

Coronavirus Diseases -19: an overview in education, agriculture, and communication perspectives

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Abstract

As it emerged at the end of December 2020 in Wuhan, China, Coronavirus has now spread to many countries, which affected several sectors of human life. This paper aims to describe the impact of covid-19 on education, agriculture, and communication in Indonesia. In education, COVID-19 impacted the teaching methods. Teachers utilized e-learning during the COVID-19 pandemic, such as Schoology, Edmodo, Google Classroom, Facebook, WhatsApp, and Zoom. In agriculture, coronavirus impacted downstream and upstream agriculture. As the main food producer, farmers should be protected from the dangers of the coronavirus to maintain food security. All people need to consume food based on agricultural products. In communication, coronavirus makes society change in the use of communication media. New media is more interactive and creates a new understanding of interpersonal communication.

Keywords: Agriculture, Communication, COVID -19, Education

JEL Classification: C65, Q10

INTRODUCTION

Coronavirus infection, usually called COVID-19 (Coronavirus Disease 19), is firstly found in Wuhan, China. China. The first case is related to the fish market in Wuhan. Since December 31, 2019, this case has been increasing rapidly then spread massively worldwide. Furthermore, this virus has spread globally then considered a global pandemic. (Yi-Chi et al., 2020). Mass media have followed the development of COVID -19 that news about renewal of COVID -19 status appears every day and increases month by month.

The COVID -19 outbreak in Indonesia impacted the tourism sector and spread to other sectors. Large-scale social restrictions, social distancing, and physical distancing, where people are encouraged to stay at home, hampered the activities of various sectors. It is assumed that Indonesia's economic growth will collapse in 2020, projected to fall between 1.0 - 1.8% (Yusuf et al., 2020).

The agricultural sector will also certainly be affected by the COVID-19 pandemic, but the impact is not as high as other sectors. During a pandemic, food availability in Indonesia remains stable, but the most problematic is in the downstream sector. The price of food is unstable and even very cheap, so it is detrimental to farmers. Unlike the education sector, this sector was changed during the pandemic, especially in the teaching system. Almost all schools and campuses are closed, so that the learning system uses online learning or e-learning. Moreover, in the communication system, unpredictable cases have become a challenge for journalists and the media company. Many journalists who are gathering news must research this virus because there is the probability of reporting wrong information unintentionally, which can result in misleading the public.

Therefore, in education, agriculture, and communication, the three sectors are important to study because these sectors are also affected by COVID-19. Also, these three sectors are important for human activities during the COVID-19 pandemic. The need for an adequate learning system so that students can still transfer knowledge easily, even though using online learning systems. Likewise, in the agricultural sector, community food must be ensured that it is still fulfilled during the COVID-19 pandemic. People don't starve because of a shortage of foodstuffs which are, of course, produced through agricultural activities. Then, providing accurate information and news is also useful through effective communication media in the COVID-19 pandemic.

METHODS

The study was conducted in Indonesia as one of the countries where suspected coronavirus (COVID-19) from March 2020 till now. The type of study is qualitative research, qualitative research about interviews and observations and case study, surveys, historical and document analysis (Hancock & Windridge, 2009).

This study was analyzed by descriptive analysis by using secondary data from various reliable documents and other relevant data and references. This article examines the function of documents as a data source in qualitative research and discusses document analysis procedures in the context of actual research experiences.

The article takes a nuts-and-bolts approach to document analysis. It describes the nature and forms of documents, outlines the advantages and limitations of document analysis, and offers specific examples of the use of documents in the research process (Bowen, 2009).

RESULTS AND DISCUSSION

Education in COVID-19 pandemic

Ministry of Education and Culture Indonesia, during the COVID-19 outbreak, has a new policy of teaching and learning method stated in circular on education number 4 of 2020. It suggests that the learning process uses distance learning or study from home. Therefore, teachers in Indonesia switch their traditional teaching media into Learning Management System (LMS). Most universities in Indonesia have their learning and media resource or called Open Courseware or Open Educational Resources (OER) (Zainuddin & Keumala 2018). Unfortunately, the rest use free LMS and Social Networking Site (SNS) such as Schoology, Edmodo, Google Classroom, Facebook, WhatsApp, Zoom, etc. Dogoriti et al. (2014) said that though the schools have good infrastructure for Information and Communication Technology (ICT) to support the

learning and teaching process, the ICT tools are limitedly used by the teacher because they believed it time-consuming.

Meanwhile, both teachers and students in Indonesia believe that learning using ICT, LMS, or SNS is time-consuming. It is also affected by their mindset and geography. In contrast, those technologies can enhance teachers' skills (Sukarni et al. 2015), and blended learning can increase students' language skills (Banditvilai, 2016).

Before the pandemic, teachers in Indonesia have applied blended learning as their teaching method. It acknowledges students and gives them insight that technology is developing continuously and used in education. On the other hand, it teaches them to be internet literate persons needed in the industry (Lungu 2013). Now, during the pandemic, the purposes of using LMS as teaching and learning media have shifted. It has become a need and a must to use this to achieve the learning objectives designed before the outbreak.

Both teachers and students look for LMS and SNS suitable for their teaching and learning process demands. Some of them only use LMS, or both, or only SNS; however, both LMS and SNS have their functions. Dogoriti et al. (2014) argued that SNS brings more joy in learning and gives more freedom to students to express their ideas and interact with other students. It can involve students easily in the discussion under the instruction because SNS is direct and attractive. They also showed that LMS is considered too traditional and rigid with several rules and features. Even though LMS has a chatroom for informal discussion, students do not feel comfortable interact with their peers there. Therefore, using LMS and SNS as teaching and learning media is to engage students in teaching and learning, and students prefer informal learning settings. Teachers can probably agree with students that LMS or SNS will use to keep students' learning motivation stable because (poor) connection causes drama.

The teacher must think about the materials they will give because it decides the teaching activities to engage students. Nowadays, students prefer activities that retain values and knowledge. It does not mean that they dislike projects or homework. Still, they can learn subjects from interactions and attractive material since they get involved in the discussion and think critically. Bielousova (2017) stated that "interaction between a teacher and students and between students and educational content has a significant impact on the effectiveness of the educational process." Moreover, students thought the class was effective because the teachers used authentic materials such as journals and sources from the internet (Nur'Aini, 2017). Therefore, teachers should design materials and course which involve students in interactive discussion and authentic materials.

On the other hand, few teachers still believe teaching face-to-face is more effective than learning and teaching using LMS or SNS as teaching-learning media because it wastes time and needs more time. For this case, teachers should change their mindset because of government policy about the study at home. Since students have limited time for study and teachers, teachers should manage the time and materials effectively (Sulisworo, 2018). Teachers should choose interactive and attractive materials to engage students in discussion, and every student can take some value from the discussion. Therefore, the teacher must set the purposes of the subject, teaching method, and appropriate material for the subject (Bielousova, 2017).

Not only interactive and attractive materials, assessment in class online is also an indicator that teacher and students have a connection in an online class. Morgan & Allen (2020) state that assessment or evaluation informally in an online class can help

the teacher understand what problems students have during the discussion. They also suggest teachers evaluate students' activity and understanding continuously to keep students' learning motivation. Moreover, they suggest teachers can share the criteria or indicators of evaluation to know what they have to reach during the learning process. After the teacher understands the difficulties or problems faced by the students, the teacher will give feedback. Students need feedback to stay in discussion and focus on the learning process. Feedback can be about positive comments or reactions to students' projects (Morgan & Allen 2020).

The teacher does not always do the assessment, but peer or self-assessment can be an option. During the COVID-19 pandemic, students must also change their minds to be more responsible and honest because teachers cannot control students physically. Teachers can share scoring rubrics as a direction for students to assess themselves or their peers (Daragmeh, 2011). By giving assessments in the form of the rubric, students know that teachers pay attention to them and care about their achievement and understanding of the subject. Therefore, design assessment carefully determines the effectiveness of the teaching-learning process using ICT (Vu, 2015).

Designing a rubric for an assessment should consider some points such as validity and reliability (Morgan & Allen 2020). First, teachers have to make sure that the assessment measures the topic or material discussed. If it is not, it means that teachers measure nothing. Moreover, teachers should choose the forum carefully to evaluate or give feedback to make students feel comfortable receiving the evaluation. Teachers can utilize a private chat room or discussion box from LMS. In short, teachers should utilize their chosen LMS or SNS to give assessment and feedback, not only for giving materials and projects without direction and instructions. Second, teachers have to design the rubric with clear indicators and its description to avoid subjectivity. Sometimes fatigue and time influence teachers in giving evaluations then become bias. Furthermore, teachers have to design the task or assignment according to the students' ability. Teachers have to make sure that the instructions are clear and share the rubric if it is possible to give students clear guidelines for content, communicative achievement, organization, and language (Toledo & Costa, 2020).

In conclusion, during a pandemic, teachers and students must collaborate in the teaching-learning process. Students should put at the center of this process, but the teacher should ensure that the materials have been designed for an online class or distance learning. Attractive and various materials from the internet will be beneficial because students can access them by themselves. Teachers should not ignore the importance of evaluation and feedback. It can connect teachers and students. Students will consider that teachers are still caring and concern with students' development and progress. It will bring energy for them to work with the materials using LMS or SNS.

Agriculture in COVID-19 pandemic

During the COVID-19 pandemic, people are encouraged to consume healthy food so that the immunity can be stronger to fight the virus. In this case, food in Indonesia must not only be available but must also be affordable and beneficial for the body. Therefore, people's purchasing power for agricultural products would always be there even though the quantity would decrease. The rules relating to large-scale social restrictions will make some businesses related to food such as food stalls, hotels, and restaurants not permitted to operate during the large-scale social restriction applied by the government.

The most important aspect in pandemic season is food needs of the people could be met properly, both in quantity and quality. In this case, the balance of needs of agricultural products in Indonesia, such as rice, maize, garlic, meat, sugar, and cooking oil, is predicted to be higher than production capacity. For example, the estimated need for rice is 12,598,161 tons, while the inventory balance is only 8,580,303 tons (Ministry of Agriculture of Indonesia, 2020). Therefore, Indonesia has the potential to experience a scarcity of agricultural products. In line with the analysis conducted by Hanani (2020) that the existence of a COVID -19 pandemic in Indonesia, from June to September, food availability is still relatively safe, but the food availability will decrease from October to December 2020.

It is caused by several things, such as the COVID -19 pandemic, which allows disruption to agriculture. Production and distribution sectors to meet people's needs. During the COVID-19 pandemic, another factor has the potential for a food crisis to occur due to drought and long drought (Food and Agriculture Organization, 2020), which will begin in June. This will have an impact on some of Indonesia's agricultural production centres in Sumatra, Java, Kalimantan, South Sulawesi and Bali (Badan Meteorologi dan Geofisika, 2020). COVID -19 is not yet clear when it will end, so Indonesia needs various anticipatory turns into a food crisis. Another factor related to food is the disruption of imports from world food producers in America and China, where the coronavirus also attacks both countries with very high numbers.

The main problems in the agricultural sector during the COVID -19 pandemic are the risks of supply chain disruption and declining demand (Sustainable Development Goals Report, 2020). Due to decreased purchasing power in the industrial sector and society, many industries that require agricultural raw materials do not operate normally. People's purchasing power is decreasing because it is restricted to leave the house of work and the number of layoffs by company employees. So that people income and also the industrial sector will decline. The Economic Intelligence Unit (EIU) revised the growth of the agricultural sector in the COVID -19 pandemic period from 4.1% to 3.2% (-0.9%) (EIU in Yusuf, 2020). Under the condition of a pandemic, food prices will experience fluctuations that will threaten farmers as producers. Also, by Rahman (1997), farmers' risks are price fluctuations of agricultural commodities (Wulandari et al. 2020). It can be caused by weather, pest, and disease attacks (Anwaruddin et al., 2015). This condition brings lower production and farmers' demotivation. In another case, the price risk significantly impacts the farmers' consumption, supply of labor, and input decisions (Saha, 1994).

The impact of COVID-19 on the agriculture sector is not as high as the tourism, transportation, property, and construction sectors, expected to fall by 30%. In comparison, agriculture will predict a fall below 10% (Indrawan, 2020). New normal in the COVID -19 pandemic era will open a window of opportunity for the agricultural sector to make revitalization. The condition of complete closure in international trade will challenge the Indonesian agricultural production system. It has the opportunity to identify the weak points of the agriculture sector. In crisis conditions, aside from being an important part of the food supply, the agricultural sector will become a social safety net related to the fulfillment of community food needs. The agricultural sector is not only the sector that absorbs the most labor in Indonesia, even in times of crisis.

In agricultural production systems, in the case of the on-farm subsystem, the risk of farmers being exposed to the coronavirus is quite small because most of the

agricultural area is located in rural or remote areas that are vulnerable to the virus for the people who live in urban areas.

Most of those who are exposed to the coronavirus are urban people. Therefore, the large-scale social application is quite important for farmers who mostly live in rural areas by limiting the movement of urban people to return to villages as carriers. The high spread of the coronavirus is in the city centers. They are exposed due to travel out of the area or outside the city and then bring the virus into the area. Moreover, the large-scale social application is quite important for farmers who mostly live in rural areas by limiting the movement of urban people to return to villages as carriers.

One effort to avoid food warriors, in this case, farmers being exposed to the coronavirus, especially all their activities, must be outside the house to produce agricultural products. Even though the risk is quite small, it still needs to implement health protocols for farmers. As we know, however, most of the farmers in Indonesia have an average age of over 44 years, which is an age that is quite susceptible to coronavirus. The local government needs to conduct socialization and implement health protocols for farmers, such as masks and handwashing, and active supervision of health workers in the village. Also, poverty in rural areas is increasing, which is dominated by farmers with an average number of poor households in rural areas of 12.60 percent compared to urban areas with lower numbers of poor households by 6.5% (Central Bureau of Statistics 2017). Poverty and unemployment are among the main problems of Indonesia people (Central Bureau of Statistics 2017, Padjung 2018). As one of the main points for food security, farmers need to be protected in the COVID-19 pandemic.

In addition to health protocols for farmers, several efforts need to be intervened by the governments, for example, the provision and assistance of adequate stock of agricultural input facilities in rural areas. In this case, rural communities, both farmers and traders of production facilities, have limitations in traveling to the big city to buy farming equipment because a coronavirus will easily impact them. Therefore, the government must strive for agricultural inputs and equipment such as fertilizers, seeds, machines, and agricultural tools because farmers must produce sustainable agricultural products. In another case, government intervention in maintaining the stability of food prices is also important. At the beginning of COVID - 19, the price of food products dropped due to decreased purchasing power, the closure of some restaurants, and several companies that needed agricultural raw materials. Price uncertainty will be very detrimental to farmers as the main food producers. Based on Farias & Araujo, (2020), The regions affected by coronavirus showed a great impact on the price of agricultural products. The supply chain is essential to guarantee internal food security during the pandemic crisis.

Supply and demand need to be considered by the relevant government. Most agricultural products have to pass long supply chains in Indonesia before arriving in the consumers (Padjung, 2018). Therefore, to ensure reliable access to safe food for all people, food organizations must strengthen their operations to safeguard against various potential threats (Hecht et al., 2019). Since a long time ago, before the pandemic COVID-19 season, (Food Agriculture Organization, 2020) appealed to every country to maintain the smooth supply chain of foodstuffs to avoid social problems such as hunger and theft. Supply chains need to involve complex interactions in the agricultural sector such as farmers, availability of seeds, fertilizers and pesticides, processing plants, shippers, retailers, and so on (Ministry of Agriculture, 2020). Every country in the

world that is impacted by coronavirus needs to focus on food problems, assuring the availability and, to some degree, the price stability of basic foodstuffs. The government needs to ensure that all people have access to the basic food they need (FAO, 1983 & FAO, 2002).

Ideally, the supply chain and distribution of agricultural products from farmers to consumers can be through online distribution and sales, especially during the COVID-19 pandemic. Unfortunately, 61.7 percent of Indonesia's population who work as farmers (Patanjengi, 2020), with an average education of only elementary schools that are still categorized as poor communities (Ali, 2020), have not been able to handle agricultural activities and sale of agricultural products by online. In case, online sale is not yet the right solution for Indonesian farmers. Additionally, supporting subsystems, such as road infrastructure and communication in rural areas, have not been well-provided. It is necessary to apply a low-pain, high-gain policy to farmers who spearhead food security in Indonesia (Yusuf et al. 2020).

The Ministry of Agriculture has formulated strategic steps during the COVID-19 pandemic to address the scarcity and disruption of food distribution. The programs such as acceleration of agricultural production facility assistance programs, accelerating agricultural production specifically through labor-intensive activities, encouraging the smooth distribution of staple foods. Moreover, ensuring safe and affordable food by the community (Ministry of Agriculture, 2020). It needs to provide food and herbs in a pandemic crisis to support the immune system against infection the possibility of coronavirus-19 transmission through the food chain (Mcewen & Mcewen, 2017).

Media and COVID -19 information dissemination

People have grown restless since COVID-19 is reported. If numbers of COVID-19 patients are compared between the first month, this case is regarded remarkable. Because of COVID-19 news appearing, newsreaders have become confused and restless. With so much news at this time can give impacts to the public, for instance, public trust towards media because of various opinions and points of view about this virus's cases. Looking at the condition causes reporters, journalists, and media organizations to have an important role in following the development of reliable information and checking the fact from the information to be trusted information for the public.

One of the moving parts of this pandemic is the number of COVID-19 patients, which raises every day. Increasing the numbers of COVID-19 patients attracts the public's attention. Still, the government needs to communicate the story behind these numbers, what the government has done to respond to this virus, what people can do, and make sure that this story has information that can be justified to trust the government. The public also can feel more comfortable and calmer when general information about COVID-19 issues is clear and transparent.

Media production about COVID-19 responds to social and cultural development and then influences the development of those. Certain media such as television influence how we think about and react to the world. Media work in anyways and different social segments; all audiences are not influenced but interact with media in specific ways (Littlejohn & Foss, 2009). According to McLuhan (Littlejohn & Foss, 2009), every medium is the extension of the human mind. He also quoted from (Ellis & Goggin, 2015) that the biggest media will establish behavior and thought one day. When the media change the way the public thinks, arrange the information, and interact

with others, change. The switch of the way of thinking has been happening since media appear alternately, for instance, from paper to radio than television. Furthermore, the existence of the internet is called the second media age by Poster (2015).

There are two dominant opinions about media, such as the social interaction approach, which differentiates media based on how close between the media and the face-to-face interaction model. The old broadcast media are more concerned about the spread of information, which decreases the chance of interaction. It is recognized as informational media because it becomes reality mediation for consumers. Meanwhile, new media is more interactive and creates a new understanding of interpersonal communication. (Biocca & Levy, 2013) views new media (world wide web) as an open information environment., flexible and dynamic, enabling humans to develop new knowledge orientation and involve a democratic world about mutual distribution and more interactive and community-based empowerment. Cyberspace gives an artificial meeting room that expands social media and provides a place for sharing opinions broadly Soukup 2004 as cited in (Littlejohn & Foss, 2009).

According to social integration (Littlejohn & Foss, 2009), even interaction is not an important component in social integration through ritual. Thus, face-to-face interaction is not the main or basic standard for comparison of communication media. The public does not have much interaction with other people but with the media itself. People do not use media to tell others about something but because using media is self-ritual, deep meaning. People use media as a joint ritual which makes them recognize to be part of something bigger than themselves. Newer media create interaction with computer simulation. There is high-level interaction using the computer, not between certain people. The media equation theory states that we treat media as human and interact with media as if it is real. It explains why computer seems to have personality. This interaction between human-computer-human theoretically is called computer-mediated communication.

Computer-mediated communication (CMC) is a term used to communicate between two or more people who can interact using a different computer. In other words, the human communication process involves someone, in a certain context, by being involved in generating media as an objective. One form of communication can be categorized in CMC while two or more people communicate or share information through a computer which is new communication technology. Send and receive email using a mobile phone or smartphone, or even download or upload music, picture, and videos can be categorized as CMC. If mass communication will be categorized using media equally, CMC is mainly used for social interaction.

However, there is enough significant difference between interpersonal and face-to-face communication. In face-to-face interpersonal communication, participants' communication is at the same time and place. They can see each other's facial expressions that show agreement or disagreement, like or dislike, and so on. It can be done instantaneously without time lag to adapt and understand the situation of communication. Therefore, simultaneous communication is called synchronous communication (Perry, 2004). CMC can be synchronous when someone participates in a chat room when s/he gets involved in synchronous CMC. Face-to-face communication and CMC seem similar when the participants get feedback simultaneously and adjust messages immediately based on feedback.

Based on setting context, CMC happens in the cyberspace domain. Cyberspace is a complex term to be defined, such as cyberspace in hardware. For instance, the global computer network is connected to infrastructures of communication that facilitate interaction among speakers in a long distance. Cyberspace is a knot and network or defined as an imaginary room between computers where people can establish themselves and the new world. Cyberspace is hardware and software that represent picture and opinion, i.e., both cannot be separated. It is all about cyberspace. This definition represents negotiation of material and symbolic elements, and each has a different load based on the experience (what has been done), such as checking email from PC. We can experience cyberspace as have profound experiences where our bodies and real identities are lost (Bell, 2006). Our identity becomes a virtual identity.

The role of trusted media sources is not only to ignore but also to deny fraudulent information. It is done to consider what audiences believe, such as trusted media, empathy towards those affected by COVID-19, or proper language use in delivering issues. Proper language use is very needed to break the public stigma. This virus cannot differentiate nationality, tribe, and so on, so there is no reason for journalists to write stigma that prejudice certain parties. Rather than write a stigma to impose, the journalist should offer more practical information for an audience such as web address of information about COVID-19 or washing hand tips and tips to avoid virus infection.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

In education, teachers utilized blended learning as the teaching method. Nowadays, teachers have to change into online learning during the pandemic. Students and teachers choose both LMS and SNS as tools for synchronous and asynchronous communication.

In agriculture (the upstream sector), farmers should have their health protected to continue to produce during the COVID-19 pandemic to avoid shortages of food supplies. Besides, the pandemic will impact the downstream sector due to low food consumption caused by the in-operation of several businesses related to the food industry and the community's purchasing power because many agricultural consumers lose their jobs.

In communication, COVID-19 will make society change in the use of communication media. The old media pays more attention to disseminating information which reduces opportunities for interaction. New media is more interactive and creates a new understanding of interpersonal communication.

Recommendations

In the teaching process, teachers take many times to learn operating internet things rather than their students. In this case, they should not forget the assessment because it is essential for their development and control of their comprehension.

Even though the impact of the COVID-19 pandemic is not significant in agriculture, the agricultural sector needs to be paid attention to by stakeholders to ensure food availability for Indonesian communities.

New media communications are recommended because it is flexible and dynamic, allowing humans to develop new knowledge orientations in cyberspace. It provides an

artificial meeting space that expands social media and provides a place to share opinions widely.

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