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# Responses and strategies of Indonesian higher education during COVID-19 pandemic

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**ABSTRACT**

This study aimed to identify the responses and strategies of higher education in Indonesia in dealing with coronavirus disease 2019 (COVID-19). The data in this study came from several legal frameworks and news issued by relevant ministries as well as regulations and news released by universities which were analyzed to map how universities adapt to the COVID-19 situation. In addition, interview to faculty members, students and administrative staffs were also conducted. This study found that the relevant ministries responded no faster than the responses made by universities. The ministry has provided a series of regulations and also guidelines but unfortunately, the universities have published these things first. This research is an initial study to identify responses, obstacles to providing education, and research and community service in the COVID-19 era. This research is the first to investigate how universities conduct the three main tasks of the university in Indonesia investigating responses at the organizational and individual levels to identify responses and obstacles they find.



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## 1. INTRODUCTION

The social, economic, and health impacts of the coronavirus disease 2019 (COVID-19) pandemic prove that we currently live in a connected world [1]. The education sector, including higher education, is one of the sectors most affected by various pandemics such as severe acute respiratory syndrome (SARS), middle-east respiratory syndrome (MERS) and now COVID-19 [2]. As a result, universities were forced to close to reduce the spread of the various viruses. Some of these institutions provide online classes and some of them are forced to change the academic calendar [3]. The end of the COVID-19 pandemic cannot be predicted so that universities must think about the possibility of another pandemic in the future and its impact on educational institutions and therefore, higher education must be designed to prepare various kinds of rules, strategies, and policies specific to deal with this problem [3].

To promote physical distancing, many universities have changed their learning strategies from offline to online [4]. Various applications such as Zoom, Skype, and Microsoft Teams were employed to reduce lecturer and student contact in the classroom and across campus. Moreover, services from the university to students and other stakeholders are also conducted online [5]. The transition to online education and services is required to be swift. Universities with more resources will respond to this crisis more quickly because digitalization programs have been initiated or even have been running for a long time. Meanwhile,

campuses with limited resources have to go through a more difficult process to digitize the lectures and academic services they provide [3]. The purpose of the digitization process in the era of the COVID-19 pandemic is to free students, teaching staff, and education staff from direct interaction and thereby reduce the spread of COVID-19 [6].

Higher education in Indonesia is a unique subject in research with the theme of higher education. This is because the government through the Ministry of education and culture has a high level of intervention in the implementation of higher education, especially to ensure its quality [7], [8]. Moreover, higher education is required to remain relevant to people's lives by providing various contributions through research and community service to contribute to improving the quality of life of the community [9], [10]. Another demand is to participate in various kinds of higher education internationalization programs to exist in the era of globalization [11].

Numerous studies have demonstrated how higher education institutions are affected by pandemics such as avian influenza A (H5N1) and swine flu (H1N1). Petinaux *et al.* [12] discovered that higher educational institution (HEI) has made a variety of measures, including immunization, mask use, and hand washing movements, but not quarantine. Meanwhile, Zhang *et al.* [13] discovered that during the H1N1 pandemic, inadequate surveillance and control allowed students to transmit the virus back to campus from their home countries. Saravara [14] proposed that in the case of H5N1, HEI conduct an initial response by documenting arrivals and collaborating with students; during the recovery period, HEI must supply appropriate equipment such as internet access and modify traditional learning.

In addition, a collection of literature on higher education and disaster management is available in two main streams. The first are those who discuss the contribution of higher education in disaster management through its various resources [15]–[18]. Meanwhile, the second stream is how disasters affect activities in universities in terms of teaching, research, and services to students and alumni [19]–[22]. Unfortunately, little attention has been paid to how universities are asked to contribute to disaster management while universities, in this case, are also victims of disasters. By taking a case study on higher education in Indonesia, this study aims to fill this gap, investigate the response variations of universities in Indonesia as a result of the COVID-19 pandemic and how they contribute to minimizing the impact of the COVID-19 pandemic on society at large.

Furthermore, the research aimed to: i) Identify and map the response of higher education in Indonesia in the face of the COVID-19 pandemic; ii) Describe the strategy for changing the strategy for implementing the *Tri Dharma* of higher education during the COVID-19 pandemic, and iii) Describe the efforts of higher education institutions to utilize the *Tri Dharma* of higher education in reducing the impact and risk of the COVID-19 pandemic. Academically, this research fills an empty research space about higher education as a victim of the COVID-19 pandemic and at the same time, they are required to contribute to reducing the impact of the COVID-19 pandemic. Meanwhile, practically, by analyzing the strategies and responses of the best universities in Indonesia, other universities can adapt and adopt the methods used by universities that are part of the case study.

## 2. RESEARCH METHOD

This research utilized qualitative content analysis. This kind of method has been widely used by social research to study documents and objects of communication in the form of text or other formats such as audio, video, and images [23]. Social scientists used this method to identify patterns in a systematic review of governance and other documents. It deals with meaning, consequence, and purpose as well as context to describe the occurrence of certain words, phrases, or sentences [24]. Content analysis is concerned with assessing the text in a document and focuses on the relationships between texts and why such texts appear [25]. The data in this study came from several national legal frameworks issued by the Ministry of education, culture, research and technology to respond to the COVID-19 pandemic.

News published by the Ministry were analyzed to see the variety of policies to maintain the quality of higher education in Indonesia. Moreover, we also studied the news published by universities on their official pages which aims to find out the variation of the response to the COVID-19 pandemic and how universities work and contribute to reducing the impact of the COVID-19 pandemic. In addition, several interviews with faculty members, students and academic staffs were also conducted to bring a complete view of findings. We were also investigating university activities during the COVID-19 pandemic to find out how the *Tri Dharma* of higher education which is education, research, and community service continues.

There were three universities (the University of Indonesia, Bandung Institute of Technology, Gadjah Mada University, and Universitas Muhammadiyah Yogyakarta) chosen. There is no doubt that these three universities in several surveys were ranked as higher education institutions that contribute to development in Indonesia and are recognized internationally through various kinds of research and publications [26].

Practically, the three responses can be studied by other universities to serve as examples in responding to the COVID-19 pandemic.

We decided not to use an application in this study and instead used manual coding. While manual coding takes time, it enables the researcher to be more detailed and intuitive with the meaning of the data gathered through interviews and documents [27], [28]. To ensure the data's reliability and authenticity, we read and re-read the data from both interviews and policy texts collaboratively. Each researcher was assigned to develop a code, and the findings from the codes were examined in the discussion to ensure the data was enough for drawing conclusions.

Data analysis in this study was conducted using thematic analysis. Thematic analysis is one way to analyze data that aims to identify patterns or to find themes through data that has been collected by researchers [29]. This method is very effective if a study intends to identify in detail the qualitative data held to find the linkage of patterns in a phenomenon and explain the extent to which a phenomenon occurs through the eyes of the researcher. After various data were collected, the data were read carefully and understood to be grouped on similar themes. We did not limit the themes that emerged as a consequence of data collection. However, four things underlined the grouping of themes, namely university policies, programs, and activities, and their contribution to reducing the impact of COVID-19 as well as implementing the *Tri Dharma* of higher education amid COVID-19. These three things are the basis for content analysis and thematic analysis and are developed based on research data.

## 3. RESULTS AND DISCUSSION

### 3.1. The policy of the Ministry of education, culture, research, and technology

#### 3.1.1. Policy for education in the era of the COVID-19 pandemic

This section contains a series of policies taken by the government, especially the Ministry of education, culture, and research for the implementation of education, research, and community service. Several regulations have been issued by this ministry to regulate the implementation of higher education and also to maintain the quality of higher education. We identified various regulations regarding the implementation of higher education in the COVID-19 pandemic situation. So far, there are seven rules out of the three guidelines we have found relating to online learning in colleges. We identified seven regulations regarding the implementation of online learning in universities issued by the Ministry of Education, Culture, and Research as shown in Table 1.

Table 1. The Response of Ministry of Education, Culture, Research, and Technology

| No | Date | Regulation | Contents |
|---|---|---|---|
| 1 | Mar. 15, 2020 | 36603/A.A5/OT/2020 | Prevention of the spread of COVID-19 within the Ministry of education and culture |
| 2 | Mar. 17, 2020 | 239/E.E2/DT/2020 | Sharing request by opening access online learning |
| 3 | Jun. 22, 2020 | 631/E.E2/KM/2020 | General guidelines for campus life for new students (PKKMB) 2020 |
| 4 | Jun. 25, 2020 | 1402/E2/PM/2020 | Reporting on the implementation of online learning in higher education in 2020 |
| 5 | Aug. 12, 2020 | 69868/MPK.E/KU/2020 | Policy for the implementation of specialist-subspecialist programs in the new normal order |
| 6 | Nov. 30, 2020 | Number 6 of 2020 | Implementation of learning in the even semester of the 2020/2021 academic year |
| 7 | Mar. 1, 2021 | Number 4 of 2021 | Technical guidelines for distribution of government assistance for data and internet quota packages in 2021 |
| 8 | Jun. 11, 2021 | 2582/E2/PB.03.00/2021 | Integration of university learning management system (LMS PT) with online learning system (SPADA) Indonesia |

We also found four handbooks consisting of online classroom service guide for teaching and deaf/hard of hearing (HOH)/deaf-disabled students in higher education, guidelines for implementing odd semester 2020/2021 learning in higher education, online learning guide for students with physical disabilities and visual disabilities, and online learning booklets. We appreciate the Indonesian government cares about disability issues, which then made two guidelines, one for the blind and one for the deaf. Then, there are also online learning guidelines, namely guidelines for organizing learning for odd semesters and online learning booklets.

#### 3.1.2. Policy for research and community service in the era of the COVID-19 pandemic

About the implementation of research during the COVID-19 pandemic, the Ministry of research and technology issued a regulation, namely number 31/E1/KPT/2020 concerning supplementary guidelines for research and community service during the COVID-19 pandemic. This regulation is intended to provide direction and certainty for the implementation of research and community service during the COVID-19

pandemic. Several policies taken taking into account the COVID-19 pandemic, among others: research and community service will continue in 2020, research and community service will be postponed in 2021, research and community service will be directed to topics related to COVID-19 and the last one is a cancellation. The details of each policy are presented in Table 2.

Table 2. Response of the Ministry of Education, Culture, Research, and Technology related to the implementation of research and community service

| Implementation | Details |
|---|---|
| Held in 2020 | Research or community service can be conducted according to the agreed time and method<br>Researchers are allowed to change research or community service methods and locations taking into account the limitations caused by COVID-19<br>Single year research or community service may extend the research period<br>Extension of research or community service time can be done by notifying in advance<br>Research or community service can use information technology-based methods |
| Postponed in 2021 | Research or community service postponed in 2021 is subject to the stipulation that research or community service and disbursement of the budget for single-year research are carried out after signing the contract in 2021. |
| Redirected to the topic of COVID-19 | For research or community service that conducts refocusing of research objects into research on COVID-19, a provision is imposed that the research or community service proposal is not completely new research from previous research or community service, but changes are only made to the object of research or community service and do not change the total research budget previously submitted. |
| Canceled | Research or community service that is canceled will apply the provisions as referred to in the guidelines. |

### 3.2. Institutional and individual response to the implementation of education and teaching

This section identifies responses from each of the institutions that are case studies in this research, namely the University of Indonesia, the Bandung Institute of Technology, Gadjah Mada University, and the Muhammadiyah University of Yogyakarta along with lecturers and students. Generally, each university already has rules regarding the implementation of online education and teaching, the difference is the details of each of the different rules between each university.

#### 3.2.1. Implementation of education and teaching

Our study found that lecturers received orders from their leaders to conduct online learning as a key response to COVID-19. At the beginning of the COVID-19 pandemic, they were allowed to choose the easiest and most convenient free application to teach online. Specifically, we found that at the beginning of the COVID-19 pandemic, instructions were not followed by orders and prompts to use certain platforms. At the same time, universities fix their LMS, because at first, LMS could not accommodate all the courses offered, including lecturers and students as users. The communication process is conducted between the lecturer and the class representative and is usually the class president, then, they are connected to various applications such as WhatsApp group or Google Classroom.

After that, the second wave of responses came with a more formatted, conceptualized, and well thought out. In this second wave, our informants talked about the existence of a more standardized appeal. This is because the evaluation results from the first period were responded to in a very varied manner so that there was no standardization on how course material should be given and evaluated at the end of the period. Moreover, the deans were also confused to oversee the course of teaching and learning activities because of this. In this second period, some of the applications used.

This is an amazing experience, especially for senior lecturers who are not familiar with technology to mediate the learning process. Even though there were doubts about the quality of the material received by students, the lecturers we interviewed exchanged knowledge with each other to gain experience about more effective learning with different student conditions. Student participation, especially when the learning media was not direct (WhatsApp Group, YouTube, and Google Classroom) was greater. Some of the students admitted that they found plenty of free time to study the material and because they did not have to speak face to face, they were more daring to ask questions. In this second wave, they will use WhatsApp and Google Classroom to discuss and share materials, while certain materials that require face-to-face.

The ethics of online lectures is another issue that is expressed by lecturers and some students. Some lecturers find that students forget the ethics of lectures when studying online. Among the cases that widely disclosed, students not turning on the camera so that their activities were not monitored. Students were also found studying from vehicles, such as cars, and others talked about appropriate clothing. Meanwhile, some students revealed that they felt that they did not find the ethics of online lectures so that there were lecturers who had strict rules while others were more flexible. The absence of one official rule is then interpreted differently by each lecturer. Therefore, students receive different consequences when they violate the rules set by the lecturer. Table 3 presents the response in the implementation of education and teaching.

Table 3. Individual response in the implementation of education and teaching

| Applications | Learning methods | Evaluation methods | Challenges |
|---|---|---|---|
| WhatsApp group | Lecturers send reading materials and presentation slides to WhatsApp groups. Students read and study the material. Lecturers make voice notes to answer and explain the material. Students ask questions about material they do not understand. Lecturers respond by sending messages, voice notes, or other reading materials. | Students' participation is assessed from the discussion process in the WhatsApp Group and sometimes, the lecturer gives assignments to be collected either by e-mail or in the group. | There is an indirect interaction in the delivery of material because students need some time to learn the material provided. |
| Google Classroom | Lecturers make classes in Google Classroom, upload some lecture materials, and create assignments to start a discussion. Students download the material, study it and ask the material if they still don't understand. Students submit assignments by uploading the assignments they created in Google Classroom. | Participation is measured by the activeness of students asking questions and collecting assignments through Google Classroom. | There is an indirect interaction in the delivery of material because students need some time to learn the material provided. |
| Video conference application | The teaching-learning process occurs, as usual, the only difference is the media used from face-to-face to online. | Student participation is measured through activeness in class discussions. | The digital divide makes students in areas with unstable internet networks unable to study effectively. The need for large data packages also contributes. |
| YouTube | Lecturers make videos and upload them to YouTube; students listen and ask questions in the comment's column. Lecturers answer questions so that there is a multi-way discussion. | Student participation is measured through active discussion in the comment's column. | The discussion process carried out through messages in comments is not effective because not everything can be explained through text. |

### 3.2.2. Researches

Conducting research is a mandatory activity for lecturers because apart from being teaching staff they are also researchers. This section describes how they conducted their research and what impact they had due to COVID-19. Due to the COVID-19 pandemic, several lecturers revealed the problems they faced, namely the problem of closing laboratories, research locations, collaborations, grants, and also the length of the scientific publication process to journals.

The closure of the laboratory makes researchers, especially those from the natural sciences, agriculture, engineering, medicine, and other exact departments, experience problems in carrying out research. In normal situations, many studies use various experimental methods carried out in laboratories because they require sophisticated equipment, certain materials, and laboratories designed to resemble certain conditions. Meanwhile, the closure of the university made the things mentioned previously impossible because the physical distancing policy made it no longer possible for them to easily access the laboratory. Therefore, some of them changed the focus of their research from what was originally in the laboratory to research that used a community setting.

Meanwhile, lecturers from social science disciplines, although they rarely use the laboratory, also experience similar problems. The problem is that it is difficult for them to get research permits because there are strict health protocols that they must adhere to. When they managed to get a research permit, the problems did not stop there. Social research usually uses research settings in the community or certain organizations. Those who put the study locus in the community found obstacles in not getting permission from the local community because of fears of transmitting COVID-19. Moreover, those who conduct studies in certain agencies, such as public agencies or business organizations, are not only constrained by licensing issues but also find it difficult to find informants or respondents. This is due to the implementation of a work from home policy that forces informants and respondents to work from home. For example, many studies have been conducted using online questionnaires with the help of google forms, survey monkeys, and others. Meanwhile, to conduct interviews, they are usually assisted by video conferencing applications such as Zoom, Skype, Google Meet, and so on.

The next problem is the difficulty of implementing collaboration. The development of research problems makes inter-disciplinary collaboration a requirement to obtain a source of research funding. An example is the waste problem that requires studies from environmental science, engineering, sociology, policy, and other disciplines. While people are working from home, the research work that normally is accomplished by sitting down together becomes difficult to do. Some of our informants also acknowledged that working with female researchers is becoming increasingly difficult because female researchers have a double burden. Because they worked from home, they have to do housework and also finish their work as researchers. The closure of child care and schools makes children study and stay at home so that this makes the work of female researchers increasingly difficult.

The development of video conference applications makes work that requires collaboration to be easier. However, this makes the research hours increasing. This is because the researchers also have the task of teaching so that hours to work on research and meetings are conducted between teaching activities and also on weekends. Some researchers report they get extraordinary pressure and fatigue due to the addition of working hours and the double load they experience. This is coupled with the thesis and internship guidance process which is also done online.

The next problem is the research funding problem. Refocusing and reallocation of the research budget made part some of our informants difficult to complete their research because there were funding barriers. The reduced sources of government revenue and the priority of handling COVID-19 made research affairs were ruled out. This is exacerbated by the process of disbursing research funds which takes longer because the employees in charge of disbursing research funds work from home and banks also limit working hours. This is coupled with the research topic being shifted from general topic to topic related to COVID-19.

The last is the publication process to a journal which takes a long time. Among the informants we interviewed mentioned that they often get rejected because the journal they are going to lacks reviewers so that they find it difficult to find reviewers with certain qualifications. Another problem is the review process which takes a long time. Several academics and lecturers at universities were found to be affected by COVID-19 and some even died, causing the review work to be delayed. Meanwhile, the journal admitted that it was difficult to find reviewers. The move to topics related to COVID-19 to link practice and research results makes off-topic articles less desirable. Moreover, the journal is also overwhelmed with managing manuscripts because researchers are more productive when writing at home.

### 3.2.3. Community service

One of the university's obligations is to continue to have an impact on the surrounding community through community service activities. Community service activities vary from socialization to empowerment to increase knowledge, awareness, and even the community's economy. The methods commonly used are seminars, focus group discussions, mentoring, and technology transfer. This is a form of the university's responsibility, especially to the community around the university, which in addition to receiving the positive impacts of the university's existence, also often gets various negative impacts.

In the era of the COVID-19 pandemic, it is necessary to arrange community services that are not only about what topics or materials must be provided to the community but also the method of conducting these activities. There were several problems identified from the implementation of community empowerment during the COVID-19 pandemic, such as community rejection, changing topics, and using appropriate methods to intervene in the community. All of them will be discussed in this chapter.

Although community services have proven to be able to overcome various problems in the community, in the COVID-19 pandemic situation various adjustments must be made by universities such as implementing strict health protocols to reduce the spread of the virus. The university admits that it has appealed to lecturers to continue to pay attention to the implementation of health protocols. Even though it has been urged and implemented strictly, it is not uncommon for people to still refuse this activity because face-to-face community service programs increase the risk of the community and lecturers being exposed to COVID-19 so they refuse it. This rejection varies, ranging from individual, small groups or rejection as a whole. Our informants stated that the resistance they often encountered was rejection by individuals because community service activities increase the risk of transmitting the virus.

Some of our informants also conduct online community service activities as a strategy to reduce the spread of the virus. This method is considered the most effective and efficient way to reach the community and socialize the program without having to meet face to face. This activity can generally only be conducted for groups that have high digital literacy or certain circles such as students, students, or groups of teachers. While groups such as farmers or people from a village will find it difficult to operate various kinds of video conferencing technology. Our informants, recipients of community service activities, said that they viewed online activities as less effective because they were not accompanied in person.

Our informants also stated that there were sudden instructions to carry out community services from what were originally general topics to topics related to COVID-19. Therefore, the lecturers adjusted this by remaking the community service proposal with a very limited time. Our informants stated that this was natural because universities also wanted to contribute to the resolution and reduction of the impact of the COVID-19 pandemic so that the resources they allocated for community services were used for this activity.

The last problem told by our informants relates to the selection of the right method. There is a dilemma where when they do it offline, there will be a big risk related to the transmission of COVID-19 but they can make sure the activity goes according to plan because the method is mentoring. Meanwhile, if it is conducted offline, they will get a larger audience. On the other hand, the effectiveness of community service programs is questionable because it is constrained by various factors.

### 3.3. Discussion

This paper aims to discuss the response and strategy of higher education in Indonesia in the COVID-19 pandemic situation related to education, research, and community service as obligations of universities in Indonesia. We provide a model to map the research findings as presented in Figure 1. In the field of education, as online learning requires digital literacy, lecturers, students, and education staff are trying to adapt to online learning. Our research findings show that senior lecturers face higher challenges than junior lecturers. Moreover, students who live in areas with less internet access also experience problems related to online lectures. This shows that the digital divide, both in terms of age and geographical aspect, is still a barrier to online learning [30].

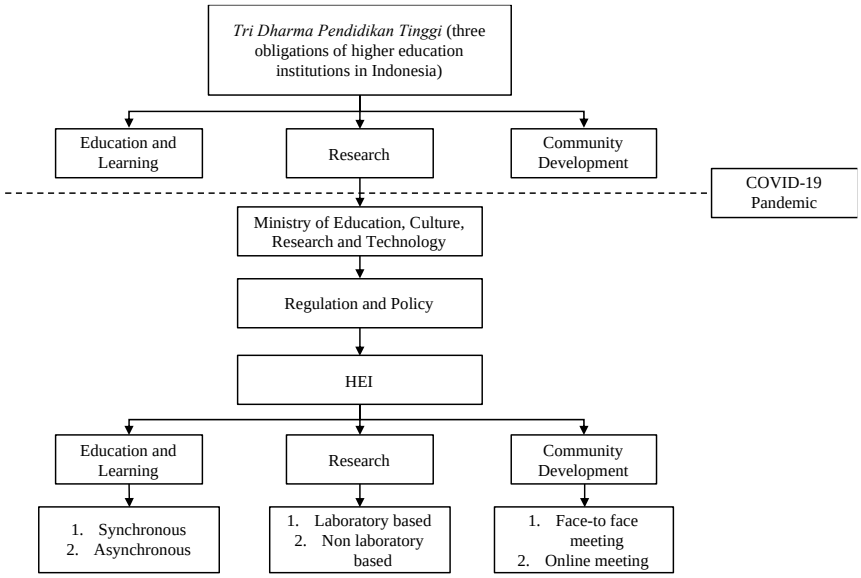


Figure 1. Responses and strategies of HEI in Indonesia during COVID-19 pandemic

In online learning, challenges originating from organizational and managerial aspects also contribute to the university's response and strategy in dealing with the COVID-19 pandemic. The university's information technology (IT) capacity has been slowly designed towards blended learning (online and offline). However, we found that the overall online learning obligation made it difficult for information and communication technology (ICT) staff to accommodate the policy. This is because apart from ICT capacity, there is also a shortage of human resources so that lecturers with ICT backgrounds are also hired to assist the transformation process towards online learning [31]. Our research also finds the important role of junior lecturers from Generation Y, who are digital natives, also contributing to the successful adoption of ICT in learning [32].

This study also found that collaborative and multi-platform designed learning was proven to be preferred by students. Collaborative learning is learning where students and lecturers together design a learning style that suits the needs and characteristics of the course according to their wishes [33]. Meanwhile, multi-platform learning is learning that combines video conferencing, learning management systems (e-learning), WhatsApp assistance, and other interactive chat applications, as well as documentation of video conferencing learning on YouTube.

Online learning repositions the role of lecturers in influencing the quality of the online learning and teaching process. Online learning makes the role of lecturers even more complex because they have to design the classroom as interactively as possible and it's not homework [34]. For example, our informants make presentations, also make videos, create quizzes, and practice online games and stretching activities in class. We also found that lecturers are those who have broad knowledge in a particular field of science, however, they also have limited knowledge about how to transform that knowledge to students. Moreover, lecturers also have limited knowledge about variations in the use of information technology to support learning and if any of them know, it is because they are self-taught [35].

We also find that for online teaching, having a high level of knowledge about the subject being taught is not enough. A lecturer must also master an online pedagogy strategy which is a collaboration between knowledge and skills in providing the ability to design online teaching [36]. This finding is consistent with several previous studies which concluded that the development of online teaching skills and

mastery of the material must be combined to deal with distance learning. In terms of students, some of them are Generation Z who are digital natives, who do have high digital literacy. However, we also found that those who live in areas with less ICT infrastructure are those who are excluded from online learning. Their low mastery of digital literacy is the result of the accumulation of personal and environmental aspects in which they live, so they must receive special attention [37], [38]. We also found that although they are digital natives, their ability to organize and plan time, especially to submit assignments on time is something different that cannot be generalized.

We also note that there is no particular concern about stress and burnout from online learning. In general, lecturers have a double burden because in addition to working they also have to complete household chores, especially female lecturers [39]. This also happens to students because they study from home, they also have to help their parents to finish the house chores [40]. Related to stress, students also complain that lecturers give them assignments too often, especially when there is a network disturbance during lectures that forces lecture to be delayed or even canceled, which then lecturers provide materials as well as assignments as a substitute for online lectures. In terms of research and community service, although regulations from the relevant ministries provide a fairly high degree of flexibility by allowing delays, changes in locations and methods as well as changes in focus to issues related to COVID-19, there have been obstacles in the implementation of research such as laboratory closures, refusal of informants and the rejection of society as a subject of study and community service. The constraints related to research and community service that we found in this study were more on the technical constraints of implementing the activities and in the end, these obstacles could be overcome by making various adjustments and arrangements [41].

Research during the COVID-19 pandemic employs more online survey research and also systematic literature review methods, both of which do not require face-to-face contact with informants and respondents or work in laboratories so that research with this method is widely found and is an adaptation strategy for researchers at universities in dealing with the COVID-19 pandemic [42], [43]. Moreover, research that employs secondary data with both qualitative and quantitative analysis is also the choice of researchers. Meanwhile, community service conducted by lecturers has also begun to be carried out online with the help of video conferencing. Although several obstacles were found, this kind of method became an alternative to reach a wider public [44]. The lack of assistance and human touch can be overcome through offline assistance by implementing strict health protocols so that the blended method is likely to become a trend even though the COVID-19 pandemic is over. We also found that the obstacles faced by female researchers were higher than male researchers because they had a double burden of researching at home [45]. This is because they have various household responsibilities such as cooking and raising children. In the end, female researchers reported having fewer publications than male researchers during the COVID-19 pandemic. This has consequences on the importance for universities to address this gap.

## 4. CONCLUSION

This study identified responses and strategies for higher education in Indonesia related to the COVID-19 pandemic. In more detail, this paper analyzes how universities implement the *Tri Dharma* of higher education which consists of education, research, and community service as well as what challenges they encounter during the COVID-19 pandemic. This study found that the relevant ministries responded no faster than the responses made by universities. The relevant ministry has provided a series of regulations and guidelines, but unfortunately, the university has published these things first. Universities in our study already have various kinds of e-learning guides in response to the trend of blended learning in universities in the world and these guidelines are the basis for providing education and teaching. Meanwhile, at the institutional governance level, our study did not find any guidelines for conducting research and service provided by the relevant ministries or universities. What we found were appeals that were included in the announcement of the grant.

This research is a preliminary study to identify responses, obstacles to the implementation of education, research, and community service in the COVID-19 era. This research is the first to investigate how universities carry out the three main tasks of universities as reflected in the *Tri Dharma* of higher education by examining responses at the organizational and individual levels to identify responses and obstacles they find. Practically, the results in this study may be used as a reference in implementing policies regarding the implementation of higher education, conducting research, and community service in a pandemic situation.

Although we have made various efforts to minimize research shortcomings, some limitations can be used as a basis for future research. First, the universities that are part of our study are universities that have high rankings and most of them include legal entity state universities (*perguruan tinggi negeri berbadan hukum*/PTN-BH) which have higher resources and flexibility compared to universities with public service

agencies or work unit status. Investigating universities with the status of public service bodies and work units can be carried out by further researchers to produce a more comprehensive collection of responses, strategies, and problem identification within more limited authority and resources. Moreover, the universities we study are universities on the island of Java that have better quality infrastructure than islands outside Java, so as a recommendation for further research investigating responses, strategies and problem identification by universities outside Java becomes interesting to do. Another limitation is the use of secondary data investigated from the news and a collection of regulations published by the relevant ministries and universities as the main data and interviews were only conducted with lecturers and students because the situation of the COVID-19 pandemic has limited the opportunity to visit the university and interview related officials. Therefore, knowing the responses and strategies that come from higher education officials can be done in further research.

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