



E-Learning implementation in higher education in response to the covid-19 pandemic: a review

Paula Dewanti¹, Ni Putu Linda Santiari², Kadek Vishnu Vedamurthi³

^{1,2,3} Institut Teknologi dan Bisnis STIKOM Bali, Indonesia

E-mail: pdewanti@gmail.com

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Abstract: Through the use of technology, various sectors have shifted as a result of the covid-19 pandemic, including the education system. The educational paradigm evolves by leveraging information technology as a vehicle for scientific growth, and online learning has become a part of our life. Face-to-face sessions in traditional classrooms are transformed into live face-to-face sessions in virtual classrooms. The purpose of this study was to examine the implementation carried out by universities in selected research subject countries using the correspondence method of data collection. Correspondence was performed with contacts at several universities and the Ministry of Education (MOE) in each of the countries that became the focus of this research, including Singapore, Hong Kong, Australia, and Canada, in addition to Indonesia. It was then developed as a best practice based on the use of digital learning as an emergency response to the new corona virus pandemic. The findings indicate that Digital Learning, which involves and effectively uses technology, is an alternative option that is being implemented in these countries as part of the Emergency Plan in the education sector in connection with covid-19.

Keywords: Covid-19, e-learning, higher education.

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INTRODUCTION

The covid-19 pandemic has swayed the educational system through the use of technology (Krishnamurthy, 2020). The digital revolution itself has had an impact on many fields, including learning systems (Collins & Halverson, 2018). During a pandemic, the face-to-face sessions in conventional classrooms are transformed into, a new norm, a live face-to-face session in virtual classrooms.

An educational paradigm has evolved in which information technology is used as a vehicle for scientific elaboration, either through the process of learning, academic, or research. Digital learning is one of the innovative learning techniques made possible by technology, or one of the effective learning practices that make use of technology (Blayone et al., 2017). However, technology does not completely replace human involvement, but rather assists humans in leveraging performance improvement of an effective learning process (Nothwang et al., 2016).

The main objective of this study was to examine the actual practical implementation of the daily learning process in Higher Education in the research subjects' countries in accordance with Ministry of Education directives, using the correspondence data collection method. Correspondence was performed with contact points at several universities and the Ministry of Education (MOE) in each of the countries that became the focus of this research, including Singapore, Hong Kong, Australia, and Canada, as well as



Indonesia. It was then developed as a best practice in the field of education for using digital learning as an emergency response to the covid-19 pandemic.

METHOD

This study used the literature review's approach to define a specific issue, compiles published literature on a topic; summarizes critical points of current knowledge about the problem and suggests next steps in addressing it (Okoli & Schabram, 2010). A literature review is a term that refers to the process of gathering, verifying, and (re)analyzing information from existing literature in order to answer a specific research question. Used comparative study, this research compared the similarities and differences of 2 or more properties and facts of the object under study based on a certain frame of mind. Data obtained from reference sources in accordance with the object of research. Data gathered from reference sources in accordance with the research topic. Respondents in this study were Ministry of Education officials in the countries where the research was done. Additional information was obtained from literature studies, such as literature, references, and related national and international journals.

RESULTS AND DISCUSSION

Online learning has become a part of our lives during the covid-19 pandemic. The educational paradigm evolves by utilizing information technology as a vehicle for scientific advancement. Face-to-face sessions in traditional classrooms are transformed into live face-to-face sessions in virtual classrooms. This research focused on the following questions.

- (1) What was each research target country's government policy regarding the current covid-19 outbreak?
- (2) What were the additional policies/regulations from the Ministry of Education that were implemented in each research target country as an adopt to the Central Government Policy?
- (3) What was the initiative from Higher Education in response to the Ministry of Education's additional policies/regulations?
- (4) How was the actual practical implementation of the daily learning process, in accordance with Ministry of Education directives/instructions?

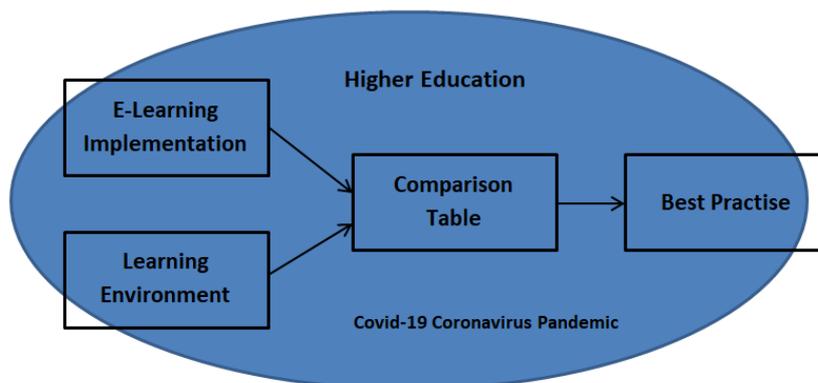


Fig. 1 Research Framework

This research, systematically done into the following stages:

(1) Define the Objective

The initial step in determining a solution to the problem, which is based on the defined Research Problem.

(2) Define the Methodology

The second step helps to select appropriate approaches use in this research.

(3) Literature Studies

The third stage includes retrieving relevant literature that relates to the study's research problem.

(4) Data Collection

This was performed by using simple random sampling to distribute the questionnaire to correspondence resources.

(5) Data Analysis Synthesis

Identifying the information and portray the findings.

(6) Conclusions and Recommendation

To write a synthesis of the results.

The feedbacks received from resources to the 4 focuses questionnaire item are listed on Table 1, below.

Table 1. Data Comparison

No.	Country	Ministry of Education Regulation	University Best Practise
Q	The government policies related to the current COVID-19 outbreak.	Each country regulation in terms of Education.	The actual practical implementation of the daily learning process.
(1)	Finland A: Schools, educational institutions, universities and polytechnics, public colleges, and other educational activities were required to close their facilities, with direct teaching suspended. For children whose parents work in sectors that are critical to society's functioning, the schools provide pre-school learning along with direct teaching in primary grades 1-3. Furthermore, a particular exception applies for children who have received a special support, but only if the parents and guardians were able to organize childcare at home. The above arrangements took effect on Wednesday, March 18, 2020 (Kabiraj & Lestan, 2020).	A: To minimize the possibility of corona infection, Finnish applied sciences institutes have increasingly adopting online and distance learning methods. At the same time, university employees began to do most of their work from home. The aim is	A: Colleges of applied science anticipated this decision and began making plans as soon as feasible to expand online learning. Students can attend their studies regardless of the pandemic through online and distance education

No.	Country	Ministry of Education Regulation	University Best Practise
		<p>to ensure that higher education persisted as the outbreak started. The changes affect all of Finland's 145,000 students of universities of applied sciences. To prevent the spread of coronavirus, the Finnish government also declared nationwide school closures.</p>	<p>methods. Responsible higher education institutions continue to function even in the difficulty time. Although lectures will be delivered online, most colleges of applied sciences were working to maintain laboratories and simulation facilities open to students. As a result, the essential practical skills learning cannot be offered online or remotely. Practical instruction will take place in small groups so that close contact is avoided.</p>
(2)	<p>Australia A: https://www.austrade.gov.au/Australian/Education/services/Government-and-peak-bodies</p>	<p>A: At the moment, Australian borders are closed to international students, and therefore universities are offering online alternatives for learning.</p>	<p>A: There are online options available for most courses for students who are studying remotely. When a student selects a course, it will</p>

No.	Country	Ministry of Education Regulation	University Best Practise
(3)	Hong Kong	A: In 2003, the university introduced "A Passage a Day," an online reading initiative that gave students a news article and three questions to read each day. Considering the absence of a classroom, it encouraged children to read daily basis. The Hong Kong government, on the other hand, did not foresee a similar round of school closures 17 years later. A thorough analysis of how to improve the medical system in the event of another pandemic was conducted, but	tell them the 'Mode of Delivery,' which will either be online or in person. If border restrictions change, they would love to have their international students join them on campus to finish the programs. A: Learning from Home

No.	Country	Ministry of Education Regulation	University Best Practise
		no plans were made for the educational system (Kinyuen, 2020).	
(4)	Singapore A: https://www.gov.sg/features/covid-19	A: The Higher Education Group (HEG) COVID-19 Policy Ops Branch works closely with the IHLs (Institute of Higher Learning) to implement safe management measures to ensure that the IHLs have become a safe place to study and work for both the students and employees (Ministry of Education Singapore, 2020).	A: Distance Learning
(5)	New Zealand A: To follow the advice and direction from the Ministry of Health. The Ministry of Health website has up to date information on the current situation, advice, precautions, and regulations relating to Covid-19: https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus	A: Learning from Home with the following resources: <ul style="list-style-type: none"> • Online resources using Internet and computers. • Resources supporting distance learning during the COVID-19. • Educational program on television. • Online Platform of ClassroomNZ2 	A: Since March, the University has been adapting to the various Alert Levels placed by the New Zealand Government. This has created challenges in course delivery, though through the most restrictive phase of the public

No.	Country	Ministry of Education Regulation	University Best Practise
		020. • Packs of printed learning material.	lockdown from March-May of this year Otago went to complete online learning within the space of one week, and full course-delivery has continued for the remainder of 2020.
	Indonesia	Distance Learning	Distance Learning
	<ul style="list-style-type: none"> • The Indonesian government announced Large-Scale Social Restrictions in the Context of Accelerating the Handling of Corona Virus Disease 2019 (covid-19) on March 31, 2020, which resulted in the suspension of face-to-face learning in Indonesian education, including campuses, where distance learning was implemented, and campuses were required to conduct learning such as through E-Learning. • In order to connect learning institutions and industries, the Indonesian Ministry of Education and Culture (MOEC) has launched a platform to connect scientists, professors, and students with industry stakeholders. The program focuses on collaboration to encourage large-scale collaborative efforts combining academic institutions, businesses, and investors. • A World Class Professor (WCP) event was organized by MOEC. Allowing Indonesian lecturers to engage and communicate with world-class professors, to encourage and improve the quality of international publications. The WCP program will also fund the Merdeka Belajar Learning initiative, which focuses on improving the performance of <i>Tri Dharma Perguruan Tinggi</i> and enhance higher education's human resource competitiveness (Australian Government, 2020). 		

The results reflect that the Blended Learning method was applied in a different format, through face-to-screen interaction as a substitute for the conventional face-to-face classroom and expected to overcome the obstacles of the teaching system during the covid-19 pandemic. A live face-to-face-classroom accepted to increase user engagement, as well user experience, with the hope that this new norm will be able to cover the gaps that students feel during the learning process using online learning.

The covid-19 pandemic has impacted millions of learners, learners, and researchers on new realities, new ways of learning and teaching, conducting evaluations, communicating, and conducting research

(Onyema et al., 2020). The impact of covid-19 on education is tremendous (Ahmed et al., 2020). In Higher Education, many universities react in flexible ways and adapt to crises (Geles et al., 2020). Based on the latest survey from IAU (International Association of Universities) and U-Multirank (www.umultirank.org), shows that not all universities are ready to face the provision of a complete online program. The [IAU global survey \(2020\)](#) on the impact of covid-19 on higher education worldwide reports that about 2/3 of the responding institutions replace classroom teaching with distance learning (Marinoni et al., 2020). These results are in line with U-Multirank's data which shows that around 60% of universities worldwide reported online learning provisions in their previous strategic planning for covid-19 (Roper, 2012).

The current student in Higher Education is the future, and industry players must understand their behavior and habits in order to build a long-term relationship with them. Understanding them and, in some ways, adjusting the concept of learning to align with their characteristics can be considered important for the success of the learning process.

Blended learning, a combination of digital and traditional or classroom learning, becomes one of the solutions. According to Azizan (2010), blended learning is a method that combines the strengths of face-to-face and online learning (Azizan, 2020). Blended learning makes use of information technology in a digital learning system, which is the process of teaching and learning that makes use of information technology for the delivery of material, discussion, and problem solving anywhere and at any time by utilizing the Internet (Luckin et al., 2012; Sayed & Baker, 2014).

CONCLUSION

The research indicates that Digital Learning, which involves and effectively uses technology, is an alternative option being implemented in these countries as part of the covid-19 Emergency Plan in the education sector. There are similarities in the implementation of Digital Learning, by transforming face-to-face sessions in conventional classrooms into a live face-to-face session in a virtual classroom.

In accordance with local government policies, the regulations of each university in this selected country of research subject; place Digital Learning in the learning process. Furthermore, there are slight differences in how Digital Learning was indeed applied at each campus. This is because the existing characteristics of each campus differ.

This research was conducted out during the early stages of the covid-19 pandemic. There have been progressions with supplementary initiatives along the way. Given the virus's recent progress, the increasing rates of virus exposure, and the uncertainty surrounding the end of this pandemic, further research is needed. A focus on Student Engagement and Student Experience is expected to provide more value and best practices for the implementation of E-Learning during the current growth of the covid-19.

REFERENCES

- Ahmed, H., Allaf, M., & Elghazaly, H. (2020). COVID-19 and medical education. *The Lancet Infectious Diseases*, 20(7), 777-778.
- Australian Government. (2020). Indonesia-Australia Comprehensive Economic Partnership Agreement – A new chapter for VET and university education. Retrieved from <https://www.austrade.gov.au/australian/export/free-trade-agreements/indonesia/iacepa>
- Azizan, F. Z. (2010). Blended learning in higher education institution in Malaysia. In *Proceedings of regional conference on knowledge integration in ICT* (Vol. 10, pp. 454-466).
- Blayone, T. J., Barber, W., DiGiuseppe, M., & Childs, E. (2017). Democratizing digital learning: theorizing the fully online learning community model. *International Journal of Educational Technology in Higher Education*, 14(1), 1-16.
- Collins, A., & Halverson, R. (2018). *Rethinking education in the age of technology: The digital revolution and schooling in America*. Teachers College Press.
- International Association of Universities. (2020, August). Regional/National Perspectives on the Impact of COVID-19 on Higher Education, dari https://www.iau-aiu.net/IMG/pdf/iau_covid-19_regional_perspectives_on_the_impact_of_covid-19_on_he_july_2020_.pdf
- Kabiraj, S., & Lestan, F. (2020). COVID-19 outbreak in Finland: Case study on the management of pandemics. In *International Case Studies in the Management of Disasters*. Emerald Publishing Limited
- Kinyuen, I.P. (2020). Hong Kong and Its Education Under the Threat of Covid-19. Retrieved from <https://www.ei-ie.org/en/item/23356:hong-kong-and-its-education-under-the-threat-of-covid-19-by-ip-kin-yuen>
- Krishnamurthy, S. (2020). The future of business education: A commentary in the shadow of the Covid-19 pandemic. *Journal of Business Research*, 117, 1-5.
- Luckin, R., Bligh, B., Manches, A., Ainsworth, S., Crook, C., & Noss, R. (2012). Decoding learning: The proof, promise and potential of digital education.
- Marinoni, G., Van't Land, H., & Jensen, T. (2020). The impact of Covid-19 on higher education around the world. *IAU Global Survey Report*.
- Ministry of Education Singapore. (2020). Higher Education Group. Retrieved from <https://www.moe.gov.sg/about-us/organisation-structure/heg/>
- Nothwang, W. D., McCourt, M. J., Robinson, R. M., Burden, S. A., & Curtis, J. W. (2016, August). The human should be part of the control loop?. In *2016 Resilience Week (RWS)* (pp. 214-220). IEEE.
- Okoli, C., & Schabram, K. (2010). A guide to conducting a systematic literature review of information systems research.
- Onyema, E. M., Eucheria, N. C., Obafemi, F. A., Sen, S., Atonye, F. G., Sharma, A., & Alsayed, A. O. (2020). Impact of Coronavirus pandemic on education. *Journal of Education and Practice*, 11(13), 108-121.
- Pate, S. S., & Adams, M. (2013). The influence of social networking sites on buying behaviors of millennials. *Atlantic Marketing Journal*, 2(1), 7.
- Roper, L. J. F. H. R. (2012). *The modernisation of higher education in Europe: 27th report of session 2010-12* (Vol. 275). The Stationery Office.
- Sayed, M., & Baker, F. (2014). Blended learning barriers: An investigation, exposition and solutions. *Journal of Education and Practice*, 5(6), 81-85.