informal learning. All actions should present to support the resources, to be reused or repurposed in fitment to the educational plan. As now all the countries in the world have high levels of mobile penetration, it would be advisable to consider these tools before further investments mostly on hardware to facilitate informal learning. Establishment of opportunities for public engagement on informal learning, making use of public consultations can provide governments and policymakers with data that can help make decisions on informal learning policy design. Continuous Learning vide mobile gadgets emerge with great consideration, as eminent distribution channels offering the ability to widely reach people directly irrespective of distances. Redistribution of resources is also required for state spending on learning initiatives. The increased evidence and benefit of informal learning, required relatively small investments. Continuous investigative research can pave more avenues for informal learning

to spread its benefit and scaleup best practice with innovative initiatives [8]. There is continuous research and attempts that keep modifying the educational systems refocusing certain elements that could get incorporated into the coursework and curriculum. The prominent techniques such as those based on research, or problem, and project can easily get populated within this integration through mobile learning [9].

6. CONVERT TACIT KNOWLEDGE ASSETS TO BECOME OPEN FOR SOCIAL TRANSFORMATION

Knowledge is a social acquisition process where participation of people in a communal setup helps learning at different levels across various positions, also enhances the prospect of a newcomer to the group becoming an active member within some reasonable period [10]. Knowledge as a capitalist is gaining interest in all spheres such as industry, enterprises and academia, combining with technology driven education, it has a vital role in transforming individual and organizational knowledge, usable to everyone. Explicit Knowledge is easy for articulation, transmission, and sharing, while Implicit Knowledge is an application of explicit knowledge, sharing the skills transferred from one's experience. Tacit Knowledge is similar to implicit but difficult to be expressed as it is housed within one's personal experience. Hence, there is no such unique or appropriate way to monitor the knowledge assets embedded in the organization, it is continuous research for present and future. Knowledge management (KM) develops and exploits the knowledge assets to extend the search objectives, including explicit, documented and tacit knowledge. KM covers all of those processes linked with the clear identification, open sharing, innovatively creating knowledge and maintaining knowledge repositories, to nurture and prosper the knowledge and learning facilitations. Institutions that succeed in KM view knowledge as an asset, managing the associated processes and developing the norms and values that support the creation and sharing, consciously and explicitly recognize continuously the intellectual capital value.

7. PROACTIVELY COLLABORATE TO FACILITATE

The purpose through ICT, aids in the content-sharing fulfilling the educational competences of the institution. Teachers are to be provided with insights on strategies to proactively address possible obstacles as they arise. Active learning shall offer them to design and try out teaching strategies, showing opportunity to engage using artifacts which are

authentic, activities that are innovative, and interactively contextualized professional learning. Thus, moving away from conventional learning methods of lecture based styles. Further adequate time should be given to learn-teach-unlearn-relearn upon those practice strategies that facilitate changes [11]. Core competencies for interprofessional development of collaborative practice across disciplinary competencies requires moving beyond profession-specific efforts and getting engaged with students of varied professions by interactive peer learning practices [12]. It is a process for advancing collaboration among all societies towards identifying and realizing concrete pathways for transformation driven by evidence. Including the local emergence and gaining greater influence through innovative partnerships that can result in collaborations between traditional and emerging actors [13]. The global pandemic is making low-skilled jobs much more sought out, then the degree requirement for a job description which gets lower subscribed. COVID-19 pandemic paves the way for equitable, inclusive and resilient economies. The need to lock down economies for combating the virus had severely affected multiple sectors, resulting in massive job losses in many countries or seen their livelihoods threatened, slashed incomes and economic prospects around the world. Many optimistically view the developments of recent post COVID-19 months as expected to be different. Protect existing jobs and support new job creation by introducing social protection measures, offer employment benefits for investments that offer to create new job leveraging local capacity along the value chains, incentivizes for reskilling to those who lost or at risk of losing employment, and finally match the supply demand skills in active job market [14].

8. SOCIAL IMPACT OF E-LEARNING

Many societies are in the early stages of technology driven education and not ready with digital tools available for being implemented in teaching or learning, exposing young children to science and robotics, right from an early age, along with socio-emotional intelligence, creativity, collaboration and critical thinking. The skills and competences in students needed at different ages and stages to navigate the internet enabled world, safely and responsibly requires different aspects of online safety, information, security, protecting self-image, identity and privacy. New form of digital divide, with technology enabled children at risk is through no control due to excessive access, which could be detrimental to age, inappropriate evolution or awareness of social and physical pursuits, thereby skipping developmental stages of childhood, having a

long-lasting impact on their education. Excessive use of online technology driven education affects other activities and modes of relation building that affect the rise of physical and mental risks. Attention of families and schools is required to handle the physical and mental developmental stages, as at times there are sleep loss due to excessive doses of blue light from computer screens. Digital citizenship and engagement require a wide range of activities, such as creating, leisure, playing, sharing, inclusion, investigating, consuming, socializing, learning, working, employability and communicating. Competency to respond to new and everyday challenges related to participation in society, respecting various cultures and human rights [15].

9. THE ROLE OF DIGITAL TECHNOLOGY

The digital technology implementation in education is more valued by teachers, when the benefits in didactic and continuous learning are maintained or strengthened by their peers and also by the administration to incorporate it into their practice. Continuous Learning intervention should meet needs that are current and valued outcomes, promoting buy-in, contributing to better engagement in active learning. The personalized plans of the students should be relevant to their culture, age, values, personality, towards motivation, wellbeing, aspirations, and academic performance, endorsing the student's planning for personalization; connection and Choice; and finally, evidence-based actions [16]. Though many organizations realize that the best way to get their employees continuously upgraded is over certain arrangements of online education, their view on new joiner or employees is however different. Flexibility and hybrid work in the post-pandemic workplace, have control on the employees work as per business expectations, lined up with business leader's decisions, work impacting on culture and innovation attracting top talent. These shifts in working expands economic opportunity and enables in building high-performance organizations, with diverse teams to form exceptional talent pools [17]. Therefore, it is imperative that the educational online quality progresses and be dealt with earlier styles of education, ensuring appreciation of attaining certifications through any mode of education as equal and in par with the required standards. E-learning leads to highly motivated and appreciating at their own pace. Instructional methods and techniques creatively develop an engaging and motivating continuous learning experience, including the interpersonal domain by specific methods such as online collaboration complemented through facilitation, social interaction, interactive role playing

and feedback can change attitudes and behaviors [18]. Social interaction can complement e-learning content with dimensions such as human and social as e-tutoring, e-coaching, and e-mentoring with such services that can provide individual support and feedback to students through facilitation tools and techniques [19].

10. IMPACTING THE STUDENTS

E-learning has student's experience seclusion from colleagues, anxiety about proficiency of new skills and software, with reference to the same courses when being imparted in-person. Learning is a process, inferring that it occurred from student's performances involving changes in knowledge, beliefs, behaviors, or attitudes, over time, leading to impact on students' thoughts and actions. Continuous learning impacts changes in students by themselves to interpret and respond to their conscious, past and present. Students who enter in face-to-face learning come with skills, knowledge, and abilities, along with social and emotional experiences that influence them with value, perception and personalized engagement in the learning process. Consistent with this holistic perspective, they understand individually to specific challenges pertaining to real learning situations that are functionally inseparable. To enhance students' understanding of content connected to their knowledge and experiences from earlier learning or exposures [20]. There are certain disadvantages perceived as derailleurs to the quality of education, such as business bias in contrast to online certifications due to the absence of pertinence for all syllabus content, challenges such as reduction in student - teacher interaction, and previous locational advantage. Rapidly changing global economy poses external pressures on businesses to continuously innovate and take quick suitable action to keep ahead of competition in the market. Flexibility features to change competitiveness, increasingly demanding customizations in services and products, driving to achieve continuous supply of high-quality deliveries with substantial margins even when the activity is carried out from off-shore or virtual working [11].

11. CONCLUSION

The educational process is facilitated through internet, e-mails, and discussion forums, along with content and support from teachers has a blessing of both technologies enabled instructional and online interaction through mobile communication, which was earlier not available in the pre-COVID-19 era. This combination compounds an unique experience and imbibes a reinforcing effect of education in the learners. The teaching and learning process is not

limited to the precincts of the institutional setup, but crosses all boundaries and time spaces, as a mix of formal and informal didactic as a sustained educational activity corresponding to the requirements of pandemic, and as well deliver the intended expectations of the society. Education has now undergone a sea change of including personal and educational time devotion to all parts of the life-needs. The student and teacher are both balancing the activities by inclusively positioning the personal needs with extended time to education, which was unheard in the past as overtime, overload, special class or tutorial support. Post pandemic is going to be tough to change the new normal in vogue and bring back the traditional classroom that existed pre-pandemic.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Joshua New. Building a data-driven education system in the United States, Centre for Data Innovation. 2016;1-43.
2. DoE. Realising the potential of technology in education: A strategy for education providers and the technology industry, Government of United Kingdom, The National Archives, Kew, London. 2019;1- 48.
3. Wang V. (Ed.). Handbook of Research on Education and Technology in a Changing Society (2 Volumes). IGI Global; 2014. DOI:http://doi:10.4018/978-1-4666-6046-5.
4. Linda, Darling-Hammond. Maria, E. Hyler. & Madelyn, Gardner. Effective Teacher Professional Development, Learning Policy Development. 2017;1-76.
5. Dhawan S. Online Learning: A Panacea in the time of COVID-19 crisis. Journal of Educational Technology Systems. 2020;49(1), 5-22. DOI:https://doi.org/10.1177/0047239520934018.

6. Beyza, Himmetoglu. Damla, Aydug. Cetin, Terzi. Relationships between political behaviors of school principals and perceived coworkers' social loafing among teachers. *Eurasian Journal of Educational Research*. 2018;76:1-20.
7. Mihnea Moldoveanu, Das Narayandas. *The future of leadership development, business education*; 2019. Available:<https://hbr.org/2019/03/the-future-of-leadership-development>.
8. Ronda Zelezny-Green. Informal learning on mobile a new opportunity to enhance education. *Vodafone Institute for Society and Communications*. 2015;1-32. Available:https://www.vodafone-institut.de/wp-content/uploads/2015/09/VFI_InformalLearning_EN.pdf.
9. Jestin, Baby, Mandumpal. Debra, Sharon, Ferdinand-James. Parisa, Ziarati. Emad, Kamil, Hussein. Krishnan, Umachandran. Ian, G. Kennedy. *Innovation-based learning (InnBL): Turning science and engineering undergraduate degree programmes towards innovation*. *Journal of Creativity*. 2022;32(1):100013, ISSN 2713-3745, 1-5. DOI:<https://doi.org/10.1016/j.yjoc.2021.100013>.
10. Kimble C, Hildreth P. Virtual communities of practice. In M. Khosrow-Pour, D.B.A. (Ed.), *Encyclopedia of Information Science and Technology*, Second Edition. 2009;3981-3985. IGI Global. DOI:<http://doi:10.4018/978-1-60566-026-4.ch635>.
11. Linda, Holbeche. *Aligning human resources and business strategy*, Elsevier, Second Edition; 2009. ISBN: 978-0-7506-8017-2,1-513.
12. IEC. *Core competencies for inter professional collaborative practice: 2016 update*. Washington, DC: Interprofessional Education Collaborative. 2016;1-22.
13. United Nations. *Global Sustainable Development Report 2019: The Future is Now – Science for Achieving Sustainable Development*, Independent Group of Scientists appointed by the Secretary-General, United Nations, New York. 2019;1- 252.
14. IRENA, *The post-COVID recovery: An agenda for resilience, development and equality*, International Renewable Energy Agency, Abu Dhabi; 2020. ISBN 978-92-9260-245-1.
15. Janice, Richardson. & Elizabeth, Milovidov.. *Digital Citizenship Education Handbook, Being Online - Well-Being Online - Rights Online*, Council Of Europe, Isbn 978-92-871-8734-5. 2019;1-144.
16. Kelly-Ann, Allen. Andrea, Reupert. and Lindsay Oades. *Building Better Schools with Evidence-based Policy - Adaptable Policy for Teachers and School Leaders*, Routledge, ISBN: 978-1-003-02595. 202;5:1-357.
17. Microsoft. *Work Trend Index: Annual Report, The Next Great Disruption Is Hybrid Work – Are We Ready? Exclusive research and expert insights into a year of work like no other reveal urgent trends for leaders as the next phase of work unfolds*. 2021;1-38.
18. Kayte O'Neill, Gurmak Singh, John O'Donoghue. (2004). *Implementing learning programmes for higher education: A review of the literature*. *Journal of Information Technology Education*, 3:1-11.
19. FAO. *E-learning methodologies and good practices: A guide for designing and delivering e-learning solutions from the FAO elearning Academy*, second edition. Rome. 2021;1-180. DOI:<https://doi.org/10.4060/i2516e>.
20. Susan, A. Ambrose. Michael, W. Bridges. Michele, DiPietro. Marsha, C. Lovett. & Marie, K. Norman. *How Learning Works Seven Research-Based Principles for Smart Teaching*, John Wiley & Sons. 2010;1-328.