

Assignment Letter/Surat Tugas

No. AL/MME-SGU/423/X/22
 Date 26 October 2022
 Page 1 of 1
 Doc. Type Main Document / *Dokumen Utama*

Dr. Ir. Gembong Baskoro, M.Sc

Activity Assignment

Penugasan Kegiatan

Head of Master of Mechanical Engineering
 Study Program

Ketua Program Studi Magister Teknik Mesin

In consideration of:

His appointment as the Head of Master of Mechanical Engineering Study Program under agreement no. SK/004/HR/VII/2020.

Mengingat:

Pengangkatannya sebagai Ketua Program Studi Magister Teknik Mesin di bawah perjanjian no. SK/004/HR/VII/2020.

Herewith permits to

Name :
 Position :
 Faculty :

Dengan ini menugaskan kepada

Dr. Ir. Gembong Baskoro, M.Sc
 Lecture of Master of Mechanical Engineering Study Program/*Dosen Magister Teknik Mesin Program Studi Engineering and Information Technology/ Teknik dan Teknologi Informasi*

To participate as presenter on the following activity:

Untuk berpartisipasi sebagai pemakalah pada kegiatan berikut ini:

No	Event / Acara	Organizer / Penyelenggara	Date / Tanggal	Venue / Tempat
1.	Seminar Nasional Technopex ITI 2022	Institut Teknologi Indonesia	Rabu, 26 Oktober 2022 08.00 – 16.15 WIB	Zoom online conference

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Assignor / Pemberi Ijin:



Dena Hendriana, B.Sc., S.M., Sc.D
 Head of Master of Mechanical Engineering
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Nomor : 006/PRPM-LoA/ITI/X/2022
Lampiran : -
Perihal : Pemberitahuan Penerimaan Makalah Lengkap

Kepada :

Yth. Gembong Baskoro

Di tempat

Dengan hormat,

1. Berdasarkan hasil *review* yang telah dilakukan oleh Tim *Reviewer* kami, maka makalah lengkap Bapak/Ibu dengan judul:

EFFECTIVENESS AND EFFICIENCY OF ONLINE EDUCATION : AN EXPERIENTIAL STUDY DURING THE PANDEMIC

Dinyatakan **DITERIMA** untuk dapat dipresentasikan dan dipublikasikan di Prosiding Seminar Nasional Technopex 2022, Pusat Riset dan Pengabdian kepada Masyarakat, Institut Teknologi Indonesia, pada tanggal 26 Oktober 2022.

2. Bersama surat ini memberitahukan juga bahwa pembayaran yang Bapak/Ibu bayarkan telah kami terima.
3. Demikian yang perlu kami sampaikan. Atas perhatian dan partisipasi Bapak/Ibu untuk Seminar Nasional Technopex 2022, kami mengucapkan terima kasih.

Tangerang Selatan, 24 Oktober 2022
Pusat Riset dan Pengabdian Kepada Masyarakat
Institut Teknologi Indonesia

Kepala,



Prof. Dr. Ir. Joelianingsih, M.T



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INSTITUT TEKNOLOGI INDONESIA

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Kebijakan, Tantangan dan Strategi Pemanfaatan Energi Baru
Terbarukan untuk Mendukung Ketahanan Energi Nasional

MENGHADIRKAN PEMBICARA



"Kebijakan, Tantangan dan Strategi Pemanfaatan Energi Baru Terbarukan untuk Mendukung Ketahanan Energi Nasional"

DR. IR. DADAN KUSDIANA, M.SC

DIREKTUR JENDERAL ENERGI BARU, TERBARUKAN
DAN KONSERVASI ENERGI KEMENTERIAN ESDM



"Implementasi dan Kendala Pemanfaatan Energi Baru Terbarukan"

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KEPALA PROGRAM STUDI TEKNIK MESIN
INSTITUT TEKNOLOGI INDONESIA

RABU, 26 OKTOBER 2022

JAM 8:00 - 16:15

VIA

ZOOM MEETING



CALL FOR PAPER

Submit Abstrak : 15 Agustus 2022 - 21 Oktober 2022

Submit Fullpaper : 22 Agustus 2022 - 25 Oktober 2022

Topik Sesi Paralel

1. Pangan
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4. Manajemen Industri
5. Ilmu & Teknik Material
6. Infrastruktur & Peremukiman
7. Teknologi Informasi dan Komunikasi

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1. Pemakalah Umum Rp. 250.000
2. Pemakalah Mahasiswa/ Rp. 150.000
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Pembayaran

Bank BNI No. Rek 0682425494
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Yayasan

Artikel Terpilih Akan

Diterbitkan Pada

1. Jurnal Teknik Mesin (JTJ-ITI) Terindeks SINTA 4
2. Jurnal Teknik Informatika Terindeks SINTA 4
3. Journal of Electrical Power Instrumentation and Control Terindeks SINTA 5
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7. Jurnal Ilmu Pengetahuan & Teknologi (Jurnal IPTEK) Terindeks Google Scholar

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KATA PENGANTAR

Penelitian merupakan salah satu Tri Dharma Perguruan Tinggi yang wajib dilakukan selain pengajaran dan pengabdian kepada masyarakat. Perguruan Tinggi, berkolaborasi dengan pemerintah dan swasta merupakan penggerak utama perkembangan Ilmu Pengetahuan dan Teknologi (IPTEK) di sebuah Negara. Inovasi dan pembaharuan IPTEK diawali dari sebuah penelitian dasar, dilanjutkan dengan penelitian terapan, dan pengembangan kapasitas.

Seminar Nasional Technopex merupakan salah satu agenda rutin yang diselenggarakan oleh Pusat Riset dan Pengabdian Masyarakat (PROM) Institut Teknologi Indonesia (ITI). Seminar ini diadakan dengan tujuan sebagai sarana pertukaran informasi dari hasil penelitian dan pengabdian masyarakat, serta perkembangan teknologi yang diterapkan atau dibutuhkan di masyarakat. Seminar ini merupakan salah satu kegiatan yang dilaksanakan dalam rangkaian Dies Natalies ITI.

Mengacu pada bidang fokus yang tertuang pada Rencana Induk Penelitian (RIP) tahun 2021-2025 terdiri dari Energi Baru dan Terbarukan, Infrastruktur dan Permukiman serta Material dan Manufaktur maka tema utama Seminar yang dipilih pada tahun 2022 adalah **“Kebijakan, Tantangan dan Strategi Pemanfaatan Energi Baru Terbarukan untuk Mendukung Ketahanan Energi Nasional”**. Sedangkan untuk topik sesi paralel adalah Pangan, Energi, Lingkungan, Manajemen Industri, Ilmu dan Teknik Material, Infrastruktur dan Permukiman serta Teknologi Informasi dan Komunikasi.

Terimakasih disampaikan kepada narasumber pada sesi utama yaitu Bapak Dr. Ir. Dadan Kusdiana, M.Sc (Direktur Jenderal Energi Baru, Terbarukan dan Konservasi Energi Kementerian ESDM), Ibu Dr. Ir. Ratnawati, M.Eng.Sc., IPM (Dosen Teknik Kimia Institut Teknologi Indonesia), Bapak Warsono, ST, SMn, MPhil, IPU (EVP Perencanaan Sistem Ketenagalistrikan – PLN) dan Ibu Fanda Soesilo (CEO of SUNterra & SUN Mobility). Apresiasi juga disampaikan kepada sponsor PT. Pilar Rekacipta Industri, PT. Pilar Ardi Industri, PT. Pilar Gas Industri, PT. Pilar Dikara Ayu, PT Pilar Beton dan SUNterra.

Terimakasih juga disampaikan kepada Perguruan Tinggi pendukung yaitu Universitas Katolik Indonesia Atmajaya, Universitas Pamulang dan Swiss German University. Juga kepada para pemakalah pada sesi paralel atas partisipasinya.

Atas nama Kepala PRPM, Saya mendukung penuh berlangsungnya acara ini. Saya yakin bahwa Dies Natalies ITI 2022 akan menjadi acara yang dapat meraih kesuksesan besar dan semoga semua harapan dari ITI, PRPM dan kontributor lainnya akan terpenuhi dan berguna untuk semua.

Salam sukses

Prof. Dr. Ir. Joelianingsih, MT

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Pengarah : Dr. Ir. Marzan Aziz Iskandar, IPU., ASEAN.Eng

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SUSUNAN ACARA
Technopex 2022 - Institut Teknologi Indonesia
Rabu, 26 Oktober 2022

Waktu	Durasi (menit)	Kegiatan	Oleh/PIC
07.45 - 08.15	30	Registrasi dan persiapan panitia pemutaran video promosi/profil ITI	Operator
08.15 – 08.20	5	Pembukaan kegiatan	MC: Khumaeroh, S.T
08.20 – 08.25	5	Menyanyikan lagu Indonesia Raya	Semua/ Operator
08.25 – 08.30	5	Pembacaan doa	Ir. Rulyensi Rasyid, M.KKK
08.30 – 08.40	10	Sambutan ketua panitia Semnas Technopex ITI	Prof. Dr. Ir. Joelianingsih, M.T
08.40 – 08.50	10	Sambutan Rektor ITI	Dr. Ir. Marzan Aziz Iskandar, IPU
08.50 – 08.53	3	Sesi foto bersama	Operator
08.53 – 08.56	3	Penyerahan penghargaan sponsor (1. Pilar Group, 2. Sunterra)	Prof. Dr. Ir. Dwita S, M.Si., IPM
08.56 – 09.00	4	Video company profile sponsor (Presentasi dari Sponsor)	Operator
09.00 – 09.30	30	Pembicara 1 : Dr. Ir. Dadan Kusdiana, M.Sc	Moderator
09.30 – 10.00	30	Pembicara 2 : Dr. Ir. Ratnawati, M.Eng.Sc., IPM	Moderator
10.00 – 10.15	15	Tanya jawab + Pemberian penghargaan	Moderator, penghargaan : Dr. Ir. Marzan Aziz Iskandar, IPU (Pembicara 1 & 2)
10.15 – 10.45	30	Pembicara 3 : Warsono, S.T., S.Mn., M.Phil., IPU	Moderator
10.45 – 11.15	30	Pembicara 4 : Fanda Soesilo	Moderator
11.15 - 11.30	15	Tanya jawab + Pemberian penghargaan	Moderator, penghargaan : Prof. Dr. Ir. Joelianingsih, M.T (Pembicara 1 & 2, moderator)
11.30 – 12.00	30	Informasi tentang sesi paralel	MC
12.03 – 13.00		ISHOMA	
13.00 – 14.00	60	Sesi paralel 1 (Breakout room : 8)	Moderator dan Co-Host
14.00 – 14.30	30	Tanya jawab sesi paralel 1	Moderator
14.30 – 15.30	60	Sesi paralel 2	Moderator dan Co-Host
15.30 – 16.00	30	Tanya jawab sesi paralel 2	Moderator
16.00 – 16.15	15	Penutup dan foto bersama pada setiap room	Moderator dan Co-Host

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Teknologi Informasi & Komunikasi			
Moderator: Ir. Satrio Kuntolaksono PhD			
Co-Host: Atika Trisnahayati			
WAKTU	KODE	NAMA	JUDUL ABSTRAK
13.00 - 13.10	G_S1_Alif	Muhammad Alif Anandha Fachruddin	IMPLEMENTASI NETWORK AUTOMATION PADA APLIKASI ADMINISTRASI JARINGAN MULTI- VENDOR BERBASIS WEB
13.10 - 13.20	G_S1_Bunga	Bunga Kharisma Septianiputri	STUDY OF THE APPLICATION OF CONFORMITY OF ACTIVITIES SPACE UTILIZATION (KKPR) FOR UMKM WHO USE HOUSE BUILDINGS AS A PLACE OF BUSINESS IN VILLA PAMULANG HOUSING
13.20 - 13.30	G_S1_Dendy	I Kadek Dendy Senapartha, Gabriel Indra Widi Tamtama	RANCANG BANGUN SISTEM ANTI- SPOOF WAJAH PADA PERANGKAT BERGERAK BERBASIS MOBILENET
13.30 - 13.40	G_S1_Annuridya	Annuridya Rosyidta Pratiwi Octasylva	HUBUNGAN JARINGAN DAN KEPERCAYAAN TERHADAP KEMAMPUAN PEMASARAN UMKM DI INDONESIA
13.40 - 13.50	G_S1_Gembong	Gembong Baskoro	EFFECTIVENESS AND EFFICIENCY OF ONLINE EDUCATION: AN EXPERIENTIAL STUDY DURING THE PANDEMIC
13.50 - 14.00	G_S1_Yustina	Yustina Sri Suharini, Muhamad Ramli, Endang R.D., Sulistyowati Sulistyowati	PENDEKATAN TEORI GRAF UNTUK ANALISIS JARINGAN INTERAKSI PROTEIN-PROTEIN
14.00 - 14.20	Tanya-Jawab Kelas Paralel Sesi 1		

**EFFECTIVENESS AND EFFICIENCY OF ONLINE EDUCATION:
An experiential study during the Pandemic**

Gembong Baskoro

Master in Engineering Management Swiss German University

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Abstrak

During the pandemic of covid 19, most of Indonesia higher education institutions (HEIs) have no choice other than delivering the education in online basis. This new adapted method has been lasting during the ongoing of the pandemic and keep continuing until today especially when the risk precaution due to covid illness must be taken into consideration. The adapted method of online education that initiated due to covid 19 pandemic has apparently become the new normal in higher education. Therefore, this paper will elaborate the practice of online education and learning experienced during the pandemic of covid 19. This paper also defines measures of effectiveness and efficiency for online education as well as its strengths and weaknesses. Finally, this paper draws conclusions of online education method based on the measures that has been defined. This paper generally concluded that among the weaknesses of online education that, of course, need to be improved, the online education still a good opportunity and a choice for HEI in delivering efficient method of education.

Kata kunci: *Online Education, Ubiquitous learning, Online Learning, Higher Education Institution*

SERTIFIKAT

Diberikan kepada:

Dr. Ir. Gembong Baskoro, M.Sc

Atas Partisipasinya Sebagai

PEMAKALAH

Dalam Acara

"SEMINAR NASIONAL TECHNOPEX INSTITUT TEKNOLOGI INDONESIA 2022"

yang dilaksanakan di Institut Teknologi Indonesia pada tanggal 26 Oktober 2022

Rektor Institut Teknologi Indonesia



Dr. Ir. Marzan Aziz Iskandar, IPU., ASEAN.Eng

Ketua Penyelenggara



Prof. Dr. Ir. Joelianingsih, M.T

Disponsori Oleh :

"ITI Meraih Keunggulan dengan Kolaborasi"

Didukung Oleh :

***EFFECTIVENESS AND EFFICIENCY OF ONLINE EDUCATION:
AN EXPERIENTIAL STUDY DURING THE PANDEMIC***

Gembong Baskoro

Master in Engineering Management Swiss German University

E-mail: gembongbaskoro8@gmail.com

Abstract

During the pandemic of covid 19, most of Indonesia higher education institutions (HEIs) have no choice other than delivering the education in online basis. This new adapted method has been lasting during the ongoing of the pandemic and keep continuing until today especially when the risk precaution due to covid illness must be taken into consideration. The adapted method of online education that initiated due to covid 19 pandemic has apparently become the new normal in higher education. Therefore, this paper will elaborate the practice of online education and learning experienced during the pandemic of covid 19. This paper also defines measures of effectiveness and efficiency for online education as well as its strengths and weaknesses. Finally, this paper draws conclusions of online education method based on the measures that has been defined. This paper generally concluded that among the weaknesses of online education that, of course, need to be improved, the online education still a good opportunity and a choice for HEI in delivering efficient method of education.

Kata Kunci: *Online Education, Ubiquitous learning, Online Learning, Higher Education Institution*

Introduction

Online education and or learning has been widely practiced by especially but not limited to higher education institutions (HEI) including in Indonesia. This practice has become the new normal for education and learning initially due to pandemic of covid 19. Currently, although covid 19 has decreased, the online education approach has become a new normal for especially higher education. Seemingly, On the one hand it was experienced during the pandemic that online education is even more effective & efficient compared to the traditional education. On the other hand, it was in fact lack of personal touch and connection. The major advantages of online education are inexpensive and flexible, consequently it then becomes a preferred method.

During the two years of pandemic, it seems that HEIs have experienced implementing online education. Of course the experience of each HEI is different from one another. Therefore, this paper will discuss results of subjective assessment in implementing online education and learning. The elements that can be used in the assessment among others are 1) Social interaction, 2) Learning experience i.e. lecturers and students experience, 3) Learning media, and 4) Learning Control, 5) Learning Interactive and Flexibility, etc.

What is Education?

Education has been said to be the greatest invention of human being. It is because with education, human will get enlightenment. In this philosophical thought, education is for the purpose to humanize human.

According to Indonesia Law No. 12 of 2012 (previously Indonesia Law No. 20 of 2003), Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation, and country.

The purpose of Indonesia education is to develop abilities and shape the character and civilization of the nation in the context of educating the nation's life, aimed at the development of students potential to become human beings who believe and fear God Almighty, noble, healthy, knowledgeable, capable, creative, independent, and become good citizens in a democratic and responsible state. In short education must be an enlightenment for human in holistic approach. The concept and philosophy of education in Indonesia is rooted by the thoughts of Ki Hajar Dewantara, who is known as the father of Indonesian education. The Ki Hajar principle in education is stated in the Javanese motto: *Ing ngarso sung tulodo, Ing madyo mangun karso, Tut wuri handayani* (meaning "in front giving examples, in the middle encouraging, behind giving encouragement"). The principle of education by Ki Hajar Dewantara must be developed in holistic and comprehensive aspects which includes 1. piety, 2. creativity (cognitive), 3. feeling (affective), 4. craftsmanship (psychomotor), and 5. willpower (conative). However, in today education apparently there is a shift in meaning both positive and negative due to the strategic environment changes. Currently, education may have been interpreted in a different meaning because seemingly people are no longer seeking education with the aim of enlightenment but for the sake of survival.

Regardless of the development and even shift in the meaning of education, this paper will only focus on the practice of recent education especially due to pandemic of covid 19.

Evolution of Education

Education has undergone an evolution in particular because of some limitations and demands by the community. The traditional education model is a direct face-to-face in some ways considered rigid and full of rules, therefore indirect or flexible education model is then introduced. Of course, the indirect, flexible, even ubiquitous learning still has some rules to follow especially rules that ensure quality of education. The flexible education can be in term of distance, presence, learning, study time, method of delivery, etc. Distance education for example, is an education method that can be delivered regardless a geographical distance with any learning methods. Actually, distance education has been initiated before the pandemic of covid 19. For example, Indonesian Open University (IOU) in Indonesia has been initiated quite long time ago before pandemic of covid 19. It was established in 4th of September 1984 with the consideration that 1) distance education does not require a large numbers of fix lecturer, 2. available educational resources can be used to assist in the implementation of a distance learning without interfering their main job, 3. distance education does not require much room, 4. the cost of education is relatively cheaper compared to face-to-face education, 5. distance education can be done using available technology [7]. There are similarities of today distance education with previous distance education. What makes the difference is that the available technology is now absolutely different than before. For example, in the past distance education rely only on the technology such as post mail (correspondence study), analog television (tele conference), analog radio & telephone (audio conference), and other technologies available at that time. In today distance education depends on technology such as email, web, LAN, mobile gadget, internet, WA, social media and other digital technologies available. Considering the technology being used therefore today distance education is also called online education.

Evolution of Learning

Alike education, method of learning is also change following the change of strategic environment especially on digital technology. Traditional learning is a direct face-to-face or in person learning. This learning method has been practiced in education for so long until recently due to pandemic of covid 19 that the learning has no other choice other than to be performed online. Actually the concept of indirect, flexible, or distance learning has been initiated before pandemic of covid 19 started. Between traditional learning and indirect learning, there is a mixed method as a combination of both known as blended learning. Figure 1 shows a recap of the learning methods that have been implemented so far.

- a. Face-to-Face Learning

This is a traditional form of learning in which learning is carried out face-to-face directly in real time between lecturers and students/learners. Face-to-face learning has the advantage of engagement and direct interaction so that the sensation of learning atmosphere can be felt especially in the discussion session. Face-to-face learning can also improve bonding

between lecturer with learners, and among learners themselves. The disadvantage of face-to-face learning perhaps on the flexibility especially in term of (geographical) distance.

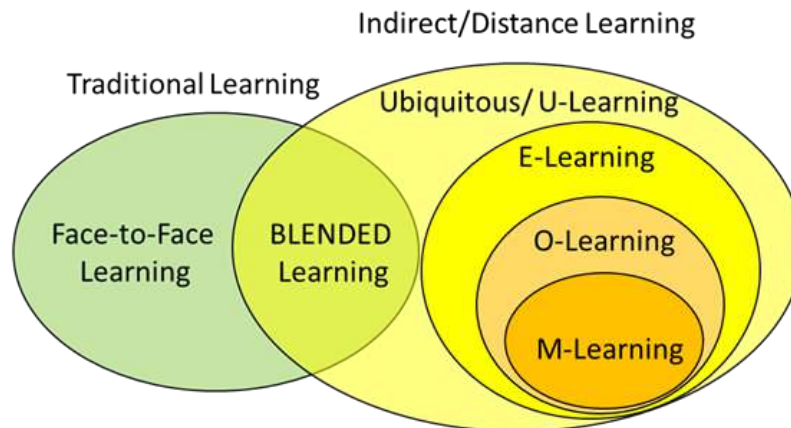


Figure 1. Learning methods

b. Blended Learning

Simply to say, blended learning is a learning method that combines face-to-face or direct learning with flexible/indirect/distance learning. Therefore, in blended learning the strengths of both direct and indirect learning are combined in order to face the challenge of (geographical) distance and study time while keep maintaining its effectiveness and efficiency.

c. Indirect/Distance Learning

Indirect/distance learning is a process of learning carried out in a (geographical) distance and study time as the main obstacles. Therefore, technology is needed to overcome obstacles due to distance and time. Indirect/distance learning is actually a solution from the weakness of face-to-face learning regarding (geographical) distance and time. Consequently, technology plays a major and central role in flexible/indirect/distance learning. Until now, some of these methods such as U-learning, E-learning, O-learning, and M-learning, are quite familiar especially during the pandemic of covid 19. There are two activities in distance learning, namely synchronous and asynchronous. In synchronous learning the time is scheduled with real time learning therefore students and lecturers attend at the same time. While in asynchronous learning, time is not specified and learning content mostly is already provided online so that students can learn any time they like. Simply asynchronous learning is a student centered learning method.

- Ubiquitous learning (U-learning)

Ubiquitous learning (U-learning) is a new education paradigm aimed at supporting ease of learning from everywhere, anywhere, anytime and in any way. It seems that U-learning can be an ideal learning model, especially because of the availability of digital technologies that can support the implementation of this learning process. Figure 1 illustrates that U-learning consists of E-learning, O-learning, and M-learning. The differences among them is due to technology being used.

- Electronic learning (E-Learning)

Electronic-learning (E-learning) as part of U-learning is interpreted as learning by utilizing electronic technology to facilitate learning interactions. In its early development, e-learning utilized analog electronic technologies such as television, and radio. Due to the development of IT technology, e-learning utilizes computerized technology and network therefore term e-learning has shifted become online learning (O-learning). O-learning

utilizes internet network or intranet or local area network (LAN). E-learning that uses mobile technology devices, it is called mobile learning (M-learning). According to Sarjito (2022) components of e-learning are including but not limited to 1) subject, 2) content, 3) infrastructure, and 4) policy. Subject includes lecturers, students, learning material development, and team of information technology. Content includes self-developed content and by using available content designed by others. Infrastructure includes learning management system (LMS), server, bandwidth, and technology devices. Infrastructure is categorized into a). low technology infrastructure such as the use of social media, email, and cloud storage. b). high technology infrastructure covers the use of: Moodle, Edmodo, Schoology, Google class room, Open Learning, and independent LMS. Policy is an important consideration especially policy related to adoption of e-learning because policy will be a reference for educators and learning technology developers. The policy regarding e-learning includes three functions i.e. substitution, supplement or complement [9].

- Online learning (O-Learning)

Online learning (O-learning) is a learning process that utilizes the internet, intranet, local area network (LAN) and digital media. O-learning is widely used during the pandemic of covid-19. The advantages of using O-learning is its practicality, flexibility, ease of use, personal, effective & efficient, reasonable price, ease of documentation, etc. Despite its weaknesses, O-learning is the best alternative for learning during the time of pandemic covid 19.

- Mobile learning (M-Learning)

Mobile learning (M-Learning) is a learning method that adopt mobile technology like smart phones, tablets, and notebook. So that learning can be done anytime and anywhere without limitation. It is predicted that M-learning will grow rapidly in the future as rapid development and innovation of smart phones and applications that support it. The ease of use of m-learning supports the society change towards society 5.0 as a human centered society that well combine physical and cyberspace. Society 5.0 is a digital society that connect closely digital based technologies and humans in most of their life activities. This is reasonable as today generation is a digital generation since birth. Young generation in Indonesia today seemingly doing most of their activities and spent most of their time with smart mobile phone. Nowadays especially in Indonesia, apparently smartphone has become primary gadget to access information and to do mostly any activities in human life (Indonesian Digital Association).

Case Study

This case study is about the implementation of online education that has been performing in a postgraduate education in an Indonesian private higher education institution. The online education has been going on since the pandemic of covid 19 until now. The online education includes online activities of lecture, learning, thesis work (research, writing, mentoring, and examination), education administration, and graduation. In general, all process of education has been done online using existing available application in the market.

The subjective assessment by the author from the case study is summarized in the following table (table 1). Actually, the case study is an action base research where the author has directly involved in all activities from the beginning to the end of the case study. Due to his personal direct involvement, therefore the author is able to carry out the subjective assessment.

Table 1. Subjective assessment of the online education in a case study

Phase	Education Activities	Assessment	Online Method				
			WA	Email	Website admin & LMS	Application	Others
Initiation	Enrollment	Easy	x	x	x		
	Interview	Easy	x			x	
Implementation	Lecture	Moderate			x	x	
	Assignment	Easy	x	x	x		
	Learning	Moderate				x	x
	Examination	Easy	x	x	x	x	
	Seminars/Conference	Moderate	x	x		x	
	Thesis Work	Moderate				x	
	Thesis Examination	Easy	x	x		x	
Finalization	Graduation	Moderate	x	x		x	
	Awarding Diploma	Easy	x	x			x

Assessment grade: very easy, easy, moderate, difficult, very difficult

Discussion

Online education has helped education in the midst of the pandemic covid 19. This is possible due to the availability of digital technologies especially including but not limited to mobile phones, applications, social media, etc. Regardless its effectiveness, online education is considered very efficient in term of time, flexibility, administration, and cost. However, as this is an education the factor of quality related to knowledge and values as stated by Ki Hajar Dewantara become an important factor to be assessed. It is actually factor of effectiveness related to education. Table 2. Shows some factors of effectiveness that mostly occurs in phase of implementation as described in table 1. Therefore, table 2. presents the subjective assessment results on the factors of effectiveness especially related to online learning. The reason of performing this assessment is that learning become an important factor that impact to quality of education.

Table 2. Assessment factors of effectiveness between face-to-face vs. online learning

	Face-to-Face	Online Learning
Number of Student	Limited	Unlimited
Engagement	Direct	Indirect
Communication	Direct	Indirect
Feeling	Strong	Moderate
Social Interaction	Direct, unlimited	Indirect, limited
Connection	Direct	Indirect
StudyTime	Scheduled	Anytime
Flexibility	Standard	Customize
Place	Class	Virtual
Distance	in Class	Anywhere
Length of Study	Limited	Flexible
Form	Synchronous	Asynchronous
Discussion	Strong	Moderate
Assessment	Strong	Moderate
Content	Stable	Dynamic

Conclusions

It is concluded that both face-to-face and online learning has advantages and disadvantages as well as strengths and weaknesses. Therefore, in order to be able to gain effective and efficient

learning it is important to define the learning objective, participants, geography, demographic background before deciding which learning method will be customized.

It is concluded that the combination of face-to-face and online learning known as blended learning will be the most preferable method. Blended learning by design is a learning method that combine the strengths of face-to-face and online learning. To improve the quality of blended learning it is important to consider digital technologies that suitable with the lecturers and students.

It is also concluded from the case study that online education has safeguard the education process due to pandemic Covid 19. It is also important to apply blended learning to improve the quality of online education.

Finally, from the literature study it is concluded that ubiquitous learning (U-learning) especially Mobile-learning (m-learning) will become a preferable learning method for the future especially due to the change towards digital society known as society 5.0.

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