



## Development of a Contextual Disaster Mitigation Teaching Module for East Java to Increase Student Interest in Social Science

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### ABSTRACT

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The aim of this research is to determine the feasibility of developing a teaching module for contextual disaster mitigation material in East Java and to determine students' responses to the development of a teaching module for contextual disaster mitigation in East Java. The research method uses the four D (4D) design stages, namely, define, design, develop, and disseminate. Data were collected using a questionnaire on a Likert scale to determine the feasibility of the teaching module and students' responses to the teaching module's introduction. The results of the questionnaire processing showed that the East Java contextual disaster mitigation teaching module that had been developed received 84% feasibility from experts, so it was considered very suitable for application in learning. In the response aspect, students answered that 68% strongly agreed if the East Java contextual disaster mitigation teaching module was applied in Social Sciences learning.

### KEYWORDS:

Disaster mitigation, Social Sciences, East Java

### 1. INTRODUCTION

The characteristics of the Indonesian region as an archipelagic country cause the geological, geomorphological, climatological, and anthropogenic conditions in Indonesia to have advantages such as rich natural resources, as well as a large population, diverse ethnicities, and cultures as well as varied social status conditions (Triastari et al., 2021). On the other hand, this condition means that Indonesia has the potential to frequently experience natural disasters that can have devastating impacts, resulting in large losses of both life and property (Atmojo, 2021). The potential for large disasters in Indonesia requires anticipation of how to mitigate disasters, especially for residents living in disaster-prone areas (Buamona et al., 2023). One effort to provide an understanding of disaster is through an educational process, both formal and non-formal. In formal education, disaster material has been included in the education curriculum at the junior high school level in Social Sciences subjects. In the Social Sciences subject, there is a special material that discusses disaster mitigation in Indonesia.

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Natural disaster mitigation education in schools can be packaged in learning both in the classroom and outside the classroom using various means to support the learning process, such as teaching materials, learning resources, and learning media (Nurmandi et al., 2023). Learning is a form of encouragement that educates students to obtain new information or knowledge, forming attitudes, character, desires, and skills to attain learning goals (Degeng, 2013). Education that studies natural disasters is needed in the school environment; this is because students know about the initial efforts that must be made before a natural disaster occurs when a natural disaster occurs, and after a natural disaster that can threaten themselves, their group, and the environment. According to Maryani & Syamsudin (2017), disaster education should be provided from an early age by integrating it into the independent Social Sciences curriculum.

To optimize the learning of disaster mitigation material, various efforts can be made by teachers by creating learning tools such as teaching modules, student worksheets, and evaluations that are contextual to local regional conditions. The findings of the study revealed that the students were able to improve their ability to identify problems and develop their own conclusions by going through the learning process (Reflinda, 2017). It is also important that teachers create the necessary facilities to support their learning goals (Catherine, 2014). By creating the right learning tools, learning activities can achieve a predetermined level of success. By creating the right learning tools, teachers will find it easier to convey the

**Sukma Perdana Parsetya et al, The Influence Of Implementing The Geography Virtual Laboratory (Geovlab) on Interest and Increasing Academic Achievement Abilities**

material, and students' understanding will increase, and the learning experience will be better (Pertwi et al., 2017).

One of the learning tools that can be used is the disaster mitigation teaching module; the teaching modules are very diverse and flexible; in fact, many teaching modules have been provided by the Ministry of Education and Culture of the Republic of Indonesia. State Junior High School (SMPN) 1 Sidoarjo, East Java Province, is using textbooks provided by the Ministry of Education and Culture of the Republic of Indonesia. Social Science learning, especially disaster mitigation material, has yet to utilize material that is broader and more contextual to the East Java region. In the learning carried out at SMPN 1 Sidoarjo, Unfortunately, there are not yet sufficient teaching materials for the East Java region that are relevant to the subject. This can make students less likely to absorb the material and respond to its learning process. Social science material, especially disaster mitigation, requires concrete understanding and material that is contextual to the environment. Material that is not contextual can hinder learning activities so that student's interest in participating in learning activities becomes low.

Contextual learning is a learning strategy that can be applied that emphasizes the process of involving students as a whole in studying the material being studied and relating it to situations in real life in order to encourage students to be able to apply it in their lives (Prastuti et al., 2020). Students can more easily recognize the connections between what they learn in the classroom and the outside world by engaging in contextual learning (Anriyani et al., 2023). Using contextual learning can improve students' spatial abilities in geography learning, especially in Natural Disaster Mitigation material (Suryandari & Yuanta, 2023). Contextual learning emphasizes that students learn by understanding the problems that exist in the environment where they live or activities around the environment that they encounter every day (Chaeroh et al., 2021). Through contextual learning, you can get to know the spatial characteristics of your environment more widely and develop independent and joint work to produce problem solutions.

Students' interest in social studies learning can be increased through the preparation of teaching modules on the topic of disaster mitigation in East Java. Students will gain a better and deeper understanding through teaching modules that are contextual to the local environment. This research aims to make a feasibility study of the East Java contextual disaster mitigation teaching module product, and analyze student responses to the teaching materials that have been developed.

**II. METHOD**

The focus of the research is on developing teaching materials that are relevant to disaster mitigation material that occurred in East Java. R&D type research with 4D models to analyze the feasibility of product design and its impact on student interest after using the teaching material product Thiagarajan

(1974). The concept of the 4D development model was conceptualized by Thiagarajan as an extension of the define, design, development, and dissemination processes. This research was carried out by SMPN 1 Sidoarjo, East Java. For the study, the researchers collected data through a questionnaire that was designed to ask questions about the various types of media that can be used in the teaching materials. They then used quantitative descriptions to analyze the responses of the students. The media feasibility test assessment and student responses refer to the Likert Scale table as shown in Table 1 below:

**Table 1. Likert Scale Criteria**

Scale	Criteria
4	If the respondent gives a rating as very interesting/very clear/very good/very easy/very complete
3	If the respondent gives an interesting/clear/good/easy/complete assessment
2	If the respondent gives a rating that is less interesting/less clear/less good/less easy/less complete
1	If the respondent gives a rating that is not interesting/not transparent/not good/not easy/incomplete

*Source: Sugiyono (2017)*

The assessment of the feasibility results of the East Java contextual disaster mitigation teaching module obtained from the media expert and material expert validation sheets will be interpreted according to a Likert scale, as follows.

**Table 2. Interpretation of Data Analysis of Validation Results**

Percentage	Criteria
81% - 100%	Very Worth It
61% - 80%	Worth It
41% - 60%	Decent Enough
21% - 40%	Not Worth It
0% - 20%	Not feasible

*Source: Riduwan (2015)*

The student response questionnaire sheet is filled in by the observer using the same Likert Scale assessment as in Table 1 and then interpreted using the reference in Table 3 below:

**Table 3. Criteria for Interpreting Student Responses**

Percentage	Criteria
81% - 100%	Strongly agree
61% - 80%	agree
41% - 60%	Simply agree
21% - 40%	disagree
0% - 20%	strongly disagree

*Source: Riduwan (2015)*

### **III. RESULTS AND DISCUSSION**

#### **A. RESULTS**

The results of this research are the feasibility of a disaster mitigation teaching module that is contextual to East Java, as well as to determine students' responses to the media that researchers have developed in this research, giving rise to new theories or modifications to existing theories. The following are the stages that researchers carried out:

##### **1. Define**

This define stage aims to analyze all needs in the development that the researcher will carry out.

###### **a. Preliminary Analysis**

Law Number 24 of 2007 defines a disaster as an event or series of incidents that can disrupt and affect the lives and livelihoods of people. It can be caused by either human or natural factors. Social studies subjects regarding disaster mitigation are taught in class VII junior high school. The main problem in social studies learning, especially disaster mitigation material, is the limited contextual disaster material in the East Java region. The material used is still too common for disasters that occur in Indonesia, while disasters also occur in the East Java region. Disaster material that does not refer to phenomena in East Java makes it difficult for students to understand the potential and mitigation of disasters in their own region.

The national "Merdeka" curriculum states that in Social Studies Learning, "Teachers are required to create a learning process that can facilitate students to be able to understand problems, identify causal factors, and formulate their findings in the form of descriptions and conclusions" and "Students will gain learning experience with results that are easy to observe and measure immediately according to the achievement of learning objectives." One contextualization of geography learning also states that learning media is a strategy for realizing optimal quality learning outcomes for students, namely "Using learning resources, learning media and teaching aids taken from the surrounding environment." The development of a contextual disaster mitigation teaching module for East Java helps in realizing optimal learning outcomes because it is in accordance with the demands of the "Merdeka" Curriculum, where this contextual disaster mitigation teaching module for East Java can create effective and efficient learning and can realize the demands of teachers in social science learning.

###### **b. Learner Analysis**

Intellectual development, especially the cognitive development of children, according to Piaget in

Suyono & Hariyanto (2012) The concept of cognitive development refers to a process that involves the development of one's nervous system. As people get older, their nerve cells become more complex, which increases their abilities. Piaget divided several classifications of cognitive stages based on age. Broadly speaking, there are four stages of cognitive development of children's thinking, namely the sensory-motor period, the pre-operational period, the concrete operational period, and the formal operational period (Gredler, 2009) at the formal operational stage (from age 11 years onwards). During this stage, children start to think abstractly, and they are able to come up with different solutions to problems. They are also developing scientific concepts and laws. They are starting to develop their own hypotheses and rules about abstract ideas. Children are able to work effectively and systematically in a proportional manner and draw basic generalizations (Suyono & Hariyanto., 2012). Children's motivation to learn will arise if the child feels pleasure, which makes the activities the child will do feel easy and can be absorbed well. Efforts to make children feel happy, it is hoped that teaching and learning activities can achieve the desired goals.

###### **c. Material Concept Analysis**

Due to the wide scope of study that social sciences subjects have, it can be hard for teachers to provide their students with the necessary materials. In addition, there are other ways of delivering the lessons. For instance, through the use of lecture materials, instead of using the learning media, the students can get the material covered. One of the most important factors that a teacher must consider when it comes to providing the materials for social studies courses is the contextual nature of the disaster.

A teaching module is a type of material that can convey messages in a planned manner. It can help create a conducive environment for the students to learn. In addition to being able to help them develop their own ideas, it can also generate new passions and interests. (Arsyad, 2017). The selection of appropriate contextual teaching modules in natural disaster mitigation material, in particular, will be able to realize effective and efficient learning and increase students' interest in social science learning.

###### **d. Objective Specifications**

In creating a disaster mitigation teaching module that is contextual to East Java, it is hoped that the learning process can achieve competency achievement indicators that match the teaching module. The

## Sukma Perdana Parsetya et al, The Influence Of Implementing The Geography Virtual Laboratory (Geovlab) on Interest and Increasing Academic Achievement Abilities

objective of the teaching materials is to provide students with an overview of disasters that occurred in East Java and Indonesia. They will also analyze the management of disasters in the region.

### 2. Design:

#### a. Material selection

Selecting the teaching module that the researcher developed, the researcher chose a disaster mitigation teaching module that was contextual to East Java. The teaching materials for East Java include a cover page, a table of contents, a concept map, practice questions, and summaries.

#### b. Media selection

To present a disaster mitigation teaching module contextual to East Java, researchers use the Canva application so that the appearance of the teaching module can be attractive to students.

#### c. Design Framework

- Create a concept or draft of contextual virtual teaching materials regarding disaster mitigation in East Java.
- Instructions for delivering material will be conceptualized systematically based on student needs
- Contextual virtual teaching materials regarding Disaster Mitigation in East Java that have been conceptualized will be followed by the creation of assessment and evaluation instruments based on research subject responses.
- The stages or mapping of disaster materials will be designed in stages so that they can be implemented

### 3. Develop

Product development will be carried out in stages by incorporating elements that have been studied from the analysis stage as well as elements that have been conceptualized at the design stage. The experts have developed a teaching module that will be used in East Java. It will be validated by the media and material experts—the development of a contextual disaster mitigation teaching module for East Java. To improve the teaching module so that it is suitable, media experts and material experts will likely provide revisions in the form of suggestions or additions. The following is the Develop or development stage that researchers carried out with the following steps.

- a. Media Study by Media Experts Study of learning media by media experts, namely social studies lecturers, namely Dr. Nuansa Bayu Segara, M.Pd got a score of 75%
- b. Media Review by Material Experts Study of learning media by material experts, namely social studies

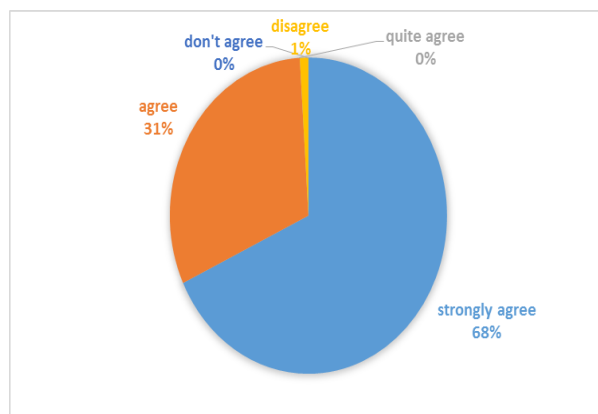
lecturers, namely Dr. Nugroho Hari Purnomo, S.P., M.Si got a score of 92.5%.

The feasibility study was carried out by media and material experts an average percentage of 83.75%. The Likert scale assessment criteria show that the percentage of 81-100% is "very feasible," meaning that the East Java contextual disaster mitigation teaching module is suitable for use in social studies learning Disaster Mitigation material.

### 4. Student Response

The contextual teaching module product regarding East Java contextual Disaster Mitigation was implemented on designated targets, namely class VII students of SMP Negeri 1 Sidoarjo. Implementation will be carried out in stages using the student grouping method. Product trials were carried out on students to see responses regarding the product development that had been carried out. According to Simanjuntak & Imelda (2018), According to a study, positive responses are often generated by students after they feel that they are getting a good learning experience from the materials. They also want to carry out the same lessons in the future.

The results of the questionnaire that has been distributed and filled out by students of SMP Negeri 1 Sidoarjo Surabaya regarding teaching materials in the form of East Java Contextual Disaster Mitigation teaching module products are as follows:



**Fig. 1 Student responses based on questionnaire**

Student responses to the development of contextual disaster mitigation teaching modules in East Java were based on subjective assessments; on average, 68% of students designated as samples responded strongly agreeing to the 20 descriptions of statements outlined in the questionnaire, 31% of students responded agreeing, 1% of students responded that they disagreed and 0% of students responded that they strongly disagreed. This can be drawn from the understanding that all students are very responsive and The development of instructional

**Sukma Perdana Parsetya et al, The Influence Of Implementing The Geography Virtual Laboratory (Geovlab) on Interest and Increasing Academic Achievement Abilities**

materials for social studies courses is regarded as a positive step in the form of East Java contextual disaster teaching modules that have been created.

The above is also reinforced by the results obtained from questionnaire assessments or student responses as follows:

**Table 4. Analysis of Student Response Results**

Description	Number of scores	Total score / maximum score x 100%
Overall questionnaire results	4700	92

*Source: Primary Data (2023)*

From all the questionnaire data that has been processed, the number of values that appear is 4,700 out of a maximum total value of 5,120, resulting in a percentage value of 92%. This implies that the instructional materials are designed to be used in social studies courses. They are based on the lessons learned in East Java.

**B. Discussion**

Natural disaster mitigation material in social studies learning, in particular, has a broad object of study and cannot be observed directly; of course, it requires appropriate East Java contextual disaster mitigation teaching modules so that learning can be successful, effective, and efficient. East Java contextual disaster mitigation teaching modules that can describe a disaster event will help students get to know the surrounding environment and can make learning more effective and efficient with a contextual disaster mitigation teaching module in East Java that can combine environmental conditions around students and is very suitable for application to lessons that have extensive study and difficult understanding.

The 4D Development Model was chosen by researchers in developing contextual disaster mitigation teaching modules in East Java because researchers created products to be researched and developed in this research and development. Thiagarajan (1974) stated that the research and development steps, abbreviated as 4D, which is an extension of Define, Design, Development, and Disseminate, were not carried out at the dissemination stage by researchers due to time and cost limitations. After the creation of the teaching module, it is then validated by material experts and media practitioners through a Likert-scale questionnaire with the category "Very Appropriate," each getting a score of 75% from media experts and 92.5% from material experts. Validation is carried out to measure the appropriateness of the media and obtain

suggestions and input so that the media can be further refined.

Students' responses to diorama media were obtained from limited trials using a Likert scale questionnaire that had been developed. Based on trials at SMPN 1 Sidoarjo, the East Java contextual disaster mitigation teaching module obtained a total score of 88.1% in the "Strongly Agree" category based on a Likert scale, according to Riduwan (2017). The results of this research are in accordance with Arsyad (2017), In addition to being able to help students develop their own ideas, it can also generate new passions and interests. According to researchers, learning materials can additionally stimulate the learning process and create a conducive environment for the students.

Contextual teaching modules regarding disasters using teaching media will represent natural disaster events and the efforts that must be made in accordance with their immediate dynamics and urgency. The East Java contextual teaching module delivered in disaster learning material can stimulate and form personal memories in students' thinking through visualized things. According to Magdalena et al.(2020), teaching materials are everything teachers use to carry out learning. Good contextual teaching materials are hoped to awaken students' talents, interests, and motivation in learning activities (Zaifullah et al., 2021). Utilising contextual teaching methods can help overcome students' confusion, biases, and lack of comprehension regarding disaster mitigation.

This study's findings are in line with the research conducted by Nor (2014). The validation score achieved by media professionals was 83.3%, while that of material experts was 88.8%. The Likert scale's feasibility results and the validation value achieved by media professionals and material experts were also taken into account to come up with a very feasible score range of 80% to 100%. The evaluation's total response score of 90.1% was regarded as strong evidence of the students' agreement with the teaching materials and the media's efforts in helping students understand disaster mitigation. This research was confirmed by Sadiman (2014) The advantages of using East Java's contextual teaching approach for disaster mitigation in the learning process can be seen in the following:

1. Make sure that the message is delivered in a way that is not too verbal.
2. The delivery of the message should exceed the students' limitations in sensory power, space, and time.
3. In order to overcome the passive attitudes of students, varying and appropriate educational media can be utilized:
  - a) Make sure that the students are excited about learning

## Sukma Perdana Parsetya et al, The Influence Of Implementing The Geography Virtual Laboratory (Geovlab) on Interest and Increasing Academic Achievement Abilities

- b) Through the use of contextual teaching methods, students can interact with the outside world and the environment in a more direct manner.
- c) students should be permitted to learn independently depending on their interests and capabilities.

### IV. CONCLUSION

Research conducted on "Development of contextual disaster mitigation teaching modules for East Java to increase student interest" can be concluded as follows.

1. A disaster mitigation teaching module that is contextual to East Java has been developed more interestingly to obtain very suitable criteria for use in learning activities regarding disaster mitigation material. The results of the diorama media review carried out by media experts obtained a percentage feasibility value of 75% so that the teaching module was included in the "very feasible" criteria and the results of the review by material experts obtained a percentage feasibility value of 92.5% so that the diorama media material was also included in the "criteria" very worthy."
2. In student responses to the development of a contextual disaster mitigation teaching module for East Java at SMPN 1 Sidoarjo, as many as 36 students received a percentage score of 68%, which was included in the "strongly agree" criteria. This means that students responded strongly in agreement with the development of disaster mitigation teaching modules that are contextual to East Java and agreed to the teaching modules as support for learning activities regarding disaster mitigation material.

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### REFERENCES

1. Anriyani, S., Yahya1, M., & Yarifuddin. (2023). The Influence of the Contextual Teaching and Learning Approach on Students Social Sciences Learning Outcomes. *13(2)*, 184–192.
2. Arsyad, A. (2017). *Learning Media (Media Pembelajaran)*. : Rajagrafindo Persada.
3. Atmojo, S. E. (2021). Natural Disaster Mitigation on Elementary School Teachers : Knowledge, Attitude, and Practices. *10(1)*, 12–22. <https://doi.org/10.23887/jpi-undiksha.v10i1.25060>
4. Buamona, A. P., Assegaf, A. R., Syafi'i, I., & Sugiantoro. (2023). Disaster mitigation learning integration model in social studies in middle school. *AL MA'ARIEF: Jurnal Pendidikan Sosial Dan Budaya*, *5(2)*, 62–84.
5. Catherine, J. (2014). Academic Interest among Higher Secondary Students. *THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES*, *2(6)*, 33–36.
6. Chaeroh, M., Slamet, S. Y., & Kurniawan, S. B. (2021). Application of Contextual Teaching and Learning Models Based on Creative Thinking in Elementary Schools. *Advances in Social Science, Education and Humanities Research*, *534*, 100–105.
7. Degeng, I. S. (2013). *Ilmu Pembelajaran: Klasifikasi Variabel untuk Pengembangan Teori dan Penelitian*. Aras Media.
8. Gredler, M. (2009). *Learning and Instruction: Theory into Practice (6th Ed)*. Pearson Education Inc. Upper Saddle River.
9. Magdalena, I., Sundari, T., Nurkamilah, S., Amalia, D. A., & Tangerang, U. M. (2020). Analisis bahan ajar. *Nusantara: Jurnal Pendidikan Dan Ilmu Sosial*, *2(2)*, 311–326.
10. Mawarni, S. & Muhtadi, A. (2017). Pengembangan Digital Book Interaktif Mata Kuliah Pengembangan Multimedia Pembelajaran Interaktif Untuk Mahasiswa Teknologi Pendidikan. *Jurnal Inovasi Teknologi Pendidikan*, *4(1)*, 84–96.
11. Nor, D. A. (2014). PENGEMBANGAN MEDIA PEMBELAJARAN TIGA DIMENSI MATERI DINAMIKA GERAKAN LEMPENG TEKTONIK MATA KULIAH GEOLOGI UMUM PRODI S1 PENDIDIKAN GEOGRAFI UNIVERSITAS NEGERI SURABAYA. *Swara Bhumi*, *1(1)*, 1–5.
12. Nurmandi, A., Misran, A., & Subekti, D. (2023). Disaster Mitigation Education Through the Use of the InaRISK Personal Application in Indonesia Disaster Mitigation Education Through the Use of the InaRISK Personal Application (Issue August). Springer Nature Switzerland. <https://doi.org/10.1007/978-3-031-35748-0>
13. Pertiwi, N., Ninsyi, D. S., Faculty, E., Faculty, N. S., & Makassar, U. N. (2017). Development of Web-Based Learning Tools Oriented to Increase Student Skills. *International Journal of Scientific Development and Research (IJS DR)*, *2(8)*, 132–141.
14. Prastuti, A. E., Sarmini., & Purnomo, N. H. (2020). Implementation of Contextual Teaching and Learning Social Sciences Subjects to Increase Motivation and Learning Achievement. *The Indonesian Journal of Social Studies*, *3(2)*, 67–73.
15. Reflinda. (2017). THE EFFECT OF LEARNING STRATEGY AND READING INTEREST TO THE READING UNDERSTANDING ABILITY OF STUDENTS OF IAIN BUKIT TINGGI.

**Sukma Perdana Parsetya et al, The Influence Of Implementing The Geography Virtual Laboratory (Geovlab) on Interest and Increasing Academic Achievement Abilities**

IJLRES - International Journal on Language, Research and Education Studies, 1(2), 226–239.

16. Riduwan. (2015). *Methods and Techniques for Writing Thesis and Thesis*. In Bandung: Alfabeta.
17. Sadiman, A. S. (2014). *Educational Media: Definition, Development and Utilization*. PT. Raja Grafindo Persada.
18. Simanjuntak, S. D., & Imelda. (2018). RESPON SISWA TERHADAP PEMBELAJARAN MATEMATIKA REALISTIK DENGAN KONTEKS BUDAYA BATAK TOBA. *MES (Journal of Mathematics Education and Science)*, 4(1), 81–88.
19. Sugiyono. (2017). *Educational Research Methods*. Alfabetha.
20. Suryandari, S., & Yuanta, F. (2023). The Influence of The Contextual Teaching Learning ( CTL ) Learning Model on the Learning Outcomes of Social Sciences Natural Resources. *Education and Human Development Journal*, 8(September), 76–82.
21. Suyono, & Hariyanto. (2012). *Belajar dan Pembelajaran*. Remaja Rosdakarya.
22. Thiagarajan, S. (1974). *Instructional Development for Training Teachers of Exceptional Children: A Sourcebook*. Indiana University Bloomington.
23. Triastari, I., Dwiningrum, S. I. A., & Rahmia, S. H. (2021). Developing Disaster Mitigation Education with Local Wisdom: Exemplified in Indonesia Schools. *IOP Conference Series: Earth and Environmental Science*, 884(1). <https://doi.org/10.1088/1755-1315/884/1/012004>
24. Zaifullah, Cikka, H., & Kahar, M. I. (2021). Strategi Guru Dalam Meningkatkan Interaksi dan Minat Belajar Terhadap Keberhasilan Peserta Didik Dalam Menghadapi Pembelajaran Tatap Muka di Masa Pandemi Covid 19. *Guru Tua: Jurnal Pendidikan Dan Pembelajaran*, 2(1), 9–18.