Introduction. The significant changes caused by the COVID-19 pandemic have forced teachers to provide adaptive learning for their students. This situation needs to be supported by psychological factors that are present and attached to a teacher. The limited knowledge and readiness of teachers in preparing for existing learning changes are a major obstacle in implementing learning during a pandemic, especially at the elementary school level. The aim of the study is to explore the perceptions, attitudes, and knowledge of elementary school teachers in a teacher training program during the pandemic.

Research methods. Two studies were applied, study 1 used thematic content analysis to determine the perceptions of effective online learning models during the pandemic. Furthermore, study 2 was conducted to ascertain the readiness of teachers based on their attitudes and knowledge in applying effective online learning models during teacher training programs. A total of 203 elementary school teachers were involved in this study and were selected using purposive sampling in the province of Banten, Indonesia.

Results. The results of the study provide information that there are variations in respondents’ perceptions in doing online learning and they assume that online learning causes many problems in various aspects of life. This is indicated by the answers given by respondents when filling out the instrument in the form of open questions. Specifically, the answers given refer to the perceived negative situation compared to direct learning at school. Meanwhile, 85% of respondents perceive that face-to-face learning is the most effective learning model. Other results are also supported by the correlation between the attitude and knowledge of respondents which shows a positive and significant relationship. The correlation results show a value of 0.254 with a significance level below 1%.

Conclusion. The results of this study indicate new and comprehensive information regarding the importance of paying attention to teachers’ psychological factors, including their perceptions, attitudes and knowledge, especially in preparing for online learning. In general, the research also provides a clear picture of the right mechanism for a teacher at the elementary school level to carry out online learning that matches the characteristics of elementary school students. Of course, the usefulness of the results of this study can be used as a benchmark not only for teachers themselves, but also for schools and related policy makers to create adaptive learning.

Keywords: effective online learning model, elementary school teachers, teacher attitudes, teacher knowledge, teacher training program

For Reference:
Introduction

The COVID-19 pandemic has significantly impacted the mindset and behavior of people. The internal impact is marked by the number of people exposed to this virus, causing so many deaths. The external impact is related to the disruption of the economy, which is a crucial aspect for many people [1]. Excluding the economic impact, COVID-19 also affects the sustainability of education, as it is a sector that enables people to make changes that bring renewal and progress to a country. This was observed by [2] which stated that quality education is a measure of a country’s progress.

A significant change in education is the transition from the conventional learning model to online learning. Many government agencies, both central and regional, have complied with this regulation. Without exception, public and private schools also decided to follow the policy. Therefore, education that is usually carried out in the classroom is accomplished at home by using online learning methods. The teaching and learning process significantly influences the educational sector not only in Indonesia but worldwide. S. Freeman [3] and A. Kamei and W. Harriot [4] stated that the COVID-19 pandemic has enabled education in the United States to undergo a shift where schools implement distance education. Furthermore, teachers and students are forced to adopt new learning methods by using virtual-based learning.

All levels of education, from early to high schools as well as vocational to tertiary, follow the policy to learn from home. Furthermore, the COVID-19 pandemic led to the implementation of the Work from Home (WFH) policy. Schools and colleges eventually implemented online-based learning due to the pandemic [5; 6]. A. Cahyani et al [7], A. Anugrahana [8] and A. Pranaja and Y. Astuti [9] stated that elementary schools are one of the educational institutions that contributed to the spread of the COVID-19.

The online and offline learning pattern is also applied to elementary school students. Stakeholders, such as principals, teachers, and students, inevitably supported this learning system. However, this has changed the conventional learning patterns of face-to-face learning. According to A. Griffiths et al [10] and L. Hima et al [11], conventional learning brings together teachers and students. Its advantages are numerous in that it enhances teacher and student discipline, facilitates immediate reinforcement, facilitates the evaluation process for students, is a vehicle for interactions, and most importantly, creates intensive communication and close socialization between teachers and students with their peers. Furthermore, teachers can be direct observers of attitudes and behavior in teaching lessons.

Considering the present, face-to-face learning methods cannot be applied anymore. Therefore, teachers and related parties are forced to brainstorm methods to facilitate the continuance of learning. There are different forms of learning which include online, offline, and other methods. Online learning may be new for a teacher, especially in early childhood education and elementary school teachers. This is because they are required to immediately adapt to technology-based learning situations. Although in the field, many of these teachers are not ready with online and offline-based learning methods. According to A Bacher-Hicks
et al [12], online-based learning increases the effectiveness of educational policies during a pandemic. The general availability of internet search data enables schools, teachers, and students to use it as an alternative learning resource.

B. Ansley et al [13], S. Ningish [14], and L. Handayani [15] expressed different responses where the online learning process required teachers to be technology literate as well as students. However, the pandemic forced teachers to apply this form which requires supporting facilities such as adequate Android phones, availability of packages, and stable internet. C. Dong et al [16] also conducted a study with a sample of 3,275 parents, where 92.7% reported that their children had online learning experiences during the pandemic and spent less than half an hour each day.

Furthermore, parents generally have the belief that it is disliked by children and prefer traditional learning models. Parents and children tend to refuse on the grounds of inadequate self-regulation of children, and their lack of time and experience. A similar phenomenon occurred in other countries, including the educational sector in Indonesia, specifically in elementary education. However, some studies claim online learning is the correct solution because it brings opportunities for meaningful learning, easy access, and improves learning outcomes [17; 18]. Students can interact quickly and directly with two-way text, images, voice, data, and video, with tutor guidance. Face-to-face tutorials are replaced by technological representations to enhance favorable outcomes of learning. This expert opinion is suitable if ideal conditions occur. However, in Indonesia, which has a very large area, from Sabang to Merauke, it is certainly a formidable challenge. As a developing country, there is still a lot to improve on in the educational sector, especially the use of Information and Communication Technology (ICT) in the learning process.

The facts show that learning during the COVID-19 pandemic for students is still ineffective and leaves many problems in its implementation [16]. I. Bdair and D. Ph [19] and L. Ds [20] explained some of reasons about kinds of problem for students in learning during COVID-19, including (1) Teachers' understanding and readiness in using online learning need to be improved and adapted to existing needs; (2) The teachers should look in detail at the requirements of students for learning to ensure coherence with what is conveyed; (3) Availability, accessibility, and facilities that support the learning process must be carefully prepared; (4) Optimization of online learning also requires support from parents of students to ensure that the teachers are not saddled with its implementation, and (5) Characteristics of different students at the level of education is another factor that must be considered by schools and teachers.

The implementation of learning in elementary schools during the pandemic must consider many factors in its application. As explained by the teaching regulations in Indonesia in Law number 14 of 2005, which emphasizes 4 general competencies that must be possessed by a teacher to carry out learning including pedagogical, personal, professional, and social, it is of great concern for schools to provide the best teaching for its students. This is a major concern for teachers, especially when faced with elementary school children whom learning is still significantly controlled by the teacher. This condition requires teachers to create an effective learning system that is applicable in various contexts with various characteristics of existing schools and elementary school students [21].
Learning in elementary schools during the pandemic still faces several problems and not many studies have tried to explore them [22]. Elementary school students who are considered different from their upper level, Junior High School or Senior High School, in cognitive and emotional processes certainly require an effective approach to learning in their application [23]. The human resource of teachers in elementary schools is dominated by a generation that is not familiar with the use of technological media. Data released by the MOEC on the age distribution of teachers in elementary schools shows that 1.48 million teachers are still dominated by those aged 30 years and over. This implies that around 80% of their age is in X-generation, and comparing the population of millennials, they are insignificant. This of course will have an impact on the mastery of technology and the application of more adaptive methods during the pandemic [24].

Elementary school students constitute the current members of the Z-generation, and this binds them with flexibility, dynamics, and the use of fast and integrated technology. This is beneficial if the teachers also have such capabilities with the characteristics of children in their day and age. Therefore, there should be an effective learning model which is applicable in elementary schools by considering factors such as school conditions, teacher competence, and student backgrounds. This research was conducted to tackle the anxiety of elementary school teachers. In Indonesia, teachers, especially in elementary school, have not successfully found ideal methods for application in the COVID-19 pandemic. Therefore, this research is responsible for finding answers to the anxiety faced by teachers. This will enhance ideals regarding effective learning models during the COVID-19 pandemic. Furthermore, this research aims to ascertain the correlation between teacher attitudes and knowledge.

**Materials and methods**

This research employed a sequential-exploratory design which is a combination of qualitative and quantitative designs that are used either simultaneously or separately to explain a phenomenon [25; 26]. This approach was used because it was assumed that to obtain a comprehensive frame of mind about an effective learning model, a combination of qualitative data is required which is strengthened by quantitative data. The first study involved a thematic content analysis to ascertain a description of emotions and strategies in teachers related to the changes in learning that occurred. Furthermore, this result was reinforced by the second study which aims to determine the extent of teacher readiness factors in dealing with this situation.

**Population and Sample**

The population in this study are elementary school teachers spread across the province of Banten with a total of 15,709 teachers. The data on the number of teachers was obtained from the official website of the Ministry of Education, Culture, Research and Technology of the Republic of Indonesia. The characteristics of the respondents are (1) teachers in elementary schools in Banten Province; and (2) Willing to partake in training and research-proven by informed consent. Respondents were selected using a purposive sampling technique, using the determined characteristics [27; 28].
**Procedure**

Selected respondents participated in training activities related to the topic "Curriculum and Learning during the Pandemic". These activities were carried out for 2 weeks with a learning system using seminar sessions from experts, discussion sessions with group members, home training sessions, and presentation sessions. Moreover, the instruments were distributed at the start of the training (study 1) and at the end (study 2).

**Instruments**

Study 1 used an open questionnaire consisting of 5 general questions about aspects of the learning process carried out during the pandemic. The questions raised were formulated based on previous research related to online learning [25], challenges and advantages of online learning [27] and research by G. Murtaza et al [29] and E. Hussein et al [30] about the personality attributes in students during online learning. The five questions included (1) what the respondent felt when the pandemic occurred; (2) what has changed in the learning process during the pandemic; (3) strategies undertaken by respondents to deal with the impact of the pandemic on the learning process; (4) obstacles faced by respondents when learning during the pandemic; and (5) an overview of effective learning models for students in elementary schools during the pandemic. Furthermore, the instrument in this study 1 measured the perceptual aspects of the respondents. Questions were presented at the beginning of the training using Google Forms.

The study 1 was conducted to measure the aspects of respondents' attitudes and knowledge regarding effective learning models during the pandemic. The attitude instrument used a Likert scale that measures 2 aspects, namely training as a need and development, and training as a problem-solving strategy. Each aspect consisted of 3 items with a range of answers from strongly agree (5 points) to strongly disagree (1 point). For example, the statement in aspect 1 was "I believe that this training activity can make me more developed", while the example for aspect 2 is "I get effective learning strategies that can be applied in class after participating in this training activity".

The instrument for measuring knowledge uses 10 multiple choice questions with 5 answer choices each. The 10 questions contained materials that the respondent learned during the 2-week activity. For this aspect, the maximum points that a respondent can score is 10 (1 point for each correct answer). Furthermore, the two instruments used in study 2 were qualitatively validated by 3 experts with relevant scientific backgrounds, and the results were suitable for use in this research [26; 27]. The test results showed that the teacher attitude instrument has a significant discriminating power ranging from 0.6 to 0.82 and a satisfactory reliability coefficient of 0.92. Meanwhile, the teacher knowledge instrument showed the highest discriminatory power of 0.32 and a moderate reliability coefficient. Both instruments were therefore feasible for use in this research.

**Data Analysis**

The data obtained in study 1 were analyzed using thematic content analysis. This analysis was used to identify aspects that occur in an object to provide a complete picture. Respondents' answers were categorically analyzed and validated by 3 experts to ensure
that all information is relevant. To test the trustworthiness, a readability test of each of the existing raters was carried out and also ascertain the data that have been classified as useful information. Meanwhile, data in study 2 were analyzed statistically to ascertain the psychometric properties of the instruments used. A simple correlational analysis was also carried out to determine the relationship between attitudes and knowledge that occur in respondents. The analysis of patterns in this research refers to the combination of designs described by previous research [25; 26].

**Data Interpretation**

The results of study 1 provided information regarding the important aspects to consider in learning during the pandemic. Meanwhile, that of study 2 showed whether respondents' attitudes and knowledge were in line with learning procedures during the pandemic.

**Research results**

**Respondent Demographics**

All respondents work as elementary school teachers in Banten Province, and filled out a readiness statement sheet stating their voluntary willingness to participate in this research. The details are shown in Table 1.

**Table 1**

<table>
<thead>
<tr>
<th>No</th>
<th>Variable</th>
<th>Category</th>
<th>Amount</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gender</td>
<td>Male</td>
<td>37</td>
<td>18.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>166</td>
<td>81.8</td>
</tr>
<tr>
<td>2</td>
<td>Age</td>
<td>Under 20 Years</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20-30 years</td>
<td>30</td>
<td>14.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31 - 40 years</td>
<td>56</td>
<td>27.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>41 - 50 Years</td>
<td>70</td>
<td>34.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Above 50 Years</td>
<td>46</td>
<td>22.7</td>
</tr>
<tr>
<td>3</td>
<td>Latest education</td>
<td>Senior High School/ Vocational school</td>
<td>4</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diploma 1/2/3</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Undergraduate</td>
<td>185</td>
<td>91.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Master</td>
<td>12</td>
<td>5.9</td>
</tr>
<tr>
<td>4</td>
<td>Length of teaching</td>
<td>Under 5 Years</td>
<td>28</td>
<td>13.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 - 10 Years</td>
<td>31</td>
<td>15.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11-20 years</td>
<td>85</td>
<td>41.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Over 20 years</td>
<td>59</td>
<td>29.1</td>
</tr>
<tr>
<td>5</td>
<td>Class managed</td>
<td>Grade 1</td>
<td>34</td>
<td>16.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Grade 2</td>
<td>28</td>
<td>13.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Grade 3</td>
<td>26</td>
<td>12.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Grade 4</td>
<td>33</td>
<td>16.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Grade 5</td>
<td>33</td>
<td>16.3</td>
</tr>
</tbody>
</table>
From Table 1, the respondents involved were dominated by female teachers who reached 81.8%, while the rest were male. For ages, respondents were relatively spread out and there was only 1 teacher under the age of 20. In the latest education data, 91.1% of respondents were undergraduates. In the section on length of teaching data, 41.9% had 11-20 years of teaching experience. Meanwhile, the supervised class levels were relatively balanced, with the percentage at 12-17%.

**Study 1**

The results of the thematic content analysis of the 203 answers given by respondents constituted the important aspects of the learning process during the Covid-19 pandemic. These aspects include psychological feelings, things that change during learning, the kinds of strategies that are carried out, and the constraints felt.

**Psychological Feelings.** Respondents experienced various emotions when the pandemic occurred. In general, two types of feelings were obtained, namely a positive response due to the pandemic and a negative response. The positive response was because some of them could complete their work while doing other activities at home, some were able to use renewable technology media, and the majority could exercise their patience and gratitude to God.

“I can do two or more activities at the same time if I teach at home”. (R.34)

“The demands of teaching require online media. Therefore, I learned a lot about how to use that media and its changes for children”. (R.102)

“The point is how this pandemic has made me more patient in dealing with various things. Both in maintaining the health of myself and my family, how I can be patient with the various challenges faced in learning”. (R.155)

Meanwhile, the negative responses include difficulties in several ways because the pandemic changes everything. Communication and learning are not optimal and there is a decrease in motivation in several ways.

“Some of my students have decreased motivation, therefore they are not optimal in learning”. (R.28)

“Many of us are still confused about which method to use for online learning”. (R.63)

The details are shown in Table 2.

**Changes in Learning.** Significant changes due to the pandemic produced many changes in the aspects of learning as well. The analysis showed that these changes include (1) learning patterns, (2) learning time, (3) a load of learning materials provided, (4) increased costs, (5) the form of evaluation used, (5) the learning media used, (6) teacher and student competencies, (7) teacher/student characteristics and personalities, (8) learning facilities, (9) expected material expectations and (10) related parties involved.
Table 2

Overview of Respondents' Responses to the COVID-19

<table>
<thead>
<tr>
<th>Positive Response</th>
<th>Negative Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Teachers can do multitasking work.</td>
<td>1. The emergence of feelings of boredom, sadness, panic, confusion, worry either about themselves or related to learning with students.</td>
</tr>
<tr>
<td>2. Teachers can use various kinds of technology-based learning media.</td>
<td>2. Finding it difficult to learn new things and have not found the right method for children.</td>
</tr>
<tr>
<td>3. Teachers are required to be active, creative, and responsive in finding new methods that can be used.</td>
<td>3. Learning is not maximal because of limited face-to-face and obstructed communication.</td>
</tr>
<tr>
<td>4. Teachers can enjoy what happens as a part of their lives, can be grateful, be more patient, and always pray.</td>
<td>4. Decreased personal motivation and complaints from many students.</td>
</tr>
<tr>
<td>5. Some materials are not conveyed well and students' understanding decreases.</td>
<td></td>
</tr>
</tbody>
</table>

Note: The points in the table have been summarized based on the answers appearing the most.

**Strategies Undertaken.** Basically, the pandemic situation presents many problems for teachers in the learning process. Some strategies were carried out by teachers to solve these problems. They include making specific observations of the needs and difficulties faced by each child, giving assignments taking into account the access that can be utilized by each child, and creating interesting, varied, and fun learning media. Furthermore, teachers coordinated more intensively with parents at home, and worked together with schools to improve systems that are difficult for children to access. The teachers also made efforts to provide friendly and easy to understand learning.

“I started to identify things that I could use for learning. Then I try to see what the children currently have. From there I did a combination to enable the appropriate process to be carried out”. (R.78)

“Learning online in the long-term causes boredom. I try to use media that is interesting and stimulates children to bond to enhance their motivation”. (R.111)

The strategies are illustrated in a problem-solving flow in Figure 1.

**Figure 1** The flow of Problem Solving in learning

Figure 1 shows an example of a scheme that can be carried out by teachers to deal with learning problems during the pandemic. Self-evaluation is related to which deficiencies and competencies must be perfected by the teacher to optimize learning. Needs assessment is necessary to determine facts in the field related to students or anything that supports the learning process. Needs mapping provides alternative solutions to problems either by learning new things or developing existing resources and using a creative, fun approach. Coordination is carried out both by parents and schools to determine opportunities for a more optimal learning process. Finally, execution is a manifestation of controlled activities.
Obstacles Faced. Generally, there are many obstacles faced by teachers in carrying out learning during the pandemic, but some common obstacles that occur are presented in this research. The first is related to the provision of the internet, technology accessibility, and limited facilities faced by each child. Second, many teachers are not familiar with and master the appropriate technology media during the pandemic. Third is a lack of parental concern for their children, which is due to wrong assumptions about learning during this pandemic. Another obstacle is the decreased motivation of students and teachers because learning is not carried out as usual. Excluding teachers, many students are limited in facilities and access to learning media due to economic factors. In addition, not all of the lessons can be done online, and this obstacle poses a challenge for teachers. The feeling of laziness that arises from the teacher itself, especially if they find it difficult to learn new things, is another example.

Table 3
Effective Learning Model

<table>
<thead>
<tr>
<th>No</th>
<th>Model</th>
<th>Amount</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Face to face (offline)</td>
<td>172</td>
<td>84.7</td>
</tr>
<tr>
<td>2</td>
<td>Online</td>
<td>19</td>
<td>9.4</td>
</tr>
<tr>
<td>3</td>
<td>Offline and Online</td>
<td>12</td>
<td>5.9</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>203</td>
<td>100</td>
</tr>
</tbody>
</table>

Study 2
In study 2, the categorization of the respondents was presented first. Based on data processing, the average value for the teacher's attitude variable is 25.5, and the standard deviation is 3.3, while the average value for teacher knowledge is 7.1 and the standard deviation is 1.6. The grouping was based on the described criteria, where the group was divided into three parts: low (X> M - SD), medium (M - SD to M + SD), and high (X> M + SD) categories. The details are shown in Table 4.

Table 4
Respondents Categorization

<table>
<thead>
<tr>
<th>No</th>
<th>Variable</th>
<th>Category</th>
<th>Amount</th>
<th>Percentage</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Teacher attitude</td>
<td>Low</td>
<td>30</td>
<td>14.85%</td>
<td>24.9</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium</td>
<td>123</td>
<td>60.6%</td>
<td>25.7</td>
<td>3.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High</td>
<td>50</td>
<td>24.6%</td>
<td>25.2</td>
<td>4.1</td>
</tr>
<tr>
<td>2</td>
<td>Teacher knowledge</td>
<td>Low</td>
<td>32</td>
<td>15.8%</td>
<td>4.5</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium</td>
<td>129</td>
<td>63.5%</td>
<td>7.0</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High</td>
<td>42</td>
<td>20.7%</td>
<td>9.3</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Note: M (mean value) and SD (standard deviation value)

Furthermore, the correlation between teacher attitudes and teacher knowledge in this study was tested. The results are shown in Table 5.
Table 5

<table>
<thead>
<tr>
<th>No</th>
<th>Variable</th>
<th>Teacher Attitude</th>
<th>Teacher Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Teacher Attitude</td>
<td>1</td>
<td>.254**</td>
</tr>
<tr>
<td>2</td>
<td>Teacher Knowledge</td>
<td>.254**</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: (***) indicates a significance of .01 (1%).

Table 5 describes the relationships built by the attitudes and knowledge of teachers in this study. The correlation coefficient shown is $r = .254$ (p < .01). These results prove that there is a fairly strong relationship between teacher attitudes and knowledge. Furthermore, it shows that the better the attitude shown by the teachers, the more knowledge they have and vice versa.

Discussion

This research theoretically provides a comprehensive picture in explaining the learning situation faced by teachers in elementary schools during this pandemic. The results of the first study explained important aspects to be considered by teachers and schools in dealing with learning fluctuations. These important aspects include the psychological condition of the teacher, which is the central point of their readiness to adapt to change, specific factors in learning that must be considered, to the strategies and constraints faced in the learning process during the pandemic.

Many previous studies stated that sudden and unanticipated changes by previous individuals can become bad stressors that cause a person to experience an imbalance in their behaviors [32], thinking [33], and attitudes [34]. In this study, where the COVID-19 pandemic suddenly hindered the stability of respondents, specifically teachers, in the learning process. Emotional turmoil, both positive and negative, occurs hand in hand. Therefore, this situation is a teacher's first consideration before they solve the learning problems of students.

There are still many obstacles involved in carrying out the learning process [32]. This research focuses on the elementary school level, viewed from the stages of child development. Furthermore, students require a lot of operational assistance that cannot be explained by the online learning scheme. Previous research concluded that the learning model in elementary schools was one of the most difficult to carry out online [34].

The results indicate that many aspects have changed in learning due to the pandemic. Learning patterns that were carried out face-to-face evolved into to online methods. The place and time of learning carried out daily in schools has been replaced with online media which is more flexible [35]. Online learning sometimes cannot be performed optimally due to many obstacles in the process. Therefore, teachers also have to think again to simplify the existing material for students, especially in elementary schools which require direct guidance. The subjects mainly discussed by respondents were
the practical use of online services such as Zoom, Google Meet, Google Classroom, WhatsApp groups, and other technology-based media used by teachers and students. From an individual perspective, teachers to be patient and increase their capacity to adapt to the current challenges. These aspects become a new form of experience for teachers during this pandemic.

The research by R. Scherer et al [36] showed that the pandemic has indeed changed the learning scheme to be more challenging. Therefore, it is necessary to determine the best way to solve these challenges. In line with the observations this research also illustrates that almost all teachers in elementary schools have tried to do their best in teaching. This is proven by changing the given learning patterns and adjusting the existing changes. It is important to determine the process of conveying learning materials properly to students, especially by providing ways that are considered creative and easier. This fact is certainly in line with J. Warsihna et al [37; 38] on the importance of using learning media that is attractive to students in elementary schools.

Another fact observed in this research is that the pandemic situation requires teachers to communicate intensely with their students' parents. Online learning, which is mostly carried out at home, must be accompanied by the care of parents in guiding and monitoring their development at home. Furthermore, they proceed to report the progress to the teacher. D. Collins et al [39] and S. Abuhammad [40] explained the role and contribution of parents in optimizing online learning at home. This first study provides a significantly clear picture of the readiness and situation experienced by teachers in elementary schools. Furthermore, the results showed that almost 85% of teachers agree that face-to-face learning is currently the most appropriate model, especially for students in elementary school.

The training program in this research successfully provided new reflections for teachers to improve the learning of students during this pandemic. Providing discussion and improvisation activities for teachers in various ways enable them to better combat the challenges of the pandemic. The analysis showed that the majority of teachers are at a good level of attitude and knowledge (see Table 4). This is indicated by the number of teachers in conditions above average, specifically in the medium and high categories. Therefore, their attitudes and knowledge are in line with their readiness to face changes that occur during online learning.

The correlation test showed that the more positive attitude from teachers in facing online learning, the higher their knowledge. The suitability between attitudes and knowledge and perceptions was described by R. Schere et al [36] and S. Victor et al [41]. A pandemic is an unforeseen occurrence, therefore a positive perception is needed, followed by a qualified attitude and knowledge from each of these teachers [42]. Furthermore, this research combines two approaches in exploring learning models at the elementary school level. Further research is necessary to prove the statement that the face-to-face model is better than the online. Subsequent research should also observe the academic performance of students during learning.
Conclusion

This research provides a framework for explaining the systems and schemes that teachers and schools implemented for adaptive and flexible learning. The current pandemic requires every teacher to adapt in the best way possible. The results showed that despite many changes in the learning process during the pandemic, teachers and schools successfully adapted to the challenges. This is explained in the study on the importance of positive perceptions and attitudes towards the situation to positively influence the readiness and performance of teachers in elementary schools. Furthermore, the limitation of this research is that a few variables were applied to determine effective online learning. Future research needs to determine the relationship between variables more comprehensively. The use of the basic principles of quasi-experimentation can also be more appropriate to determine the effectiveness of the preferred training program.

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