

Leveraging Digital Technologies and Effect of Covid-19 On E-Learning Penetration in Different Sectors

Amarjeet Singh Mastana^{1*}

¹ SOM, Asia E University, Subang Jaya, Malaysia

*Corresponding Author: amarjeetsinghm@gmail.com

Accepted: 15 August 2021 | Published: 1 September 2021

Abstract: *Various measures have been made to restrict the spread of Covid-19, resulting in the establishment of a new normal life order. Changes include performing all tasks at home, always washing hands, using a mask, and keeping a safe distance. The new normal is also strongly tied to digital technologies (IT), as various operations are carried out with the assistance of information technology. In the present Information and Communication Technology time e-learning assumes a crucial job being developed of an individual and therefore eventual fate of a country. Many individuals have known about terms, for example, distance education or distance learning, yet with the presentation of e-learning, distance education took on an entirely different significance. The electronic learning (E-Learning) deemed as computer helped education has been around since the 1960s anyway its choice and advancement transcendently started after the headway of the web and the Internet. New patterns in e-learning being secured under artificial intelligence (AI), virtual and enabled reality, cloud e-learning, blended learning, mobile learning, gamification, Internet of things, and online video. In the modern age, there has been a significant increase in creativity and use of technologies. As a result, all of us must be able to grasp IT, particularly in the domains of education and health care. Work For Home (WFH) is one of the technological advancements that have evolved in today's work environment, along with home study, online classes or webinars, online health consultations, and several other advances. This Article recognizes different aspects of E-learning and ongoing trends of technologies shaping the quality of E-learning life during pandemic.*

Keywords: Technological change, new trends in e-learning, Covid-19, new normal

1. Introduction

Although technologies always have been a boon to general public when handled properly. Technology is also playing an important yet necessary role in supporting every aspect of our lives during these difficult times. Our businesses and lives run more smoothly when we are digitally prepared. Every day, new technology is created to keep you involved in such lockdown circumstances. Their primary objective is to prolong our lives as much as possible. In addition, they strive to retain a smaller but more productive workforce in order to address these challenges. Staying competitive in a post-COVID-19 environment requires a high level of digital preparedness. The only way to remain on the list post-covid-19 is to fortify yourself so that the economic crisis does not have such a devastating impact on our country. While many nations are disintegrating as a result of the crisis, many others are assisting others in mitigating their impacts as a result of technical development.

The global breakout of the COVID-19 Pandemic has radically altered nearly every area of life, including schooling, and Thailand is no exception. Due of the difficulties of preventing the epidemic from spreading further, international leaders have developed extremely stringent laws to break the chain of COVID-19 transmission. Some of the World Health Organization's (2019) suggested criteria, such as social and physical distance, have presented tough decisions for each nation to implement. Due to the rising number of persons infected with COVID-19, many nations implemented broad-scale social restrictions in March 2020. Work from home for employees and homeschooling for children from kindergarten through college were enacted in response to COVID-19, and nations had to alter their educational systems. (Rasmitadila & R.Aliyyah, Rusi & Rachmadtullah, Reza & Samsudin, Achmad & Syaodih, Ernawulan & Nurtanto, Muhammad & Tambunan, Anna, 2020).

E-Learning is a computer-based educational instrument or framework that empowers you to adapt anyplace and whenever (Arkorful & Abaidoo, 2014). E-Learning techniques are spreading to incorporate distinctive education parts. Right now, it has proven that e-learning has become useful. Additionally, expressed that the very essential advantage of e-learning is adaptability. Methodical deployment of electronic media and Information and Communication Technologies (ICT) in instructing and education process is alluded to as e-learning, where "e" indicates "electronic". Over the most recent two decades e-learning has developed a significant help apparatus for traditional learning techniques, if not another option, as it offers a few characteristics which are not reachable in the traditional strategies like adaptability, ease (for student), increasingly differentiated, instructionally designed contents and simple access for progressively number of individuals.

E-learning is additionally called Web-based learning, online learning, dispersed learning, computer-helped guidance, or Internet-based learning. Verifiably, there have been two normal e-learning modes: distance learning and computer helped guidance. Distance learning utilizes information technologies to convey guidance to learners who are at remote areas from a focal site. Computer helped guidance (likewise called computer-based learning and computer-based training) utilizes computers to help in the conveyance of stand-alone sight and sound bundles for learning and instructing. (Arkorful & Abaidoo, 2014).

2. Technological disruption by Coronavirus

Individuals continually adjust to fresh, unforeseen conditions through trial-and-error learning-by-doing. In an industrial context, learning-by-doing aids product development, with accumulated user experiences driving innovation. Complex conditions and fast-paced, unpredictability in the environment where the service or product is implemented make product and service development particularly difficult. Depending on the severity of the perceived repercussions, a significant shift in usage behavior, performance metrics, or service quality occurs (Puaschunder, Gelter, & Sharma, 2020). Long-term advancements have been noticed when users' and consumers' health has been seriously harmed or when significant financial loss has occurred.

A worldwide pandemic has a sudden and unanticipated influence on people's lives. The 2020 COVID pandemic happened in the midst of a continuous digital upheaval. Unforeseen lockdowns that halted physical social connection sparked a surge in IT usage in both the public and private sectors. For an effective online workforce, digitalization has become the standard. Optimal product performance and service supply were suddenly decided, largely by the unusual

application of technology in a rapidly changing environment (Raufovich, Ugli, Ruzimurodovich, Marasulova, & Ikrambayevna, 2021).

Individuals were more reliant than ever on immediate communication and internet access. Knowledge that was previously hoarded but dispersed locally, is now connected and shared online among users like never before in the digital era. Recognizing the influence of environmental conditions and physical restrictions has resulted in a substantial acceleration in product innovation and service delivery.

According to Kose & Arslan (2015), even sectors with close inter-exchange between user companies and producers – and a well-established product in the field – may confront issues that are unprecedented if external shocks arise. Users' capacity to change is determined by internal and extrinsic motivating variables which may be assisted by a guided environment that picks up fresh patterns rapidly and adjusts flexibly. Kose & Arslan, (2015) offers evidence for usage being dominated by problem-recognition as the cornerstone of solution search in technology adoption and user interface research. Deviating user-manufacturer opinion, is a key contributor to job discontent and is directly connected to health problems, stress, and physical weariness at work. Corporations that were managed online prior to COVID-19 appear to have an edge in terms of a required tech-savvy staff that is eager and experienced in adopting innovative technologies and embarking on collaborative online experiences.

The present epidemic teaches us to pay special attention to user demands and connection so that modern manufacturing processes and service supply may be designed in new ways. To understand the cumulative processes of innovative product customer experience and services performance in a crisis, we still require a more in-depth theoretical knowledge of user theory combined with practical empirical research on learning-by-doing. Subsequent investigations of the usability of innovative technology during pandemics are necessary, as is attention to decision making outsourcing to Artificial Intelligence (AI) in the digital era.

It's possible that even if COVID-19 is eradicated one day in a technologically improved post-COVID future, the good elements of a forced digitalization shock, as a nice side effect that came along with COVID, would remain forever.

3. E-Learning

Learning is characterized as an adjustment in conduct. A learning movement can be described as a collaboration between a learner and an environment, prompting an arranged result. It is the arranged result which makes learning an intentional movement. As such, learning is drawn nearer as a result – the final result of some procedure. It very well may be realized or imagined.

The rising pattern everywhere throughout the world is towards increasingly individualized and adaptable types of learning with an accentuation on the individual learning. Methodical deployment of electronic media and Information and Communication Technologies (ICT) in instructing and education process is alluded to as e-learning, where "e" indicates "electronic". Over the most recent two decades e-learning has developed a significant help apparatus for traditional learning techniques, if not another option, as it offers a few characteristics which are not reachable in the traditional strategies like adaptability, ease (for student), increasingly differentiated, instructionally designed contents and simple access for progressively number of individuals. E-learning assumes staggered jobs during the time spent learning. For instance: e-learning could be utilized for self-learning or to help learning on grounds.

E-Learning can be considered as a inspiration factor similar to self-feasibility. Learners can compile their motives on e-learning themselves. E-Learning similarly serves organizations and associations that need to give predictable learning in other than one spot. E-Learning is a computer-based educational instrument or framework that empowers you to adapt anyplace and whenever. E-Learning techniques are spreading to incorporate distinctive education parts. Right now, it has proven that e-learning has become useful. Additionally, expressed that the very essential advantage of e-learning is adaptability.

E-learning is additionally called Web-based learning, online learning, dispersed learning, computer-helped guidance, or Internet-based learning. Verifiably, there have been two normal e-learning modes: distance learning and computer helped guidance. Distance learning utilizes information technologies to convey guidance to learners who are at remote areas from a focal site. Computer helped guidance (likewise called computer-based learning and computer-based training) utilizes computers to help in the conveyance of stand-alone sight and sound bundles for learning and instructing.

The idea of E-learning has been here for over two decades. It was used to be only an extreme thought currently evolved into standard marvel. The way wherein the e-learning system evolved can be drawn closer as a chain procedure. Right when the internet began to change, individuals utilizing the internet began to change and just critically e-learning teaching method systems started to develop. Modern e-learning patterns are expressed as "learner-oriented design". Not just the student can control the presence of the virtual components yet additionally have full control over the whole learning procedure.

4. Evolution of E-Learning

E-learning is digging in for the long haul. As computer possession develops over the globe e-learning turns out to be progressively practical and accessible. Web association speeds are expanding, and with that, open doors for more interactive media training strategies emerge.

E-learning has evolved a great deal from its more established style; the tools are consolidated, making the content creation simple and conveying legitimately to the Web with expanded coordinated joint efforts, depicting future e-learning makes learning "Progressively natural". In companies, e-learning is utilized in raising deals, specialized ability, proficient capacity, training and legitimate consistence readiness. As the associations strive revenue driven development and lesser affordable cost; it gives more consideration to worker education which can be picked up by effective e-learning rehearses (Derouin, Fritzsche, & Salas, 2005). E-learning presents various research open doors for workforce, alongside proceeding with difficulties for recording grant. Advancements in e-learning technologies highlight an unrest in education, permitting learning to be individualized (versatile learning), upgrading learners' associations with others (collective learning), and changing the job of the educator. E-learning alludes to the utilization of Internet technologies to convey a wide cluster of arrangements that upgrade knowledge and execution.

With the gigantic improvement of mobile networks in the previous scarcely any years and the expansion in working from home, taking all the great highlights of e-learning out and about is a reality with smartphones and other portable devices. Technologies, for example, online networking are likewise changing education continually (Devhade & Gaikwad, 2020).

4.1 Advantages of E-Learning

The Advantages of E-learning are stated as follows:

- **Money and Time Savings:** E-learning is cost-effective; organizations spare a generous sum on the movement and settlement costs of the two learners and teachers, just as the scene and materials. No printing decreases your carbon impression, as well. With online learning, your learners can access content anyplace and whenever. They don't have to invest significant energy from their business to go to classes.
- **Subject Matter Updation:** A prime benefit of learning by computer is that it guarantees, that you are in sync with advanced learners. This empowers the student to get into refreshed subject matter at no matter what time they need it.
- **High Learning Retention:** Blended learning approaches bring about a higher knowledge retention rate. It similarly facilitates that course work to can be recalled and reviewed at whatever time required (Chuo, Liu, & Tsai, 2015).
- **Anytime Access:** As you approach the net 24x7, you can prepare yourself whenever and from anyplace too.
- **Scalable:** E-learning engages us to quickly make and deliver new courses of action, preparation, exercises, and thoughts. Be it for diversion or conventional instruction, e-learning is deft!
- **Video and Audio Learning:** The audio-visual directions that are accommodated sound and video education can be rewound and seen and heard again and again if you don't happen to comprehend the point first time around.
- **Self-Disciplined:** E-learning gives you 20 hours of Project Management training. The online student assumes liability for their own course of studies. You will figure out how to build up the methods of self-motivation, self-discipline, and time management. All of these disciplines is of immeasurable worth.
- **Capacity and Consistency:** Utilizing e-learning allows educators to bring about an enormous level of addition for their expected targeted group, and it ensures that the message is taught in a continuous way. This results in all learners obtaining a comparable education.

Because of the wide arrangement of advantages it provides for students, eLearning has gotten very mainstream and acknowledged among students everywhere throughout the world.

4.2 Disadvantages of E-Learning

The Disadvantages of E-learning are stated as follows:

- Many online evaluations are limited to questions that are only of a target type.
- Slow or problematic Internet connections can be disappointing.
- Unmotivated learners can fall behind or those with poor tendencies to study.
- The assessments that are computer verified for the most part have a propensity of being just knowledge-based and not really reasonableness based.
- Managing learning software can include a learning bend.
- The genuineness of a specific student's work is likewise an issue as online pretty much anybody can do a venture as opposed to the real student itself.
- Teacher's lack of expertise and experience to oversee the student association of virtual educators.

4.3 Limitations of E-Learning

- Students themselves may be limited to e-learning.: A student who examines on E-learning system ought to act naturally inspired and discipline on reasons that nobody is there to state is focused on your study.
- It might be impersonal: No issue how hard we attempt to completely move human communication to online stages, regardless of how characteristic it appears to frame connections behind computer screens, a virtual environment is simply not human. Nothing can supplant human contact (Irfan, Kusumaningrum, Yulia, & Widodo, 2020).
- Computer savvy and hardware access: one of the tremendous drawbacks of e-learning that a trainer / student should be computerized educated he/she should know computer. On the off chance that student/trainer doesn't know computer he/she can't gain from E-learning technique.
- Possible absence of control: No issue how cautiously you structure your eLearning course, there is no assurance that your messages will get over. You offer your learners control over their eLearning experience and this is incredible, yet would they say they are going to utilize it effectively? There is consistently the danger of your learners simply experiencing the material without giving any consideration.
- For e-learning, certain subjects are not suitable: subjects that require physical effort and practice, such as sports and open speaking, are shrouded in e-learning. Be that as it may, e-Learning can be a helpful ally to traditional education for showing foundation and specialized information.

5. Recent Trends of E-learning

E-Learning is available in the business and society for a very long while and is digging in for the long haul. It may appear as straightforward procedure of conveying learning materials and looking at the development and adaptability of information technology empowers a broad range of approaches and implementation of new strategies in terms of the way to learning enabled by the technology and we should consider that it is still developing. The proficiency and/or awareness of electronic methods yet the development and adaptability of information technology empowers a wide range of approaches and implementation of new strategies. The new emphasis of e-learning environments is to separate the territory and individualization of the substance. Right now, will be remembered for various e-learning environments. An individual application can be made to be a candidate. Also, content is quickly expanding presently. E-learning was really taking its form in the current decades and now it is of enormous scale that everyone feels its influence. The traditional organization of traditional learning patterns is completely changing this learning system. As the technology creates and some prescribed procedures are affirmed sure angles and tools are received and broadly utilized by numerous organizations and business. A portion of the built up and developing patterns incorporate:

- Blended learning: Learning in Blended way can be defined as the process by which two or more methods of teaching are combined, such as web-based technology, pedagogical approaches, teaching strategies and job tasks. Blended learning has been used to involves "training that blends e-learning and self-study with conventional classroom sessions." In order to create a training course for learners, the blended learning method uses various teaching media. The conventional method of teaching and the digital method of teaching complement each other according to the requirements of the course.

In order to have great effect, the aim of blended learning is to turn training media into a combined force for greater impact (Lake, 2020).

- **Mobile Learning:** Learning on Mobile is an individual's ability to acquire or provide educational content in personal pocket devices such as PDAs, smartphones and mobile phones. A great source of e-learning would be these devices with access to an internet connection or with the availability of services on their own. Everyone now has smart mobile phones on which memory space and faster internet access can be achieved, making it possible for the user to learn whatever he needs at any moment and any location (Camilleri, 2021).
- **Artificial intelligence:** Artificial Intelligence (AI) operating systems, programming languages and state-of-the-art applications are realized by computer science. Artificial intelligence (AI) is concerned with "mainstream" studies in computer science, time-sharing, interactive interpreters, forms in linked list data, automated storage management, and so on. The two sides of the same medal are education and artificial intelligence (AI): education lets learners understand and extend a society's cumulative knowledge and artificial intelligence promotes frameworks for understanding the processes underlying reasoning and intelligent behavior (Ziaaddini & Tahmasb, 2014).
- **Cloud based E-Learning:** In the field of education and industry, this mode of e-learning is causing ripples. These e-learning programs are hosted on the internet and can be accessed simply by logging on to the site of a service provider. Instead of downloading all software and courses on the machine of the student or learner, educational designers can simply use their web browsers to upload course material, develop new courses, and directly interact with learners and users.
- **Gamification:** Gamification is a process of growing e-learning facilities by integrating gaming elements that involve people individually and communally in the trade and education sectors. Designing the player interface is the more complex aspect of the gamification process. Learner/player experience design process can be divided into building a gaming application, and organizing its tasks in logical order. Gamification method mainly focuses on the design part to accomplish learner objectives in lesser time. Game based learning may be particularly useful for skill building as it can provide necessary practice opportunities and feedback at the same time that it is fun, engaging, and motivating to learners (Ibanez, Di-Serio, & Delgado-Kloos, 2014).

6. Possible emerging trends post pandemic

Croucher & Locke, (2020) in post pandemic world, studies abroad will be drastically decreased due to perceived risks for many students that their choice for going to another country for research will decrease because leaving their home country for study will be perceived to be less healthy than before the coronavirus pandemic. Many students would face tighter rules and regulations on entry to the chosen host country for study and, probably, post-graduate residence and jobs. There will be an increase in student acceptance of online learning, even if it does not remain their choice, because: many, if not most, of the major higher education systems have made this shift and students are subject to 'social distance' and 'shelter where safe' requirements have mandated some sort of online education. Perceptions of online course delivery as inferior to face-to-face delivery are likely to remain with some students, as they are concerned that it is

not comparable or more valuable than face-to-face, no matter how well it is performed. Cognitive learning can be considered to be successful for certain students, but not the rest of their learning experience. Many countries can also accept distance and online education programs provided by international universities and other institutions as part of their qualification's frameworks and regulations.

Reduction in ability of governments to invest in higher research and education. Governments in many countries would have less capacity to invest in higher education because of public policy responses to the coronavirus, large amounts have been invested on health, social and job services and other initiatives. It is possible that these stimulus and safety net initiatives will continue to be supported for several years after the initial pandemic. They face decreased tax revenues due to recessions in most industrialized industrial nations and the long-term shutdown of economies in 2020 and the ability to reduce economic growth over the next decade. People are calling for priority to be provided to areas of public policy and public services other than higher education, such as health and school education, which means that policymakers are faced with tough decisions on where to allocate money in a time of tremendous uncertainty. To varying degrees, universities and other higher education providers may increasingly have to reorganize their activities and their workforce, because: a major disruption to operations during 2020 means that many casual and short-term workers will be forced to seek jobs outside the sector. hanging student demand for courses, reducing operation in some areas and moving online can mean that universities need more staff in some areas and fewer in other areas, particularly where skills requirements change. The nature of academic work can change, with more roles being played, for example, by learning designers, educational technologists and student support staff. Topic information expertise may be in high demand with some of the global academic 'superstars' going freelance and providing video and audio content to a variety of universities.

7. Conclusion

The technological advancements have transformed the society into a global forum influencing the educational processes and learning environments. E-learning has been trying for years now to complement the way we learn to make it more effective and measurable. To encourage you to take your staff training online, the benefits of eLearning in the workplace are more than enough. Now, what you need to know is how to get your workers to work on training and growth and see your people and your company prosper. Our research has shown that the patterns that influence and further form the e-learning landscape include but are not limited to blended learning, gamification, software as a service (e-learning in the cloud), and more. E-learning is a positive thing for humanity and can reach out to any part of the planet, and it can offer full benefits to anyone and at any time. E-Learning is the best tool for learners to learn according to their own process, and the entire future of education will change its direction.

References

- Arkorful, V., & Abaidoo, N. (2014). The role of e-learning, the advantages and disadvantages of its adoption in Higher Education. *International Journal of Education and Research*, 2(12). Retrieved from <https://www.ijern.com/journal/2014/December-2014/34.pdf>
- Camilleri, M. A. (2021). Shifting from traditional and blended learning approaches to a fully virtual and remote course delivery: Implications from COVID-19. *Academia Letters*, 5(5). <https://doi.org/10.20935/al481>
- Chuo, Y., Liu, C., & Tsai, C. (2015). Effectiveness of e-learning in hospitals. *Technology and*

- Health Care, 23(s1), S157–S160. <https://doi.org/10.3233/thc-150949>
- Croucher, G., & Locke, W. (2020). A post-coronavirus pandemic world: some possible trends and their implications for Australian higher education. In Melbourne cshe discussion paper (pp. 1–7). Retrieved from https://melbourne-cshe.unimelb.edu.au/__data/assets/pdf_file/0010/3371941/a-post-coronavirus-world-for-higher-education_final.pdf
- Derouin, R. E., Fritzsche, B. A., & Salas, E. (2005). E-Learning in Organizations. *Journal of Management*, 31(6), 920–940. <https://doi.org/10.1177/0149206305279815>
- Devhade, R. S., & Gaikwad, S. P. (2020). Role of e-learning technology in education system during lockdown. *UPA Interdisciplinary E-Journal*, 2(3), 252–260.
- Ibanez, M.-B., Di-Serio, A., & Delgado-Kloos, C. (2014). Gamification for Engaging Computer Science Students in Learning Activities: A Case Study. *IEEE Transactions on Learning Technologies*, 7(3), 291–301. <https://doi.org/10.1109/tlt.2014.2329293>
- Irfan, M., Kusumaningrum, B., Yulia, Y., & Widodo, S. A. (2020). Challenges during the pandemic: use of e-learning in mathematics learning in higher education. *Infinity Journal*, 9(2), 147. <https://doi.org/10.22460/infinity.v9i2.p147-158>
- Kose, U., & Arslan, A. (2015). E-learning experience with artificial intelligence supported software: An international Application on English Language Courses. *GLOKALde*, 1(3). Retrieved from <https://www.glokalde.com/pdf/issues/3/Article3.pdf>
- Lake, P. (2020). Factors Influencing Attitudes Toward Blended E-learning Using Learning Management Systems: A Case Study in a University in Thailand. *Humanities, Arts and Social Sciences Studies (former name silpakorn university journal of social sciences, humanities, and arts)*, 20(1), 247–295. <https://doi.org/10.14456/hasss.2020.10>
- Puaschunder, J. M., Gelter, M., & Sharma, S. (2020). COVID-19-Shock: Considerations on Socio-Technological, Legal, Corporate, Economic and Governance Changes and Trends. *International Research Association for Interdisciplinary Studies (RAIS) Conference on Social Sciences and Humanities*, 82–93. <https://doi.org/10.2139/ssrn.3679326>
- Rasmitadila, R., Aliyyah, R. R., Rachmadtullah, R., Samsudin, A., Syaodih, E., Nurtanto, M., & Tambunan, A. R. S. (2020). The perceptions of primary school teachers of online learning during the COVID-19 pandemic period: A case study in indonesia. *Journal of Ethnic and Cultural Studies*, 7(2), 90–109. <https://doi.org/10.29333/ejecs/388>
- Raufovich, R. M., Ugli, H. A. A., Ruzimurodovich, G. O., Marasulova, U., & Ikrambayevna, D. S. (2021). The Importance Of Using Social Media Marketing (Smm) In The Development Of Ict Competencies Of Professional Education Teachers. *Psychology and Education Journal*, 58(5), 684–689. Retrieved from <http://psychologyandeducation.net/pae/index.php/pae/article/view/5339/4611>
- Ziaaddini, M., & Tahmasb, A. (2014). Artificial Intelligence Handling Through Teaching and Learning Process and It's Effect on Science-Based Economy. *International Journal on Soft Computing, Artificial Intelligence and Applications*, 3(1), 1–7. <https://doi.org/10.5121/ijscai.2014.3101>