

Proceedings of the 2nd Annual Conference on Blended Learning, Educational Technology and Innovation (ACBLETI 2020)

Teaching in the Pandemic COVID-19: Transition to Online Learning after Spending Years in Class

Ismail^{1*}, Ita Sarmita Samad², Muliyadi³, Rahmat⁴, Tini⁵

ABSTRACT

This study aims to gain an understanding of the online understanding of online learning among students at private universities and to prove the readiness and willingness to change from classroom learning modes to online learning modes during the COVID-19 pandemic. This research study aims to explore students' impressions of online teaching and learning. The data obtained was used for quantitative and qualitative analysis. The findings of this study show that most students have ample knowledge of using the Internet which has a positive benefit in online learning, although in general, they are not familiar with online learning. Students generally feel safe about online learning during the spread of COVID-19 and have a positive view of the flexibility of online learning, but they do not want face-to-face learning to be eliminated. In terms of content, features, comfort, communication, and pedagogical aspects, some students want it to be more interactive, complete, and creative. Most students agreed that the cost factor was the main obstacle in making the transition to online learning mode during the deployment of COVID-19. However, they hope to learn more about online learning. In conclusion, the results of this study indicate that most students still want face-to-face class learning combined with online learning (mixed learning). Institutions need to invest in online education and learning with more resources allocated to support students, lecturers, and instructors in online learning.

Keywords: Teaching Transition, Online Learning, Blended Learning, Conventional Classrooms, COVID-19

1. INTRODUCTION

Because of the need to prevent and control the epidemic deployment of Corona Virus disease (COVID-19), the Ministry of Education and Culture of the Republic of Indonesia has issued a circular of learning online and working from home. This educational situation has altered drastically in the even semester of 2020 when the spread of COVID-19 has been detected in various regions. A virus that has contaminated 8,607 people throughout Indonesia, 720 died, and 1,042 declared cured, as reported by Coronavirus COVID-19 Global Cases by JHU CSSE (www.arcgis.com) on 25 April 2020 23:00.

In this unprecedented condition, universities are limiting themselves to regular meetings, so students cannot study normally. In this case Campus is not active, but learning is still going on. The alternative is to switch from traditional learning to online learning (Ghazali, 2016; Lotrecchiano, McDonald, Lyons, Long, & Zajicek-Farber, 2013) to provide learning resources to students

and provide services to help them to overcome the discomfort of the learning process in a practical way.

An important part of this condition is the competence of lecturers and students, internet coverage, the availability of computers or laptops, and smartphones for lecturers and students. The Universitas Muhammadiyah Enrekang which is a tertiary institution that has just changed its form from high school to university based on the Decree of the Minister of Education and Culture No. 300 / M / 2020 dated March 19, 2020, where many academics of the Universitas Muhammadiyah Enrekang are not accustomed to teaching online. Almost none of us were able to become great online lecturers when the policy decision to carry out online learning. We have spent years in the campus classroom, and we do not have extensive knowledge and experience in the online classroom, both lecturers and especially our students. Most of us do not know how to teach online or how to become better online lecturers, and maybe even among us are not motivated and do not have time to study and teach online.

 $^{^{1}}$ Universitas Muhammadiyah Enrekang, Indonesia

^{2,3,4}Universitas Muhammadiyah Enrekang, Indonesia

⁵Madrasah Ibtidaiyah Negeri Kambiolangi, Indonesia

^{*}Corresponding Email: <u>smileummaspul@gmail.com</u>



Most academics have enjoyed conventional teaching and enjoyed the performativity aspects, because of the opportunity to interact with students, share the desire for a subject, and see the understanding on their faces like the dawn. Many lecturers have unique teaching personalities [4], different from the people we talk to on the street or at formal meetings. Lecturers use humor and have variations in conveying messages and good feedback.

Online-based teaching is not like solo sports [5]. Lecturers need to be trained on how students engage in online learning and to promote features and deeper knowledge of educational content. Online-based teaching makes teaching styles disappear in a practical form. The main tool in online learning is the decoration of written words [6]. Vocal intonation, facial expressions, step by step in front of the room to convey the message is lost in translation.

In the context of emerging and changing COVID-19, the transition of conventional learning to online learning environments requires that schools and universities are busy working to move their face-to-face lessons online [5]. Several lecturers and leaders at Universitas Enrekang Muhammadiyah, Indonesia faced difficulties in this transition. Many rumors are concerned about students who do not have internet networks and computer support. Students in mountainous or remote areas are not geographically supported by internet access. As a result, disruption of learning activities [7], [8] can have a negative effect on schools, institution, and their sense of the community.

In several literature studies related to COVID-19 shows the need for the current generation, especially students to be protected from the deadly spread of COVID-19, they can be a source of spread [2], [5], [9], making it a compelling reason to close down the university for a while in the face-to-face learning process. Cheng, (2020) has provided a "School Out, but Class On" modeling approach that proposes steps for schools to respond practically to prevent and control pandemics in China's education sector. A study by Mertens, Gerritsen, Salemink, & Engelhard, (2020) reported four predictors of concern related to the COVID-19 outbreak namely intolerance to indiscipline, health anxiety, excessive media reviews, and risk for loved ones with multiple regression analysis (R2) = .36). Basilaia & Kvavadze, (2020) reported that prolonged school delays and lockdown at home have adverse effects on physical and psychiatry, and Brooks et al., (2020) also reported the consequences of extensive quarantine psychology.

The Study Vlachopoulos (2020) reflects four important pillars in online learning caused by the COVID-19 Case, especially schools and universities that have experienced closure namely: (a) policymakers, (b)

resource access, (c) training and (d) assessment and monitoring. Wajdi, M. B. N., Kuswandi, I., Al Faruq, U., Zulhijra, Z., Khairudin, K., & Khoiriyah, (2020) review the Indonesian government's policies in the world of education in the COVID-19 emergency. This study concludes that the spread of the coronavirus can be reduced through government policy with online learning for schools and online lectures. Evans et al., (2020) suspects that the integration of effective e-learning platforms, technologies, teaching services such as the Internet, telephone, video, and email communication [15], [16], and social media [17] in the COVID-19 pandemic crisis requires the integration of effective e-learning platforms, technology, and pedagogies.

Before the COVID-19 pandemic, many social media tools could be used as tools to convey educational messages. For example, WhatsApp, Facebook, Twitter, Instagram, and other applications are important channels for many academics [18] to disseminate information globally [11]. However, the application lacks depth and organization to be applied reliably in the education curriculum. Since the COVID-19 period, creative approaches have risen as solutions to optimize educational innovation [3], [6]. Many programs try to improvise with new tools such as, Moodle, Google classes, Google Meet, Zoom [5], [19], [20] and other applications.

In this current study, the author will discuss the case of a private university that recently changed in February 2020 from a university to a university that has struggled to change the traditional learning process into online learning in one month through various training. The focus of online learning tools developed in this research is the Moodle Application. To investigate the results of online learning, we surveyed with a questionnaire created specifically to assess the development of learning models as a step to support government policy in preventing the COVID-19 outbreak.

2. METHOD

Respondents in this study were recruited online using the Google Classroom platform. Data from 577 students of the Universitas Muhammadiyah Enrekang were recorded as respondents. However, 349 respondents gave and completed the questionnaire, so the final sample consisted of 349 respondents (completion rate: 60.49%) representing 5 different Study Programs. Participation is done voluntarily. The Institute for Research and Community Service at the Universitas Muhammadiyah Enrekang approved this study (019/II.3.AU/F/2020). The impact of COVID-19 on the effectiveness of online learning is measured using an online questionnaire



consisting of 3 forms of statements which include: (1) Respondent Study Program, regulation, and infrastructure readiness; (2) Forms of Online Learning Applications used; and (3) Level of Respondents' Satisfaction with online learning. Besides, we include an open question where respondents are asked to describe their opinions about online learning and their anxiety about the coronavirus. Respondents were asked to provide answers to this question. Quantitative and qualitative analysis is used in the data collected.

3. RESULTS AND DISCUSSION

3.1. Readiness online learning infrastructure

During the COVID-19 pandemic, Universitas Muhammadiyah Enrekang laid down rules on online education. Online Teaching at the Universitas Muhammadiyah Enrekang involved 577 students, where online learning was introduced to 5 virtual study programs. However, of the 577 students, 349 respondents gave and completed the questionnaire as listed in table 1. Furthermore, 42 lecturers were given online training by using the Zoom application to introduce and familiarize online learning applications in the form of a learning management system (LMS). Moodle, with the https://lms.ummaspul.id/lms/ link and other supporting applications are the LMS used as an online learning app at Universitas Muhammadiyah Enrekang.

Links and accounts are sent to each lecturer so that lecturers can prepare, upload, and complete the features and content of online learning according to the number of courses being taught. Students can join in online learning based on the available schedule by opening the link provided by the lecturer or instructor concerned. The total number of users of online learning tools is based on the number of responses of respondents who have completed the questions summarized in figure 2.

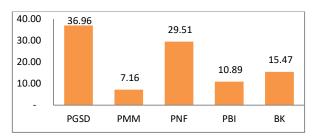


Figure 2. User platform online learning based on the department

In regular and non-crisis learning situations the number of students who actively attend face-to-face lectures ranges from 90-100%. In the case when online

learning has begun, there is a change in the activeness of students in the learning process. This is proven by the number of (349) respondents who have provided questionnaire responses from 577 active students (figure 2). Likewise, the institution has provided training to students on online learning applications based on study programs. When analyzing student responses regarding online learning training that has been provided by the institution, 86% of students said they had participated in the training, and 14% of respondents stated that they had not received training as shown in Figure 3.

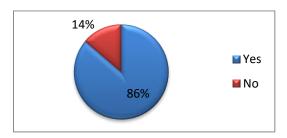


Figure 3. Student responses to online learning training participation

Online learning raises questions about justice [21]. Cheng (2020) claims that moving learning material from traditional texts to online makes learning material delivered easier to access, especially those who have physical disabilities or live in rural areas. But disagree with this opinion with the statement that not all students have computer access and internet connections, on the other hand, may not represent the needs of students who have disadvantaged socio-economic backgrounds [21], [22]. In addition, students who have adequate computers and internet networks may still face other obstacles such as de-motivational factors that contribute to the low level of completion of course assignments [22]. Therefore, the same thing was faced by students of the Universitas Muhammadiyah Enrekang about access to computer facilities. As the data in Figure 4 shows, students who have computer access and Android cellphone are 77%. while there are still 23% of students who do not have computer and cellphone facilities.

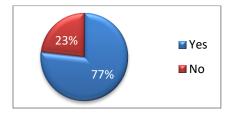


Figure 4. Student responses to computer-laptop and Android cellphone ownership



The online learning program policy is expected to have access to a computer or laptop and be able to use it properly. This allows students who do not have computers or devices that can access online learning to be negatively affected by the policy. However, as the COVID-19 pandemic situation continues globally, UM Enrekang gives top priority to the health and safety of lecturers and students while ensuring the continuity of tri dharma especially teaching and research continues.

3.2. Online Learning Application

Enrekang UM has only started online learning since March 2020 through UM Enrekang Moodle LMS. Several other online learning platforms are also integrated for teaching and virtual meetings such as Google Meet, Zoom, and other social media. Although online learning is still unfamiliar to UM Enrekang, the survey results show that online learning suggested by the university has been used even though this research has not identified 100 percent teaching effectiveness. This can be seen in Figure 5.

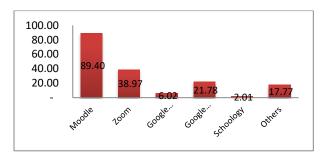


Figure 5. Online Learning Application recommended by the Institution

Figure 5 shows that for sending learning through online applications, 89 percent of respondents use the UM Enrekang Learning Management System (Moodle), 38 percent integrate with Zoom, 6 percent use Google Meets, Google Classroom 21 percent, SCHOOLOGY applications 2 percent and others answer as many as 17.77 percent of students have difficulty getting online material.

Application supporting online learning platforms recommended by institutions amid the spread of the coronavirus (COVID-19) to support learning feedback, including email, social media, and others. As shown in figure 6, most students (61%) agree that social media (WhatsApp) is a supporting application used by lecturers to facilitate their learning experiences. Apart from social media, the majority of respondents (27%) used the discussion forum found at UM Enrekang LMS in supporting online learning. While 21% of students

acknowledged the use of e-mail and only 19% of students indicated that they checked messages posted on announcements in the UM Enrekang LMS.

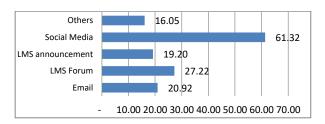


Figure 6. Variety of Asynchronous activities and tools used in online learning systems.

However, the situation is very different with 16% of students who do not get online learning material. For students, who answered no to this survey, it seems like their main reason is difficulty in accessing the internet. Interview results through private chat with students: (I am sorry sir, how do I pack with online learning, my place is in a remote area, there is no internet network. At present, I go to the next village to look for a network ... but the situation is somewhat complicated due to conditions COVID-19, I am not allowed by the village head out ... if I go outside the area I must be quarantined in 14 days, sir is very troublesome.)

Finding differences in the state of students in online learning is very valuable. Some students are equipped with technology, computer facilities, and fast internet access so they can do the assignments given anywhere. Others, however, struggle to visit public places that have internet access. What is worse, are students who don't have computer facilities and have difficulty accessing the internet, especially students who are in remote areas. Figure 7 below illustrates the situation of Universitas Muhammadiyah Enrekang students in accessing online learning tools.

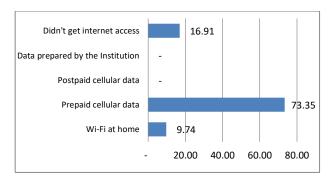


Figure 7. Students connected to the internet



To connect to online learning devices based on figure 7, 73% of students are connected to the internet using prepaid cellular data; 9% via an internet connection at home (Wi-Fi); while 17% of students have difficulty getting internet access.

3.3. Student Satisfaction Level of Online Learning

This section of the questionnaire is intended to obtain information on the level of student satisfaction regarding the application of online learning in the midst of the spread of COVID-19. Table 1 summarizes the percentage of students who answered each question with a "strongly agree" and "agree", or "strongly disagree" and "disagree" for each question. The majority of students (21% to 23%) do not agree that they feel they do not have good internet access. This is in line with a study in Chin

implementing online learning is regular internet access, especially those who are quite far from their homes and institutions. The main complaints of students are slow servers and network loading. Meanwhile, students (26% to 29%) have good internet access. This implies that 55% of students do not experience obstacles in online learning.

(2001) that found that the main difficulty of students in

The second question in this section is the ability of students to use online learning well. The majority of students (26% to 34%) students still have problems in online learning. With so many obstacles faced by students (60%) in online learning indicates that they do not feel strong enough. This is most likely due to the fact that online learning at the Universitas Muhammadiyah Enrekang is still new. Meanwhile, students (20% and 18%) agree that they feel they have the ability to use online learning well.

Table 1. Student Satisfaction Level of Online Learning

NO.	Student Satisfaction Level	Strongly Disagree	Disagree	Agree	Strongly Agree
1	I have good internet access	21.78	22.92	26.36	28.94
2	I have the ability to use online learning well	26.65	34.10	20.63	18.62
3	Online learning is safer with the current conditions	12.03	12.89	36.39	38.68
4	Easy and flexible online learning (e.g. access to lecture material, assignment uploads, discussions)	18.34	24.93	29.51	27.22
5	Online learning is more stimulating, interesting and inspiring compared to face-to-face learning	18.05	33.52	21.49	26.93
6	Online learning allows more convenience, communication and pedagogy (material content)	30.09	27.79	24.64	17.48
7	I look forward to learning more about online learning	15.47	18.34	27.79	38.40
8	Online learning content and features are more complete and creative	20.06	30.09	31.23	18.62
9	Online Learning System is boring and stressful	24.36	28.94	20.63	26.07
10	Online learning requires large funding	27.22	24.93	20.34	27.51

It is interesting to note that many students agreed about the adoption of safer online learning amid the spread of COVID-19, 36% percent agreed and 38% strongly agreed. This implies that students (75%) have a concern for their safety, health, and safety amid the COVID-19 epidemic by making positive decisions that online learning is safer to apply. Meanwhile, only 25% of students felt disagree about online learning, even in the condition of the spread of COVID-19. This result is quite ironic, but, understandably, most likely students who choose disagreement are caused due to obstacles they face in online learning such as network access, costs, and possibly also aspects of online learning web design.

The fourth question in this questionnaire deals with the ease and flexibility of online learning, especially in aspects of sending lecture material, the ease of uploading assignments, and discussion feedback with lecturers. As shown in Table 1, most students (29% agree and 27% strongly agree) feel agree with the flexibility aspects of online learning. With the exception, most students (17% strongly disagree and 25% disagree) are not satisfied with the content of the course material, assignments, and feedback through online learning. This is despite the fact that most UM Enrekang lecturers are still inexperienced in online teaching, and the material used at UM Enrekang LMS has never been revised.

As illustrated in Table 1, it contains the majority of students (51% disagree) of respondents feeling dissatisfied when asked about online learning can stimulate, attract and inspire them in learning compared



to face-to-face learning. This number is quite significant compared to 49% of students who agree if the application of online learning can stimulate and inspire them compared to face-to-face learning. This result is somewhat contrary to other findings on the questions discussed earlier, given that students generally feel satisfied and positive about the ease and flexibility aspects of online learning. One interpretation that can be transmitted as a positive attitude is the possibility of students experiencing isolation in an age of virtual learning, where online learning at UM Enrekang is new and social interactions such as those in an environment of face-to-face classroom do not exist. Thus, the discussion feature of online learning must be utilized by students and lecturers

In terms of comfort, communication, and pedagogical aspects, most (58%) students have not felt that online teaching and learning is beneficial to them. Their responses are more directed towards the lack of clarity of instructional instructions that lead directly to the topic of discussion, need more feedback from lecturers, and must about the clear instructions requirements, lack of group assignments to develop closer relationships with other students. In addition, there were also complaints from students about the lack of interactive chat rooms with fun topics, some of the material posited by lecturers seemed obsolete. Students also want the problem-solving material should be expanded to help them reduce anxiety during the COVID-19 Pandemic and they also want interactive features and humor on the LMS webpage. While 42% of students feel the benefits that online learning has comfort, communication, and pedagogical aspects. Comments from students on aspects of comfort include: online learning can be accessed where, anytime without instructions from the lecturer, allowing students to learn with their independence, no need to bother meeting faceto-face with the lecturer, students always read the information when they don't understand. Whereas for asking communication: able to discuss with lecturers who are usually rare, embarrassed, and afraid when face to face, obstacles in the discussion are reduced because they can speak freely, there is a learning discussion facility that allows me to express opinions, the same feedback treatment in the discussion. Student comments on aspects of pedagogy such as PPT slides are more interactive than traditional slides; different media for learning, the material presented in LMS is broader than face-to-face. Another reason is saving paper.

Question 7 on this questionnaire asks students about their expectations of being able to learn more about online learning. Table 1 shows that 34% of students disagree with the online learning system. Once again, the explanation can be in the form of groups of students who do not want to know more about online learning are students who do not have adequate internet access at this time, and therefore they do not have much hope for learning online learning. While the majority of students, 66% have far higher expectations than their peers to improve their learning resources and experience through a strong desire to get to know online learning.

As shown in Table 1, the majority (50%) of students indicated that online learning content and features were incomplete, and the value of creativity needed to be improved. This is in line with previous students' comments that they also want interactive features and humor on the LMS webpage. While around 59% of students think that online learning content and features have provided complete and creative information compared to conventional learning.

Question number 9 in this section of the questionnaire looks for students' opinions about how their online learning experience compares to face-to-face learning experiences. As shown in Table 1, most students (53%) agree that online learners have facilitated their learning experience rather than conventional learning, they feel that virtual learning is not boring and stressful. Apart from the majority who say that online learning is not boring, but a few students (47%) also states that online learning is boring and sometimes stressful. This possibility is based because online learning is not so familiar with some students at the Universitas Muhammadiyah Enrekang.

In terms of financing for online learning, the majority (52%) of students disagree if online learning is considered burdensome for them. It's likely their assumption that online learning has affordable costs compared to paper forms. Another assumption is that it can save students in transportation costs. While, 48% of students agree that online learning requires large costs (before there are subsidies from institutions). This is most likely due to the demographic background of students who do not have internet access, so they have to find a place to pay more to get an internet network, and maybe also due to family economic factors.

4. CONCLUSION

This study helps to establish a sense of online learning and teaching through student perceptions and experiences during the COVID-19 pandemic at Universitas Muhammadiyah Enrekang. Understanding student interests in online learning and teaching will make it easier for higher education institutions to develop and complement online learning tools that are beneficial for education practitioners. This finding is expected to add new knowledge for researchers to take advantage of new knowledge in further research.



Based on the descriptive findings on student responses can be summarized as follows: (1) students generally do not have problems with internet access, but they want to see the existence of internet quota assistance from educational institutions; (2) students feel that they generally do not have enough knowledge about online learning; (3) The majority of students agree that they feel safe about online learning during the COVID-19 deployment; (4) In terms of the ease and flexibility of online learning, students generally have a positive view of access to lecture material, uploading assignments and discussions; (5) Not all students feel that online learning can stimulate and inspire them as face-to-face learning, this is possible because students are not yet familiar with online learning; (6) Meanwhile, in terms of comfort, communication and pedagogical aspects, students in general are not sure of the benefits of online learning; The level of online communication among students themselves for discussion of material related to subjects is still low. (7) However, the majority of students hope to learn more about online learning. This is an advantage for institutions and lecturers to improve their performance so that online learning formats are more varied so that student involvement can be more meaningful; (8) In terms of content and features in online learning, some students want features and content to be more interactive, complete and creative. Possible in this case because the content of the material is not much different from the content of previous learning; (9) The majority of students in this study feel that online learning is not boring and makes them stressed. Since online learning is generally accepted by students, this implies that it is necessary to further explore this kind of learning; (10) One of the main driving forces in the online learning model is cost. In this study, students generally claimed that they were not burdened with funding in online learning, although almost half of the students agreed that the cost factor was a major obstacle in making the transition to online learning mode during the COVID-19 pandemic.

The general result of this research is that students and institutions can engage in online teaching and learning. However, face-to-face learning is still needed. This means that universities must have a serious commitment to online teaching and learning. Because students demand the use of the internet in learning, students become increasingly literate with technology, therefore, universities need to provide subsidies to students in the form of internet quota. Online learning also requires increased instructor support and training assistance for lecturers in turning their courses into a more effective online environment. As such, universities must provide ongoing contributions and assistance to lecturers in managing and maintaining the quality of online learning.

This research data has limitations by not taking samples from lecturers. This is clearly a major limitation of research and a much larger sample size of data is recommended for further research studies. In this study, qualitative data collection was not conducted, which should have been interviewed directly after the questionnaire was given. Considering the emergency condition of the Pandemic COVID-19 in communicating with respondents directly, it was decided that the interview was not appropriate in this study. Data collection in this study was conducted after 1 month of online learning during the COVID-19 pandemic, which is towards the end of April 2020. Researchers acknowledge many things that have changed in the research respondents since then. Students have also become familiar with the concept of online learning, and pedagogical problems and online learning infrastructure may have been handled well. It is certainly interesting to re-conduct further investigations by examining the quality of respondents involved in online learning by comparing learning conventionally.

REFERENCES

- [1] D. Vlachopoulos, "COVID-19: Threat or Opportunity for Online Education? COVID-19: Threat or Opportunity for Online Education?," *High. Learn. Res. Commun. Vol.*, vol. 10, no. 1, 2020, doi: 10.18870/hlrc.v10i1.1179.
- [2] S. Houlden and George Veletsianos, "Coronavirus pushes universities to switch to online classes — but are they ready?," 2020, [Online]. Available: https://theconversation.com/coronavirus-pushesuniversities-to-switch-to-online-classes-but-arethey- ready-132728.
- [3] M. B. Omary, J. Eswaraka, S. D. Kimball, P. V. Moghe, J. Reynold A. Panettieri, and K. W. Scotto, "The COVID-19 pandemic and research shutdown: staying safe and productive," *J. Clin. Investig.*, 2020, doi: 10.1017/CBO9781107415324.004.
- [4] L. Zhou, F. Li, S. Wu, and M. Zhou, ""School's Out, But Class's On', The Largest Online Education in the World Today: Taking China's Practical Exploration During The COVID-19 Epidemic Prevention and Control as an Example," *Best Evid. Chinese Educ.*, vol. 4, no. 2, pp. 501–519, 2020, doi: 10.15354/bece.20.ar023.
- [5] X. Cheng, "Challenges of 'School's Out, But Class's On' to School Education: Practical Exploration of Chinese Schools during the COVID-19 Pandemic," *Sci. Insights Educ. Front.*, vol. 5, no. 2, pp. 501–516, 2020, doi: 10.15354/sief.20.ar043.



- [6] G. Mertens, L. Gerritsen, E. Salemink, and I. M. Engelhard, "Fear of the coronavirus (COVID-19): Predictors in an online study conducted in March 2020," 2020, doi: 10.1088/0256-307X/37/4/043101.
- [7] G. Basilaia and D. Kvavadze, "Transition to Online Education in Schools during a SARS-CoV-2 Coronavirus (COVID-19) Pandemic in Georgia," *Pedagog. Res.*, vol. 5, no. 4, 2020.
- [8] S. K. Brooks *et al.*, "The psychological impact of quarantine and how to reduce it: rapid review of the evidence," *Lancet*, vol. 395, no. 10227, pp. 912–920, 2020, doi: 10.1016/S0140-6736(20)30460-8.
- [9] K. Wajdi, M. B. N., Kuswandi, I., Al Faruq, U., Zulhijra, Z., Khairudin, K., & Khoiriyah, "Education Policy Overcome Coronavirus, A Study of Indonesians," *EDUTEC J. Educ. Technol.*, vol. 3, no. 2, pp. 96–106, 2020.
- [10] D. J. R. Evans, B. H. Bay, T. D. Wilson, C. F. Smith, N. Lachman, and W. Pawlina, "Going Virtual to Support Anatomy Education: A STOP GAP in the Midst of the Covid-19 Pandemic.," *Anat. Sci. Educ.*, 2020, doi: 10.1002/ase.1963.
- [11] J. P. Wong and M. E. Christopher, "Pandemic and avian influenza viruses as potential biothreat agents: prevention and countermeasures.," in *Recent developments on the avian influenza (H5N1) crisis*, 2006.
- [12] K. Ash, M. R. Davis, and K. Dorko, "E-Learning's Potential Scrutinized In Flu Crisis.," *Educ. Week*, 2009.
- [13] I. Ismail, E. Elihami, and M. Mustakim, "Students' Perceptions of the Benefits of Mobile Polling Technology in Teaching and Learning in College: Implications of Students' Participation and Academic Performance," J. Pendidik. Progresif,

- vol. 9, no. 1, pp. 89–104, 2019, doi: 10.23960/jpp.v9.i1.201912.
- [14] Y. Purnama, I. Ismail, D. Noviandri, Y. Hendriyani, P. T. Nguyen, and I. Putu, "Expert System in Detecting Children's Intelligence using Certainty Factor," *J. Crit. Rev.*, vol. 7, no. 1, pp. 52–55, 2020, doi: 10.22159/jcr.07.01.09.
- [15] G. R. Lotrecchiano, P. L. McDonald, L. Lyons, T. Long, and M. Zajicek-Farber, "Blended learning: Strengths, challenges, and lessons learned in an interprofessional training program," *Matern. Child Health J.*, vol. 17, no. 9, pp. 1725–1734, 2013, doi: 10.1007/s10995-012-1175-8.
- [16] N. Mostafa and K. Zafari, "What do we mean by Distance Education? Theories and Practices: A Study for New Beginning."
- [17] E. M. DeFilippis, A. C. Stefanescu Schmidt, and N. Reza, "Adapting the Educational Environment for Cardiovascular Fellows-in-Training During the COVID-19 Pandemic.," *J. Am. Coll. Cardiol.*, 2020, doi: 10.1016/j.jacc.2020.04.013.
- [18] Z. Almarzooq, M. Lopes, and A. Kochar, "Virtual Learning during the COVID-19 Pandemic: A Disruptive Technology in Graduate Medical Education.," *J. Am. Coll. Cardiol.*, 2020, doi: 10.1016/j.jacc.2020.04.015.
- [19] K. L. Chin, "The perceptions of lecturers and oncampus students on online teaching and learning in higher education (Doctoral dissertation, Curtin University)," 2004, [Online]. Available: https://espace.curtin.edu.au/bitstream/handle/20.50 0.11937/887/16074_Chin%2C Kum 2004.pdf?sequence=2&isAllowed=y.
- [20] G. M. Farrell, *The Changing Faces of Virtual Education*. The Commonwealth of Learning, 2001.