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E-Learning Service Issues and Challenges: An Exploratory Study

Indriani Noor Hapsari
Information System Program
Universitas Esa Unggul
Jakarta, Indonesia
indriani@esaunggul.ac.id

Armando Rilentuah Parhusip
Information System Program
Universitas Esa Unggul
Jakarta, Indonesia
armando@esaunggul.ac.id

Sawali Wahyu
Informatic Program
Universitas Esa Unggul
Jakarta, Indonesia
sawaliwahyu@esaunggul.ac.id

Imam Sutanto
Informatic Program
Universitas Esa Unggul
Jakarta, Indonesia
imam.sutanto@esaunggul.ac.id

Gerry Firmansyah
Magister of Computer Science
Universitas Esa Unggul
Jakarta, Indonesia
gerry@esaunggul.ac.id

Ainur Rosyid
Elementary Education Program
Universitas Esa Unggul
Jakarta, Indonesia
ainur.rosyid@esaunggul.ac.id

***Abstract*—The use of e-learning in higher education has been known since the late 90's albeit its development and adoption remained a slow process in higher education institutions. The adoption of e-learning is gaining traction as the Covid-19 pandemic hit the world in 2019 and become a necessity for all educational institutions. Although today the institutions have opted for e-learning as an alternative way to carry out the learning process, many are still not ready and facing difficulties in implementing, managing, and using it. This research aimed to investigate the issues and challenges of e-learning implementation during the Covid-19 pandemic at Universitas Esa Unggul. This research was conducted using exploratory research method by conducting literature study, observation, interview, and survey to examine the lecturer's and student's experiences and perspectives of the e-learning system. The questionnaire was adapted from an Information Technology Service Management perspective to gain data of e-learning satisfaction, availability of e-learning facilities, e-learning ease of use, availability of guidelines, availability of system supports, and to get feedbacks from the student and the lecturer. Based on the study, we identify the following seven e-learning issues: 1) e-learning infrastructure, 2) e-learning system integration, 3) e-learning policy, 4) e-learning support, 5) individual workload, 6) timeliness, and 7) interactivities. E-learning infrastructure is a dominant challenge for Universitas Esa Unggul that requires special attention to improve on its support and regulation. This finding gives implications that improving e-learning service is essential to provide a better learning experience. The e-learning service includes the infrastructure, the system integration, the policy and regulation, IT support, the lecturer, and the interactivity. This research could contribute to the design of an effective model of e-learning service by giving more structured guidance on how to do readiness self-assessment and factors to be focused on.**

Keywords—e-learning, issues, challenges, IT service, higher education

I. INTRODUCTION

Information technology has been widely adopted in universities through the use of e-learning. E-learning is considered as a way to deliver a sustainable and high quality education to as many students as possible [1]. E-learning offers flexibility for the students to learn anytime and anywhere with their own learning pace. However, despite its benefits, e-learning adoption in higher education remained slow [2]. E-learning initiatives had been known since the late 90's, but the entire adoption of e-learning commenced 20 years later after the Covid-19 pandemic hit the world. Due to unanticipated situations, many are still not ready and facing difficulties in implementing, managing, and using e-learning.

Ministry of Education and Culture of Republic Indonesia has been promoting the "Kampus Merdeka" program since January 2020 to enable networked-based education among universities and industries. This program requires universities to make continuous learning improvements since the open e-learning service becomes one of the university's key performance indicators. Therefore, today e-learning has become a necessity for all educational institutions.

This paper aims to gain further understanding of the issues and challenges of e-learning in general. A literature review was conducted to identify e-learning problems and challenges to date. Furthermore, an empirical inquiry was conducted at Universitas Esa Unggul to explore the perception of the student and the lecturer about their learning experience during the Covid-19 pandemic from March to October 2020. This study addresses the following research questions: (RQ1) What are the issues and challenges of e-learning from the past research to date? (RQ2) What are the issues and challenges of e-learning during the Covid-19 pandemic at Universitas Esa Unggul?

II. LITERATURE REVIEW

There has been a fair amount of research on e-learning problems and challenges. However, study about e-learning is still growing as the challenges of each institution continue to change along with increasing scale and complexity of various technologies and pedagogical models [3]. E-learning problems and challenges come from numerous aspect, from the individual learner [4]–[6], the faculty [7][8][9], the collaboration among the student and the teacher [10], the infrastructure [9][11], and its policy and regulation [3], as shown in Table *1*.

The problem of individual learners is related to student's ability to self-regulate during the learning process. Distance learning shifts the control of learning that were previously carried out by educators or peers into individual learner [4]. Self-regulated learning appears to be important for learners in e-learning environments due to the high degree of learning autonomy and physical absence of the teacher [5]. However,

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not all learners have the same ability to self-regulate with minimal guidance. Learners drop out is caused by a variety of reasons including having no one to ask for help, lack of time due to other more important priorities, lack of incentive, insufficient prior knowledge, and inability to understand course content [6].

Table 1 E-Learning Issues and Challenges from Literature

No	E-Learning Issues and Challenges	Reference
1	Individual Learner	[4][5][6]
2	Lecturer	[7][8][9]
3	Interaction and Collaboration	[5][10]
4	Infrastructure	[9][11]
5	e-Learning Policy and Regulation	[3][12]

The second e-learning challenge is related to the lecturer. Faculty load in online learning appears higher than those in traditional learning [7][8][9]. Teaching an online course, including course preparation, requires six times more effort than a face-to-face course [8]. Lecturers require more time to deal with final exams, grade computations, and communicating with students before grades are posted to transcripts [7]. Furthermore, the amount of time to teach an online class increases directly with the number of enrolled student [8][9]. According to a study in Kenya, lecturer ranked heavy workloads as the most serious challenge affecting the adoption of e-learning [9].

The third e-learning challenge is the minimal interaction among the student and the teacher [5], [10]. This causes students feel isolated and not connected to their learning communities. Interaction increases social presence and appears important to maintain student's motivation. Thus, collaborative activities should be incorporated into learning instruction. Difficulty in establishing social presence was apparently a serious barrier for teacher to promote collaboration at a distance [10].

The next e-learning challenge is the infrastructure [9] [11]. Infrastructure is one of the most notorious challenge commonly found in developing countries [9]. The lack of infrastructure, e-learning technology, internet access, and poor quality of internet services impact both learners and faculty members [11].

The fifth e-learning challenge is related to its policy and regulation [3][12]. The problem of technology is not the technology but rather its implementation [12]. According to Marshall, e-learning implementation should be based on explicit e-learning document plan for the deployment, maintenance, and retirement of the technologies [3]. Westera identifies several significant strategic points for planning, including: develop and communicate a change strategy; clarify changes to roles and responsibilities; establish a coherent implementation plan that addresses all relevant issues; set explicit targets; ensure adequate support; involve all stakeholders; institute pilot projects; promote early successes; implement evaluation procedures and be responsive to user feedback; address ongoing maintenance and upgrading [12].

III. METHODS

This research was conducted using exploratory research method to gain understanding about issues and challenges of e-learning during the Covid-19 pandemic at Universitas Esa Unggul. The study began with the observation of e-learning delivery process at Universitas Esa Unggul and interviews with university's IT supports from March to October 2020. The observation aimed to examine the delivery process, the availability of the guidelines, and the system support. To have more in-depth analysis, a survey was deployed to examine the lecturer's and student's experiences and perspectives of the e-learning system. The questionnaire was adapted from an Information Technology Service Management perspective consisting of six likert scale questions, and one open-ended questions. This survey aims to gain data of e-learning satisfaction, availability of e-learning facilities, e-learning ease of use, availability of guidelines, availability of system supports, and to get feedbacks from the student and the lecturer about the implementation of e-learning during the Covid-19 pandemic at Universitas Esa Unggul.

The survey was conducted in October 2020 using the convenience sampling method involving a total of 510 lecturers and students from 10 different faculties at Universitas Esa Unggul. The questionnaire was set in a google form and distributed through the lecturers' WhatsApp group, and with the help of lecturers, this survey was distributed to their respective students. The data collected were statistically described and analyzed using percentage to identify the main e-learning issues at Universitas Esa Unggul. The results were then compared to the previous research to see its consistency and relevancy.

IV. RESULT AND DISCUSSIONS

A. Results

A total of 510 participated in this survey, consisting of 86 lecturers and 424 students from 10 Faculties at Universitas Esa Unggul. As shown in Table *2*, 61.6% of students are new to e-learning with less than one year on using it, with the most widely used device is laptop.

Table 2 Participant characteristics

		n (%) Lecturer (N=86)		n (%) Student (N=424)	
Faculty	Faculty of Computer Science	33	(38.4%)	107	(25.2%)
	Faculty of Education	5	(5.8%)	31	(7.3%)
	Faculty of Psychology	2	(2.3%)	1	(0.2%)
	Faculty of Communication Science	5	(5.8%)	125	(29.5%)
	Faculty of Economics and Business	11	(12.8%)	118	(27.8%)
	Faculty of Law	8	(9.3%)	2	(0.5%)

	Faculty of Physiotherapy	3	(3.5%)	19	(4.5%)
	Faculty of Health Sciences	10	(11.6%)	3	(0.7%)
	Faculty of Design and Creative Industries	3	(3.5%)	12	(2.8%)
	Faculty of Technology	3	(3.5%)	4	(0.9%)
	Faculty of Postgraduate Studies	1	(1.2%)	0	(0.0%)
	Others	2	(2.3%)	2	(0.5%)
Length of using E-learning	"< 1 year"	24	(27.9%)	261	(61.6%)
	"1-2 years"	20	(23.3%)	135	(31.8%)
	"3-5 years"	28	(32.6%)	26	(6.1%)
	"> 5 years"	14	(16.3%)	2	(0.5%)
E-learning Access Location	Home	79	(91.9%)	390	(92.0%)
	On campus	3	(3.5%)	2	(0.5%)
	Cafe/ Public Space	0	(0.0%)	4	(0.9%)
	Others (ie office, coworking space, etc)	4	(4.7%)	28	(6.6%)
Device	Smartphone	4	(4.7%)	77	(18.2%)
	Laptop	67	(77.9%)	293	(69.1%)
	Personal Computer	15	(17.4%)	54	(12.7%)

To make it easier to understand the level of respondent satisfaction, the 5 Likert scale questionnaire was simplified into 3 scales, namely satisfied, neutral, and unsatisfied as shown in Table *3*.

Table 3 E-learning service management satisfaction at Universitas Esa Unggul

		n (%) Lecturer (N=86)		n (%) Student (N=424)	
Overall E-learning Satisfaction	Satisfied	29	(33.7)	148	(34.9)
	Neutral	27	(31.4)	177	(41.7)
	Unsatisfied	30	(34.9)	99	(23.3)
Availability of e-learning facilities and infrastructures	Sufficient	34	(39.5)	173	(40.8)
	Neutral	23	(26.7)	132	(31.1)
	Insufficient	29	(33.7)	119	(28.1)
Ease of Use of Online Synchronous Discussion Feature	Easy	52	(60.5)	224	(52.8)
	Neutral	17	(19.8)	143	(33.7)
	Not Easy	17	(19.8)	57	(13.4)
Ease of Access of E-Learning Guidelines and Documentation	Easy	22	(25.6)	196	(46.2)
	Neutral	30	(34.9)	158	(37.3)
	Not Easy	34	(39.5)	70	(16.5)
E-learning skills support and training	Sufficient	23	(26.7)	206	(48.6)
	Neutral	25	(29.1)	120	(28.3)
	Insufficient	38	(44.2)	98	(23.1)
Availability of E-learning support/ helpdesk	Sufficient	19	(22.1)	111	(26.2)
	Neutral	24	(27.9)	127	(30.0)
	Insufficient	43	(50.0)	186	(43.9)

Based on the survey results, the overall e-learning satisfaction was 34.7%, of which only 33.7% of lecturers and 34.9% of students were satisfied. 71.6% of students who are new to e-learning have a higher level of satisfaction. However, lecturer satisfaction is not influenced by the length of use of e-learning.

More than 50% of participants prefer using online synchronous discussion feature. However, this feature will not be affordable for nearly 30% of participants who had little access on e-learning facilities and infrastructures.

Overall user perception on e-learning support is quite low for the lecturer compared to the student. 39.5% lecturers found it is not easy to access the e-learning guidelines and documentation and 44.2% lecturers feel there is not enough support for e-learning skills and training. Lecturer found difficulties in setting the configuration on e-learning activities.

The availability of e-learning helpdesk is perceived insufficient for 50% lecturer and 43.9% students. Infrastructure and e-learning problems are frequently occurred due to new added auto synchronized feature between e-learning and SIAKAD (UEU's academic information system). This feature enables synchronization from SIAKAD to e-learning system to minimize lecturer's repetitive work in uploading the e-learning materials. Unfortunately, this synchronization didn't set the right configuration, thus require the lecturer to reconfigure it manually.

Participants' feedback about e-learning issues were collected and classified into the following seven categories, namely 1) e-learning infrastructure, 2) system integration, 3) e-learning policy, 4) e-learning support, 5) individual workload, 6) timeliness, and 7) interactivities, as shown in Table *4*.

Table 4 e-learning issues at Universitas Esa Unggul that are perceived by respondents

		n (%) Lecturer (N=86)		n (%) Student (N=424)
Infrastructure	59	68.6%	122	28.8%
System Integration	42	48.8%	38	9.0%
Policy	29	33.7%	0	0.0%
Support	24	27.9%	6	1.4%
Timeliness	0	0.0%	31	7.3%
Workload	3	3.5%	13	3.1%
Interactivity	0	0%	23	26.7%

The result shows only four categories are the common issues for both lecturer and student, and the other three categories have varied. The common issues faced by both students and lecturers are the infrastructure, the system integration, e-learning support, and e-learning workload. Lecturers have more concern on e-learning policies, meanwhile, the students have more concern on e-learning timeliness and interactivity.

B. Discussions

This research indicates that the dissatisfactions of e-learning were widely spread from the e-learning infrastructures to the interactivity. The infrastructure problems seen as the most common issues faced by both student and lecturer at UEU that caused the retardation of the courses, such as the late submission and the late grading. System integration problems added up the faculty workload in reuploading and reconfiguring the e-learning activities, thus causing the unavailability of e-learning material as scheduled. In addition, sudden changes caused by new regulations affect the faculty workload significantly, thus causing the e-learning material delays and reducing the interactivity. The infrastructure timeout, the system miss-configuration, the lack of e-learning training, and sudden changes in regulation provoked the abundance inquiries to the helpdesk that led to insufficient assistance to the lecturers and the students. The detail explanation of each issue are described as follows.

1. E-learning Infrastructure

The biggest e-learning issues at UEU during its first year of full online learning adoption was lack of infrastructure capabilities. At that time, UEU server couldn't handle request from thousands of its user simultaneously at peak times. In addition, the same weekly learning cycle for all classes appears to be the principal cause of the undistributed load. All courses started on Monday and ended on Sunday, causing all the students and teachers access e-learning at the same time. This reduces the productivity of lecturers and students since it requires too much time and effort to submit the assignment or to grade the assignment. As many as 68.6% of lecturers and 28.8% of students complained about e-learning timeouts that were happened almost every week.

2. E-learning System Integration

The second biggest e-learning issues at UEU was e-learning system integration. In the mid-2020, UEU implemented a new version of its e-learning platform with new auto synchronized feature between e-learning and SIAKAD (UEU's academic information system). It aims to automate the process of uploading e-learning material from SIAKAD to e-learning, that previously being done by lecturers manually. However, it didn't set the right configuration after the synchronization. Thus, the lecturer had to reconfigure every synchronized learning activity. In addition, the limited documentation provided by the third-party developer caused the synchronization problems could not be identified immediately. Thus, the lecturers had to re-upload the teaching material that were not synchronized by the system. This affected the delay of course material availability, causing the student's load piled up at the end of the week.

3. E-learning Policy

Regulations related to e-learning changed without an explicit plan. Therefore, it was not well-socialized to all of the stakeholders. In addition, sudden changes also affect the high workloads of lecturers in the course preparation and the learning process.

4. E-learning Support

A high number of problems experienced by lecturers and students mainly caused by infrastructure and system integration problems. Furthermore, only few IT staffs were available for the system support. Due to this limitation, not all user complaints receive immediate response from the staff. Although there is a ticketing system to accommodate user's complaints, it is not widely used and not well-socialized to the user. Most of complaints were delivered through a Telegram group or direct message, therefore the number of complaints and the problem resolved didn't well documented. In addition, new system deployment was carried out without any notification. The user had to wait in uncertain times because they didn't know when or how long the maintenance was undergoing.

5. Faculty's / Student's Workload

Online learning increased both faculty's and student's workload at UEU. Complying to UEU regulation, lecturers had to provide more variation to students' learning activities, such as video/text modules, quiz, and assignment. Furthermore, they had to participate in students' discussion and conduct a weekly assessment for asynchronous learning or having a virtual synchronous learning. Meanwhile, students had to complete at least four activities each week, namely 1) read/watch the course module, 2) complete the quiz, 3) participate in a discussion, and 4) submit the assignment for asynchronous learning activities or having a virtual synchronous learning.

Teacher workload increases as the number of enrolled students increase 50% than face-to-face learning, and the length to provide feedbacks/ to answer students' inquiries extends much longer because asynchronous activities have spreads 3 hours in class activities into 7 days learning activities. Additionally, teachers have to assess student's submission in a weekly basis and prepare more learning object materials.

6. Timeliness

Timeliness refer to the availability of learning materials as scheduled. The low punctuality at UEU is affected by synchronization problems and the lack of lecturer preparation due to high lecturer workload.

7. Interactivity

Students have difficulties in understanding the learning materials and expect more qualitative feedback on their works than just a mere grade and expect more synchronous learning activities. Although only a few participants mentioned individual learning and interactivity problems, it doesn't mean there were little problems on these issues. Participants' focus on infrastructure problems appears causing them overlook these issues.

The issues and challenges at Universitas Esa Unggul are still relevant with the previous study, with two additional unique problems regarding the e-learning implementation at UEU, such as the system integration and timeliness. The summary of its relevance to the previous work were summarized in Table *5*.

Table 5 *E-learning issues at Universitas Esa Unggul and its relevance to the previous research*

No.	e-learning issues at UEU	Description	Relevance to the previous research
1	Infrastructure	Lack of infrastructure capabilities	The lack of infrastructure, e-learning technology, internet access, and poor quality of internet services impact both learners and faculty members [11]
2	System integration	Problems of system integration between e-learning and SIAKAD	–
3	Policy and regulation	System update and maintenance scheduled is not well informed	The rationale for e-learning should be placed within an explicit plan and should be communicated to the stakeholders [1]
		Changes in regulations are not well socialized	
4	Support	Complaints have not been formally managed	Formal documentation of all student enquiries, questions, and complaints needs to be mandatory in e-learning institutional policy [1]
		Inadequate skills	The success in the implementation of E-learning will not be achieved without identifying the different skill, technical and cultural challenges [14]
			Inadequate training and technology would obstruct the effectiveness of e-learning in education [13].
5	Timeliness	The availability of learning materials as scheduled	–
6	Workloads	The number of weeks of online classroom is equal to the number of weeks of face-to-face classroom even though online activities appears to be higher than face-to-face activities. In addition, the number of enrolled students per class is 50% more than face-to-face learning, with a total of 60 students per class.	Teaching an online course, including course preparation, requires six times more effort than a face-to-face course [8]
		The length to provide feedbacks/ to answer students' inquires extends much longer because asynchronous activities spread 3 hours in class activities into 7 days learning activities.	Student Counsel and Advisement Hours took the form of face-to-face interaction either before or after class or during scheduled office hours [7]
7	Interactivity	• Students have difficulties in understanding the learning materials and got little feedbacks from the lecturer. • Students are expecting more qualitative feedback on their works than just a mere grade and expecting more synchronous learning activities.	Learners drop out is caused by a variety of reasons including having no one to ask for help, lack of time due to other more important priorities, lack of incentive, insufficient prior knowledge, and inability to understand course content [6]
			Difficulty in establishing social presence was apparently a serious barrier for teacher to promote collaboration at a distance [10]

C. Implications

The study gives implications that improving e-learning service is essential to a successful e-learning implementation in higher education. The service includes the infrastructure, the system integration, the policy and regulation, IT support, the lecturer, and the interactivity.

Implication 1 - Infrastructure. Infrastructure plays a main role in providing a smooth e-learning experience. Therefore, it is important to understand the usage and load capacity of UEU service concurrently supports to be able to cope the user requests at peak times.

Implication 2 – System Integration. The application of a careful change management practice may help smoothing the integration process by ensuring adequate support before the system can be fully run into production. Involving all stakeholders during the pre-implementation stage are also important to be able to uncover problems in the early phase. Besides, communicating the maintenance process to all of stakeholders demonstrates a polite computing practice. A polite software does not act arbitrarily, and does not use information without the permission of the owner [16]. Therefore, any changes in the maintenance process must be informed to the user in advance and must ensure that the information is not altered without the owner permission.

Implication 3 - Policy and Regulation. The rationale for e-learning should be placed within an explicit plan and should be communicated to the stakeholders [1]. Therefore, new policy and regulation should be incorporated into UEU's e-learning strategy blueprint and should be communicated to all of the participants.

Implication 4 - IT Support. Adequate supports ensures the e-learning implementation success. Providing training and guidelines will help the user learn how to use the system.

Furthermore, formal documentation of all student enquiries, questions, and complaints should be provided. This will help UEU understand user problems and measure whether the e-learning service meets the user requirement.

Implication 5 – The Lecturer. The availability of learning materials as scheduled is affected by the lecturer workload. Therefore, an incremental plan of e-learning material preparation should be created by considering the faculty's workloads. In addition, course credits need to be adjusted in online learning context. In a face-to-face course, credit hours are based on the hours per week the students spend in the classroom or lab, or "contact hours" with the students. A course that meets for three 50-minute periods per week during a full 16-week semester is considered 3 credit hours. However, this "contact hours" is not applicable in online environment. Therefore, the credits need to be reconsidered as time on task rather than contact time. The number of students enrolled in the e-learning also need to be adjusted. According to Tomei (2019), the ideal class size for undergraduate courses is 18 students for the traditional format and 12 students when teaching them online [7].

Implication 7. Interactivity. According to the research, students are expecting more qualitative feedback on their works than just a mere grade and expecting more synchronous learning activities. Therefore, the regulation needs to be adjusted to promote collaborative learning. The lecturer should be empowered and given more autonomy to design the learning activities that enable the collaboration as long as learning outcomes are met.

V. CONCLUSION

Advances in technology and pedagogical methods make the complexity of distance learning continue to increase and become a cross-disciplinary research domain that is always interesting to study. The Covid-19 pandemic has contributed in accelerating the adoption of e-learning in universities and has clearly opened up various issues and challenges faced in universities. Based on an empirical study at UEU, the issues and challenges at Universitas Esa Unggul are still relevant with the previous study, with two additional unique problems regarding the e-learning implementation at UEU, such as the system integration and timeliness. The e-learning issues include 1) e-learning infrastructure, 2) e-learning system integration, 3) e-learning policy, 4) e-learning support, 5) individual workload, 6) timeliness, and 7) interactivity. These problems affect the overall e-learning satisfaction at UEU. E-learning infrastructure found as a major challenge for UEU that requires special attention to improve on its support and regulation. The success of e-learning implementation requires commitment from management to provide e-learning guidelines that well documented and communicated to the participants.

This research gives implications that improving e-learning service is essential to provide a better learning experience. The e-learning service includes the infrastructure, the system integration, the policy and regulation, IT support, the lecturer, and the interactivity. This research could contribute to the design of an effective model of e-learning service by giving more structured guidance on how to do readiness self-assessment and factors to be focused on.

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