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Distance Learning (DL) Strategies to Fight Coronavirus (COVID-19) Pandemic at Higher Education in Indonesia

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Abstract--- *The coronavirus disease, also known as COVID-19, is a new infectious virus (nCov) spread over 210 countries across the world. This virus is exacerbated in people with underlying systemic health conditions such as diabetes mellitus, hypertension, and cardiovascular disease. The COVID-19 pandemic has adversely impacted on all areas of life, including education, therefore, distance learning (DL) or e-learning is a supportive educational system under this condition. The purpose of this study is to describe the readiness of lecturers and students in the field of dentistry in using the distance learning (DL) system during this pandemic. The simple random sampling method, was used to obtain data from a total of 142 respondents using questionnaires. In the 2nd, 4th, 6th, 8th, and 10th semesters there were approximately 28, 21, 23, 69, and 1 respondent, respectively. From the 142 respondents, 90% stated that they already had personal computers or laptops, while 10% used those belonging to relatives, neighbors, or friends. In accordance with the availability of internet facilities at home, 84% stated that they already had access to the internet, while 16% had none. Related to the quota and stability of internet access, 51% of respondents stated that they were ready with fast internet and sufficient quota, while 49% reported that they were not ready due to limited quota, and unstable internet access. Furthermore, a total of 20 lecturers were given access to a licensed Zoom® account. Lecturers and students stated their readiness to conduct distance learning in a bid to fight COVID-19and support the work from home programs.*

Keywords---*Distance Learning, Zoom, Education, Synchronous, Asynchronous.*

I. INTRODUCTION

The new coronavirus pandemic (*nCov*), spread over 210 countries, including Indonesia, has adversely impacted all lines of life, including the education and lifestyle of people. The coronavirus disease, also known as COVID-19, striking changes are seen in social life as well as the teaching and learning processes, therefore, all educational activities from elementary to higher education (university) are controlled from home [1,2]

The categorization of People in Monitoring (ODP), People without Symptoms (OTG) and Patients Under Monitoring (PDP) in Indonesia showed a significant increase from 2 positive patients on 6th March to 4,839 on 14 April 2020, with an average increase of 200-300 per day and a mortality rate (CFR) of 8% as shown in figure 1 [3].

Public response to the increasing number of ODP, OTG, and PDP due to the COVID-19 pandemic creates psychological stress, depression, and anxiety [4] The use of irrational disinfectants and antiseptics has proven to help prevent the spread of this virus. However, research has proven that excessive inhalation and use of these products on the skin, is likely to lead to an unpredictable disease in the long run [5,6].

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Currently, people all over the world, and in Indonesia, rely heavily on digital technology to continue their social and economic life in line with the policy of physical distancing and Large-Scale Social Restrictions (PSBB). According to the data obtained from UNESCO, a total of 192 countries have mandated the closure of schools to stop the spread of COVID-19, thereby, disrupting learning. The UNESCO website stated that this pandemic has an unprecedented educational impact thereby, affecting 1.57 billion children and adolescents or 91.4% of the total student population in the world as shown in figure 2 [7].

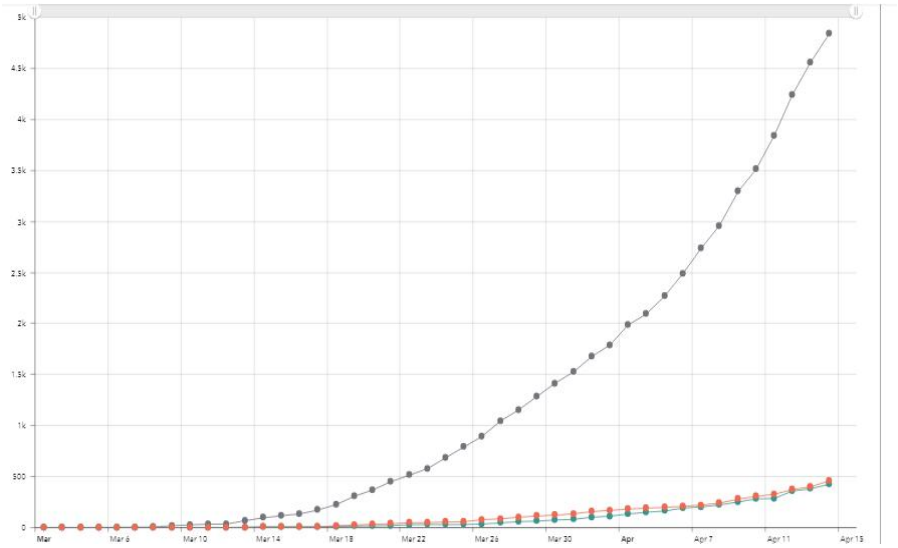

Figure 1: Trend in the number of COVID-19 cases. The black, red and green lines, denote sufferers, death and recovery [3].

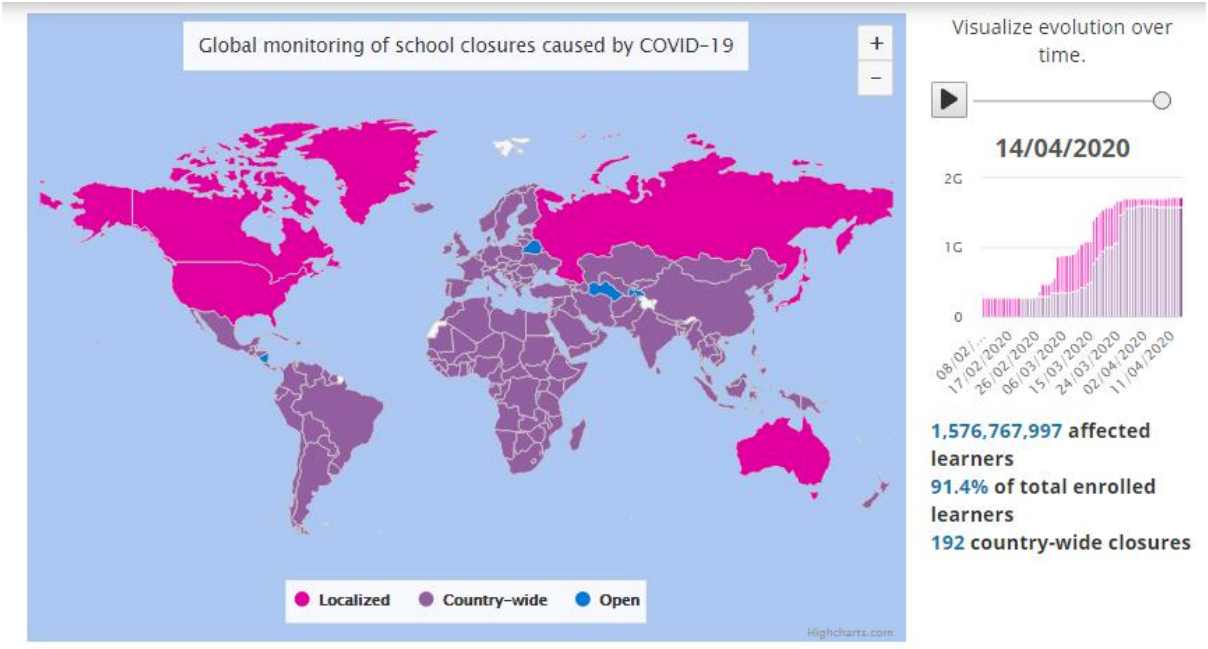

Figure 2: The closure of elementary schools to higher education (university) due to COVID-19 [7].

AI. Literature Review

The Ministry of Education and Culture stated that the implementation of Distance Learning (DL) in Higher Education is aimed at assisting students in learning from home using online learning applications such as Zoom, Google Classroom, Edmodo, Schoology, Classdojo, and other applications [8].

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This is in accordance with the Circular Letter no.1 of 2020 on the prevention of coronavirus diseases in educational institutions.Education is learning of knowledge, skills, and habits of a group of people passed down from one generation to another through teaching, training, and research. It often takes place under the guidance of teachers, or self-taught, therefore, every individual has the opportunity to learn without obstacles [9]. Online or distance learning requires students to study independently using a DL system.

The Faculty of Dental Medicine, Universitas Airlangga, is oriented to teach students the latest knowledge and market needs. Therefore curriculum development is always underway. This is in line with the development of knowledge and changes in learning systems, using Information and Communication Technology (ICT) as an application to facilitate access and obtain learning resources, quickly and cheaply. This technique is known as e-learning, which means that all educational activities use electronic media or information technology, thereby providing an advantage in terms of cost, place, time, and speed. Therefore, this research aims to determine the readiness of lecturers and students in implementing distance learning, given that Indonesia is a developing country with limited facilities and infrastructure.

BI. DATA COLLECTION

The study was conducted from March - April 2020 on students of the Faculty of Dentistry, Airlangga University, using an open-ended questionnaire in the 2nd, 4th, 6th, 8th, and 10th semesters. Furthermore, samples were randomly selected by sending questionnaires to the respondents' e-mails, which were sent back to the researcher within 7 days.

AULA is an electronic Content Management System (CMS) owned by Universitas Airlangga with a minimum of 10% face-to-face processes. This system, which is integrated with a *cybercampus* account, has long been used by lecturers and students on a single sign-on. The courses taken by students in *the cybercampus* are automatically entered into the lecturer's database as online courses. Furthermore, the lecturer uploads learning material, quizzes, and assignments into the AULA for students to download, utilize, and upon for grades.

Zoom for education® is an application chosen by Universitas Airlangga to support the DL model during the COVID-19 pandemic. The institution's Faculty of Dental Medicine, paid for 20 accounts for all lecturers to serve as managers (hosts) with login required before the creation of a learning schedule. The online discussion schedule is made by entering the topic name, date, and time to be carried out into the google calendar as a reminder. Also, lecturers have the ability to save recorded discussions in the form of video, questions, and answers through individual messages to designated students.

IV. RESULT

The simple random sampling method was used to obtain data from a total of 142 respondents using questionnaires. In the 2nd, 4th, 6th, 8th, and 10th semesters there were approximately 28, 21, 23, 69, and 1 respondents, respectively. From the 142 respondents, 90% stated that they already had personal computers or laptops, while 10% used those belonging to relatives, neighbors, or friends. In accordance with the availability of internet facilities at home, 84% stated that they already had, while 16% had none. Related to the quota and stability of internet access, 51% of respondents stated that they were ready with fast internet and sufficient quota, while 49% reported that they were not ready due to limited quota, and unstable internet access as shown in figure 3.

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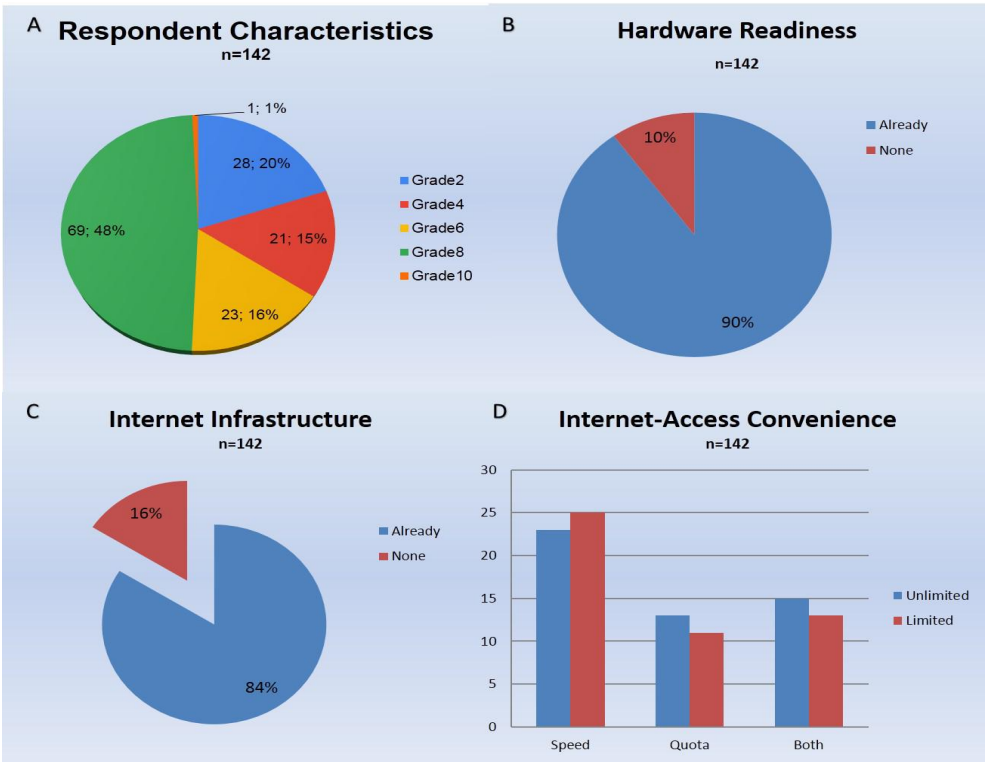

Figure 3: Student readiness with the distance learning system. Characteristics of respondents (A), Hardware readiness (B), Internet infrastucture (C), and Internet-access convenience (D)

There were no limitations associated with the use of AULA during DL in the faculty of dentistry. This is because the AULA system has been synchronized with cyber campus, which contains lecture topic data properly ordered for each semester. Lecturers provide input of learning material, quizzes, and assignments for student, as shown in figure 4.

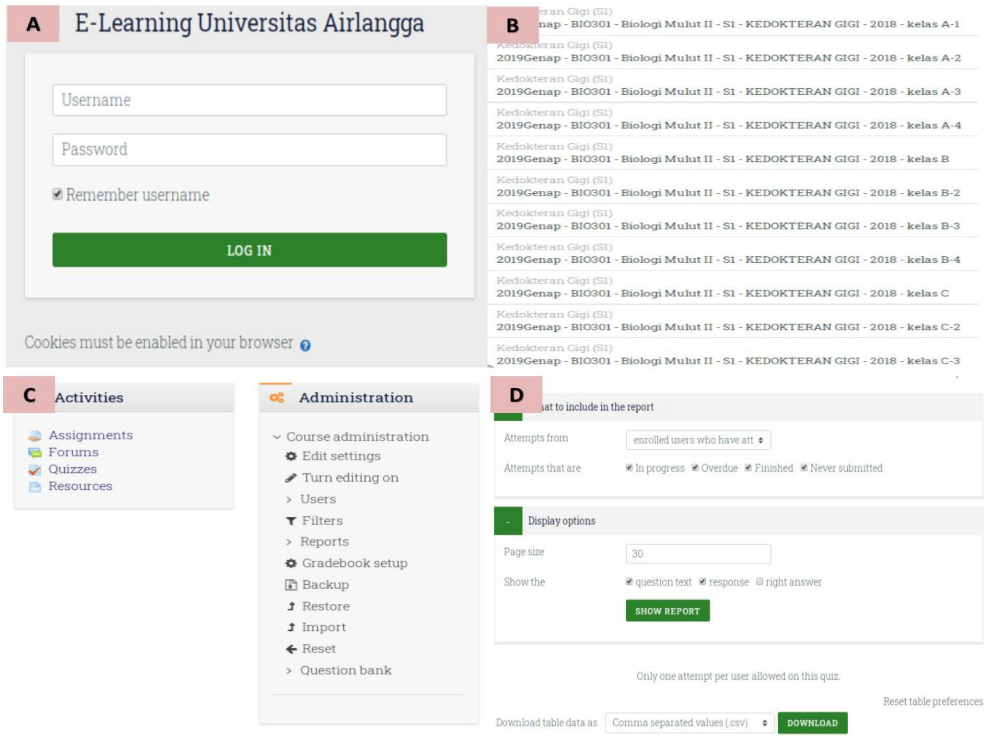

Figure 4: Lecturer dashboard features for inputting quizzes and assignments. Login (A), List of lecture topics (B), Quiz and assignment menu (C), and Quiz results download menu (D).

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Video conferencing applications such as Zoom® has become effective, with real-time or synchronous distance learning during this period of COVID-19. All learning systems in the faculty of dentistry become DL. Therefore lecturers and students need to have an account to be able to attend small and large class discussions, clinical, or thesis examinations. Therefore, they all become accustomed to learning by using this application, even when they had prior knowledge of its usage.

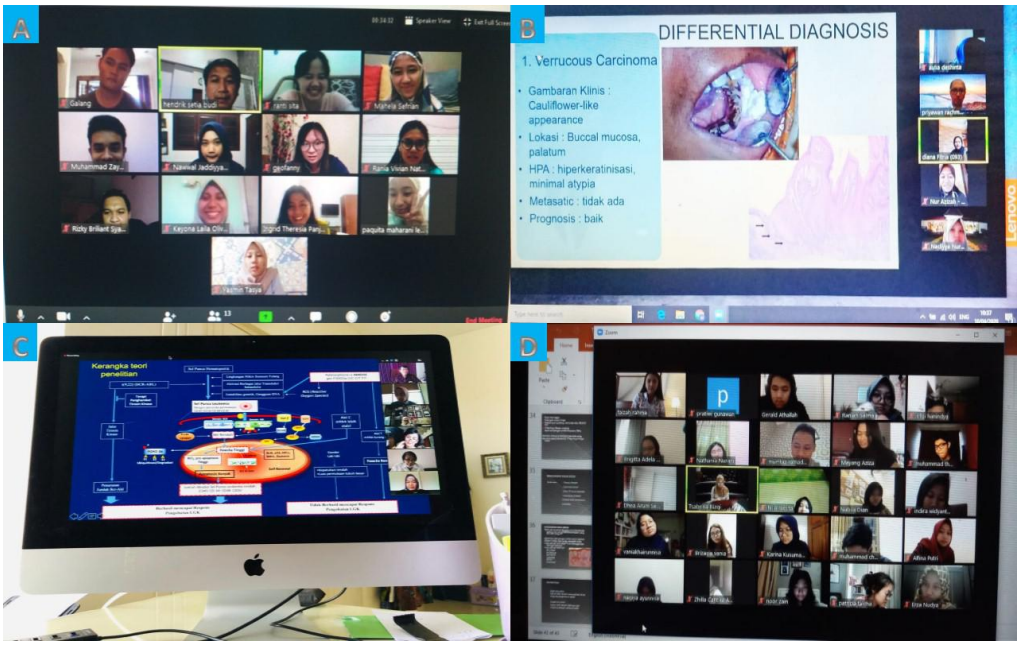

Figure 5: Distance learning synchronously via the zoom® application. Small class discussion(A), Discussion of clinical case examination (B), Discussion of thesis examination (C), and Large class discussion (D).

V. Discussion, Summary And Contribution

The increase in student mastery of life-skill using hard and soft skills is expected to complement graduate competencies and foster an entrepreneurial capable of exceeding the expectations of the community or the job market regionally and internationally. Competent graduates tend to satisfy the needs of stakeholders. Therefore, student-oriented and information technology-based learning methods are expected to enrich their mastery of learning materials. The implications of increasing graduate competencies are to enable them to work independently, accepted quickly in the job market by gaining the trust of the community and having appropriate compensation [10,11]

Students are the nation's successors that always follow the development of science and technology. Complex problems encountered are obstacles for adults in using technological advances, and sometimes this is difficult in learning using information technology [12,13]. Therefore, the results of the study showed that students are better prepared, though they are limited by quota and internet facilities. Meanwhile, lecturers need to be trained consistently on the asynchronous use of Zoom® or and AULA in setting menus to make quizzes, provide assignments, and interact with students.

The information system needs to support administrative smoothness and activities that integrate all the needs and functions of its operation, for the proper management of facilities and infrastructure, as well as for internal and external communication. Hardware management at Universitas Airlangga consists of the network and application of system servers. Network hardware was developed with high capability and has accommodated the development of bandwidth, with A, B, and C campuses connected to *fiber-optic* (FO). Therefore, for backbone connections, when the cable is lost, the system still runs. In terms of hardware and infrastructure, the university is ready to hold DL in *work from home* system usable by lecturers and students. However, internet facilities need to be prepared by each individual.

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Generally, lecturers and students are ready to implement DL both synchronously using Zoom® and asynchronously using AULA. Although some students were limited to the infrastructure facilities because they boarded. However, these difficulties were overcome with the assistance of the university in terms of quota and the monthly cost of *Bidik Misi* students. The use of this software prevents lecturers from pilling up assignments, thereby reducing stress on students, which decreases their immunity. In this COVID-19 pandemic, everyone needs to stay away from anxiety, panic and stress [14,15].

The author found the result of the study, COVID-19 pandemic has changed the conventional learning system to distance learning. The impact of work from home and school from home in Indonesia, especially lecturers and students in the Faculty of Dental Medicine, Univesitas Airlangga, showed their readiness in conducting distance learning for discussions and examinations. Therefore, an urgent and compelling situation makes it possible for a program to be carried out irrespective of its limitations.

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