How to design the application of science in primary school during the Covid-19 pandemic?

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Abstract. This study aimed to design the application of science during the Covid-19 pandemic in elementary school. This study used the literature review method which was divided into two types of references, primary references (8 references) and secondary references (supporting journal articles). References were sourced from google scholar, tandfonline, and observations in the surrounding environment. Data analysis was carried out in stages, starting from collecting data, analyzing, and drawing conclusions. The results of this study provide a design for the application of science in elementary schools during the Covid-19 pandemic, by implementing good communication between students, teachers, and parents, and the need for appropriate media to help students understand learning topics. Besides, through the design of the application of science to learning, it can overcome learning problems by implementing the Covid-19 Health protocol.

1. Introduction
The Covid-19 pandemic that attacks the entire world, has an impact on social changes throughout the system [1,2]. One of them, in the learning system in education. The education system from elementary school to higher education changes spontaneously [2]. Changes that occur include: teaching strategies, learning media, study time, place of study, etcetera. In Indonesia, all levels of education are directed to learn online, in order to cut the spread of covid-19 [3,4]. Middle school to higher education does not experience a more complicated problem than elementary school, because most students already have smartphones and can operate the application [5]. However, this is a quite big problem for primary school education where not all students can operate smartphones, even some students do not have smartphones. Another problem that occurs when students already have a smartphone, such as the problem of buying an internet package if the learning is done online. Online learning is easy to do anywhere, but not all subjects in school are easy to apply online [6,7]. One of them, science subjects that use statistical numbers are a difficult topic to convey online [8].

Several previous studies have discussed the analysis of scientific processes and student literacy [3,9], application of learning models in science learning [10,11], critical analysis of basic science education [12], increasing science process skills and learning motivation through inquiry strategies [13], science experiments with development on the concepts [14], application of paikem gembrot in elementary school [15] and e-learning with traditional game [16]. So far, some of these sources have not analyzed the design that needs to be applied to science learning during the Covid-19 pandemic. We hope that with this research, primary school education can adjust to their respective regions to use the right strategy in teaching science during the Covid-19 pandemic.
2. Methods
This research used literature review method. The source of this research was from journal articles (primary sources) totaling 8 articles with the criteria of articles discussing science in elementary school, and internet sources or books (secondary sources). Reference sources with the keyword 'science' are 5827 articles, after being filtered into 'elementary school science' there are 1225 articles, then filtered back into the keyword 'primary school science in the Covid 19 era' there are 8 articles. The research procedure consisted of three lines: data collection, data analysis, and conclusions. This process is described in Figure 1 below.

Figure 1. Research Flow

3. Results and Discussions
This research was conducted by analyzing articles and the results of researchers' observations on the surrounding community. Research results from reviews of several journals are presented in table 1 below:

| Authors | Publisher | Publication Year | Research results from the scientific point of view |
|---------|-----------|------------------|---------------------------------------------------|
| Eliyana, E | Eduproxima | 2020 | Science process skills-based learning that was applied during the Covid-19 pandemic was well received by students. Based on the results of the analysis of science process skills during the Covid-19 pandemic, it can be seen that there is a good effect on students. |
| Hastuti, I. D., Mariyati, Y., Sutarto, & Nasirin, C | Prisma Sains: Journal of Science and Mathematics Learning and Science IKIP Mataram | 2020 | Guided Inquiry Model can improve metacognitive students in elementary school. These results indicate that the Guided Inquiry model is suitable to be applied during the Covid 19 pandemic. |
| Khoiri, A., Nasokah | SPEKTRA: Jurnal Kajian Pendidikan Sains (SPEKTRA: | 2020 | The integrated STEM model recommended by considering literature review and Indonesia's potential and conditions can create a superior |
### Authors | Publisher | Publication Year | Research results from the scientific point of view
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Amalia, T., & Slamet, H | Journal of Science Education Studies) | 2020 | generation in facing global challenges and issues and can compete with advanced science education countries without forgetting the living value of Pancasila as the state ideology. Especially during the Covid 19 pandemic, all Indonesians are working together to break the effects of the corona virus in education by applying various media and learning models
Shofiyah, N., Wulandari, R., & Setiyawati, E | Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Keputusan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran (Journal of Education: Journal of Research and Literature Review in the Field of Education, Teaching and Learning) | 2020 | The application of modules based on local wisdom through e-learning has an effect on scientific literacy skills. Local wisdom literacy can make it easier for students to learn in their environment by utilizing e-learning. So, during the Covid-19 pandemic students were accustomed to learning with e-learning and learning by utilizing the environment.
Lusidawaty, V., Fitria, Y., MMiaz, Y., & Zikri, A | Jurnal Basicedu | 2020 | Science process skills and learning motivation can be improved through the application of inquiry strategies. During the Covid-19 pandemic, a special strategy in learning was needed. One suitable strategy is inquiry. This strategy can improve science process skills and student motivation during the Covid 19 pandemic.
Sabihi, M |  | 2019 | The application of *Paikem Gembrot* can be used as a learning alternative in improving student learning outcomes. Especially during the Covid 19 pandemic, learning outcomes need to be improved in special and unique ways, one of which is through the application of the *Paikem Gembrot* in learning.
MZ, R. D., R., & Widodo, H | MUADDIB: Studi Kependidikan Dan Keislaman (MUADDIB: Education and Islamic Studies) | 2019 | The need for integration between Islamic religious education and other subjects to make students understand the concept of religious material thoroughly and not dogmatically. And students can remember learning topics with the help of experiments they do themselves. Such as the integration of the concept of Islamic religion with the concept of science. This integration concept can be applied in the era of the Covid-19 pandemic.
Utama, E. G | Jurnal Pendidikan Dasar Indonesia | 2019 | A significant metacognitive increase occurred in the application of the POE model. The POE model is
Several journals analyzed have measured science process skills, scientific literacy, metacognitive, learning outcomes and learning motivation of primary school students. But not designing elementary school science education for online learning. Online learning for primary school students has many obstacles. This fact is revealed based on observations made by researchers. The results of the analysis from observations in several elementary school around the environment showed that online science learning in elementary schools experienced several obstacles, including: some students had difficulty learning because of the absence of internet access. In addition, students who are less active do not obey the teacher's directions to find learning resources. However, this is very beneficial for active students, they can study anytime and anywhere. Creative students will also look for other learning sources besides the material provided by the educator. The concept of science is very close to the environment, this makes it easier for students to find material information directly from the environment.

Another problem that occurs in the application of online learning in elementary school is the factor of parents' unpreparedness, including: parents who are not updated with information about education, parents who are busy with their work, parents who cannot afford internet network access, and parents who are less care about their child's education. Based on several sources that have been analyzed by researchers, we designed online learning for learning during the Covid-19 pandemic in figure 2.

The online learning flow described in figure 2 shows that there is a need for good communication between parents, students, and teacher to the school. Because a good communication will make learning easier and avoid misunderstandings [17,18]. In addition, the application of scientific concepts needs to be integrated with the environment to make it easier to understand the concept [19]. For example, the concept of science in grade one elementary school in Indonesia, such as the concept of recognizing objects, animals, plants around me, and natural events. This material is very easy to apply online by directing students to observe their surroundings and report to the teacher. The teacher acts as an observer and provides directions to students who do not understand. Learning media such as science e-modules, science e-books, educational television shows, videos, and audio can be used as media between students and teacher. Even if they cannot access all the media provided, the teacher can come to students who...
study in groups (at students' houses). This is adjusted to the circumstances of each region, during the Covid 19 pandemic.

The need for good media was expressed by several previous researchers. The existence of media can make learning more interesting [20–23], make it easier for students to understand the lesson [23,24] and motivate students [25]. Learning achievement during the pandemic period followed the COVID-19 emergency curriculum with affective, psychomotor, and cognitive achievements [26–28]. Learning objectives will still be possible to achieve well if the communication in the design in table 1 is done optimally.

4. Conclusion
The results of this study reveal that there is a need for good communication between students, teachers, and parents in conveying science concepts in elementary schools during the Covid-19 pandemic. In addition, it is also important to solve learning problems while maintaining and implementing the Covid-19 Health protocol. It is hoped that this design can be applied by future researchers.

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