

PAPER NAME

**020002\_1\_5.0130954.pdf**

AUTHOR

**Undang Rosidin**

WORD COUNT

**4217 Words**

CHARACTER COUNT

**23723 Characters**

PAGE COUNT

**8 Pages**

FILE SIZE

**804.9KB**

SUBMISSION DATE

**May 3, 2023 10:07 AM GMT+7**

REPORT DATE

**May 3, 2023 10:07 AM GMT+7**

### ● 12% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

- 4% Internet database
- Crossref database
- 6% Submitted Works database
- 6% Publications database
- Crossref Posted Content database

### ● Excluded from Similarity Report

- Bibliographic material
- Small Matches (Less than 10 words)
- Cited material
- Manually excluded sources

RESEARCH ARTICLE | APRIL 28 2023

# Development of science learning program contains divine values and love of the environment to strengthen student's character

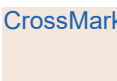
Undang Rosidin ✉; Nina Kadaritna

 Check for updates

*AIP Conference Proceedings* 2619, 020002 (2023)

<https://doi.org/10.1063/5.0130954>

 [View Online](#)  [Export Citation](#)

 CrossMark

## Articles You May Be Interested In

 [On-site acoustical characterization of Baroque tapestries: The Barberini collection at St. John the Divine Cathedral](#)

*J Acoust Soc Am* (September 2018)

[Exploring spiritual value in earth science concept through learning using chain till unanswered questions](#)

*AIP Conference Proceedings* (August 2017)

[Systems Thinking : Ancient Maya's Evolution of Consciousness and Contemporary Systems Thinking](#)

*AIP Conference Proceedings* (November 2010)



**Time to get excited.**  
Lock-in Amplifiers – from DC to 8.5 GHz

[Find out more](#)

 Zurich Instruments

# Development of Science Learning Program Contains Divine Values and Love of The Environment To Strengthen Student's Character

Undang Rosidin<sup>1, a)</sup> and Nina Kadaritna<sup>2, b)</sup>

<sup>1</sup>Physics Education, Universitas Lampung, Lampung, Indonesia

<sup>2</sup>Chemistry Education, Universitas Lampung, Lampung, Indonesia

<sup>a)</sup>Corresponding author: undang.rosidin@fkip.unila.ac.id

<sup>b)</sup>nina.kadaritna@fkip.unila.ac.id

**Abstract.** This study aims to develop a science learning program containing divine values and love for the environment to strengthen students' character. This study used to research and development which refer to the Borg and Gall R & D model. The subjects of this study were junior high school students in Lampung Province. Data collection techniques used non-test instruments in the form of observation guides, questionnaires, and documentation. Data analysis was carried out using qualitative and quantitative analysis techniques with a database of the results of the feasibility test, practicality, and effectiveness of the developed science learning program products. This study produced a science learning program consisting of lesson plans, worksheets, student books, multimedia, learning videos, and assessment instruments containing the value of divinity and love for the environment to strengthen the character of students. Who are worthy, practical, and effective. The product feasibility test was proven theoretically feasible by expert validation. Meanwhile, the product practicality test showed that the product is practically used by educators. Then, the effectiveness test was found that the product was effective in the high category. In addition, this learning program can strengthen the character of students in forming noble personalities.

## INTRODUCTION

Learning science have an important role in the formation of scientific attitudes. Based on the attachment of Permendikbud No. 65 of 2013 concerning Process Standards, it is stated that in accordance with Graduate Competency Standards and Content Standards, there are 14 learning principles used, one of which is learning that applies values by building willingness, setting an example, and developing students' creativity in the learning process. One of the determining factors for the success of learning is the presence of adequate learning resources. The student's book is a learning resource that until now has an important role to support the learning process. Student books are guidebooks for students in learning activities that contain subject matter [1].

The learning practices so far have prioritized the instrumental dimensions of the objectives relating to the aspects of knowledge and skills rather than aspects of attitudes. This can be understood because conventionally, learning activities are more related to academic learning for the assignment of certain areas of knowledge or skills. In addition, the learning process to achieve aspects of knowledge and skills is easier to observe and measure than the aspects of attitudes. As a result, the dimensions of attitude (affective) that are intrinsic to educational goals are often neglected and only become a co-effect of educational efforts. One of the efforts of the Indonesian government to restore the values of the Indonesian people is to develop the education curriculum in Indonesia into a new curriculum, namely the 2013 curriculum. The 2013 curriculum contains cognitive and psychomotor competencies that students must achieve which are always accompanied by affective aspects that students must also achieve. Some important values to be instilled in students include the value of divinity and love for the environment.

Divinity values are considered important to be instilled in students because by instilling divine values it is expected to form good character in students [2]. Bloom categorizes learning outcomes in three domains, namely cognitive domain, affective domain, psychomotor domain [3]. Indicators of religious values (divinity) include: admiring the greatness of God who has created various universes; because of the existence of religion which is the source of the regularity of people's lives; through various subjects in various subjects. Indicator of the value of caring for the environment, namely planning and implementing various activities to prevent environmental damage. Indicator of the value of environmental care, namely planning and implementing various activities to prevent environmental damage. Indicator of the value of environmental care, namely planning and implementing various activities to prevent environmental damage [4].

## METHODS AND PROCEDURES

This is a research and development (R&D) which has aims to produce certain products. The product is developed based on the needs analysis in the field. The developed product is validated before being tested in the field. The product is then revised so that it can produce a quality and effective product. The research model used is Borg and Gall's R&D. There are ten steps in carrying out development research with slight adjustments according to the research context [5], namely as follows:

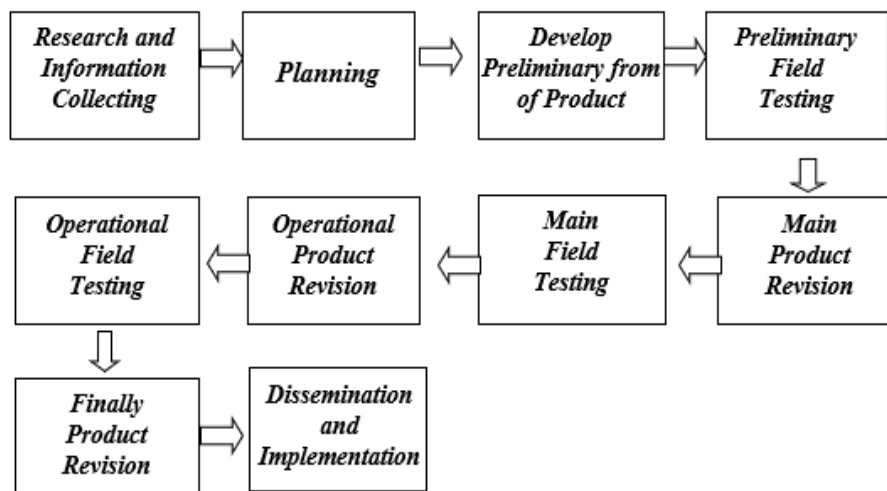


FIGURE 1. Procedures Research and Development (R&D) Borg and Gall

In accordance with the steps of implementing the development research, in this study, the researcher only carried out the first to the seventh steps, namely research and information collecting, planning, develop a preliminary form of product, preliminary field testing, main product revision, main field testing, operational product revision. At the stage of collecting information data, preliminary research was carried out. Preliminary research was conducted by using a questionnaire given to teachers of science subjects in junior high schools in Lampung Province. The preliminary research is in addition to knowing how much an assessment instrument is needed to be developed as well as to analyze whether there is an integrated Science learning implementation-oriented towards character education that includes divine values and love for the environment, analyzing teacher knowledge regarding aspects of knowledge, skills, and attitude assessment. Knowing how teachers conduct assessments, as well as whether there are obstacles and difficulties for teachers in making science learning programs containing divine values and love for the environment to strengthen students' character.

The next stage in product design for science learning programs containing divine values and love for the environment to strengthen students' character. Furthermore, the initial product development is carried out by analyzing materials related to divinity and love for the environment, then compiling learning tools, worksheets, learning videos, student books, media learning, and finally the assessment instrument used for the science learning program containing the values of divinity and love for the environment to strengthen the character of students. The next stage is the initial field test carried out with data collection that collects information from the subject of validation and is used as a

questionnaire. The questionnaire used for the test is in the form of validator responses regarding model validation. Observation is used to determine student learning activities. Documentation is used to find out the material to have schemed, a list of teachers, and students.

Data analysis techniques in this research used qualitative and quantitative. The product feasibility test was carried out with a questionnaire to assess the product by an expert. Quantitative data from the results of product validation and testing became qualitative data based on the criteria for product validity and feasibility. Then the practicality test was carried out using a questionnaire to educators. After the practicality test, the product was tested directly on the research subject, namely junior high school students in the province of Lampung, and the results will then be interpreted with qualitative sentences based on the average obtained and the criteria for each data called the effectiveness test. Determination of the conclusions that have been reached is based on the criteria for assessing the percentage of effectiveness data [6]. Their criteria were shown in the following Table 1.

**TABLE 1.** Product Effectiveness Test Assessment Criteria

Score	Category
85.00 < 100	Very high
71.5 < 85.00	High
62.5 < 71.5	Currently
43.75 < 62.5	Low
0 < 43.75	Very low

Based on the results of student acquisition, the scores are categorized according to Table 1. This test is used to determine the effectiveness of science learning programs containing divine values and love for the environment to strengthen students' character. In addition, this stage can also find out the response of students regarding the value of divinity and love for the surrounding environment.

## RESULTS AND DISCUSSION

The development of science learning programs containing divine values and love for the environment to strengthen students' character is made in the form of lesson plans, worksheets, student books, multimedia, learning videos, and assessment instruments. Here is the full explanation:

### Lesson Plan in Science Learning Containing the Value of Divinity and Love for the Environment

The lesson plan for science learning with character is a design of a system for inculcating learning values to students, in terms of knowledge, attitudes, awareness, and actions to obey God's commands and stay away from his prohibitions. Develops a science-based learning implementation plan with several indicators that lead to aspects of knowledge, attitudes, and skills. In the knowledge indicator, students are measured on their knowledge ability in order to reach the KKM (Criteria of Minimum Achievement).

Then, attitude indicators consist of two aspects, namely spiritual attitudes and social attitudes. Spiritual attitudes, namely the value of divinity and social attitudes on the value of love for the environment with indicators on the learning implementation plan in Table 2.

**TABLE 2.** Indicators of Spiritual Attitudes and Social Attitudes

Spiritual Attitude (Divine Value)	Social Attitude (The Value of Love for the Environment)
Start learning with prayer	Respect the teacher when giving directions
Appreciate the phenomenon of heat transfer	Work individually and in groups
Admire the earth with all its protection as one of God's creations	Appreciate any opinions or suggestions of friends
Ending the lesson with a prayer	Protecting the environment
	Reduce paper usage

The lesson plan for science learning is more emphasized providing experience to develop competence and instill character values so that students are able to investigate and understand the natural surroundings scientifically. Science learning also integrates learning with good character education from students by practicing and teaching moral values, and civilized decision-making in relationships with fellow human beings and in their relationship with God [8]. Five main values in character education, namely character values in relation to God, character values in relation to oneself, the value of the character of the relationship with others, character values in relation to the environment [9]. Lesson Plan in Science Learning Containing the Value of Divinity and Love for the Environment was also developed by integrating these values in learning activities. The lesson plan was developed by using indicators of gratitude for God's creation related to solid, liquid, and gas materials, praying before and after learning for divine values. And then using indicators were respecting opinions, not wasting water, objects that are not used for the value of loving the environment [10].

## Worksheet in Science Learning Containing the Value of Divinity and Love for the Environment

11 A student's worksheet is a student guide that is used to carry out research or problem-solving activities. The guide in the worksheet can be used as an exercise for students to develop aspects that must be possessed in the learning process. In addition to guiding students in solving problems in learning, worksheets also assist teachers in conveying concepts that must be understood by students. Worksheet in science learning containing the value of divinity and love for the environment by applying a problem-based learning model in science learning [11]. The existence of this worksheet makes students more interested in learning science about konveksi, easy to understand the concepts presented and can be utilized and effectively used as learning media.

3 The worksheet is also equipped with strengthening spiritual and social attitudes. Spiritual attitude includes living and practicing the teachings adopted as a form of gratitude towards God Almighty. The social attitudes applied include curiosity when learning activities take place, honest attitudes when carrying out learning activities, the collaboration between students in solving problems during learning activities, and students' self-confidence when communicating the results of experimental activities carried out. Another research that develops student worksheets in science learning contains the value of divinity and love for the environment on heat material. Develop of worksheets hoped that students will become more interested in learning physics about heat, it is easy to understand concepts, and worksheet is better utilized as a learning medium [12].

Development by containing character values so that students can recognize, care and internalize divine values, and love for the environment so that students do not only have knowledge abilities but can touch the values of students' attitudes and skills. Developed worksheets that contain divine values and love for the environment on the material of physical and chemical changes as well as to determine student learning outcomes and character [13]. Students who use worksheets can complete learning objectives in terms of cognitive product and also realize that many phenomena that occur are a form of the greatness of God Almighty, for that they must maintain their behavior so that they do not have a bad impact on the environment which will have a bad impact on living things.

Students who use worksheets can complete learning objectives in terms of product cognition and also realize that many phenomena that occur are a form of the greatness of God Almighty, for that they must maintain their behavior so that they do not have a bad impact on the environment which will have a bad impact on living things. By realizing this, students will be more aware of and grateful for the greatness of God Almighty. Students who use worksheets can complete learning objectives in terms of product cognition and also realize that many phenomena that occur are a form of the greatness of God. Almighty, for that they must maintain their behavior so that they do not have a bad impact on the environment which will have a bad impact on living things. By realizing this, students will be more aware of and grateful for the greatness of God Almighty.

## Student's Book in Science Learning Containing the Value of Divinity and Love for the Environment

5 A student's book is a book that contains subject matter in the form of concepts or notions that will be constructed by students through the problems in it which are arranged based on the approach. The student's book containing the values of divinity and love for the environment was developed by Rohmawati with indicators of religious values (divinity) including: 1) admiring the greatness of God through human ability to synchronize between physical and psychological aspects; 2) admire the greatness of God because of his ability to live as a member of society; 3) admire

the power of God who has created various universes; 4) admiring the greatness of God because of the existence of religion which is the source of the regularity of people's lives; 5) admire the greatness of God through various subjects in various subjects [14].

## Multimedia in Science Learning Containing the Value of Divinity and Love for the Environment

4 Multimedia is a combination of various media to convey information. Examples of media that convey information in question are text, images, photos, videos, music, and even animations. Science learning multimedia by emphasizes collaborative learning (science, environment, technology, and society) in an integrated manner directed at learning experiences to design and create work through the application of science concepts and scientific work competencies wisely [15]. Multimedia learning science is more interesting and able to represent the delivery of material that cannot be spoken through certain words or sentences. The multimedia used is a computer, where Daryanto divides 6 forms of interaction that can be applied in computer-based media, namely: practice and practice (drill and practice), tutorials, games (games), simulation (simulation), discovery, and problem-solving [16]. Meanwhile, Hermawan developed a multimedia learning science containing divine values and love for the environment on heat material [17].

Multimedia in question is a science learning video that is able to visualize material in a real form with divine values and love for the environment in the learning process. This multimedia can be used to provide direct learning experiences to students, to be more time-efficient in learning, to help/facilitate the learning process and to increase students' creativity, and motivation.

## Video in Science Learning Containing the Value of Divinity and Love for the Environment

Science learning videos are videos as learning media with visuals and audio used in science learning. This science learning video was made with the first step is to identify Core Competencies (KI), Basic Competencies (KD), and learning indicators to be achieved. The Core Competencies (KI) used by KI-1 to KI-4 consist of spiritual attitudes, social attitudes, knowledge, and skills. Then, determine the basic competencies and then develop indicators. Indicators in science learning videos, namely, (1) through reading the holy verses of the Qur'an students can believe in God's creation, (2) students are able to show an attitude of believing that God has set the universe and its changes, (3) students are able to carry out religious teachings properly and correctly, (4) students are able to maintain environmental cleanliness, (5) through literature study students are able to explain material changes in the form of physical changes and chemical changes, (13) students show persistence in observing experiments regarding physical and chemical changes, (14) students are able to communicate the results of experiments to other groups, (15) students are able to demonstrate an attitude of having divine values and love for the environment [18]. After identifying the KI, KD, and indicators, the next step is to determine the material items that are in accordance with the developed learning multimedia, namely the material for physical changes, chemical changes, pollution, and global warming. The preparation of the scenario for the development of this science learning video contains material, footage of phenomena around us that support the material, verses of the Qur'an that support the material, and an invitation to protect the environment. The materials collected are from proven sources. After the material is well structured, the next step is to look for footage of the phenomena around us and the verses of the Qur'an that support and clarify the material, as well as make invitations to protect the environment as an application of the creature's obedience to its creator.

## Assessment Instrument in Science Learning Containing the Value of Divinity and Love for the Environment

6 Science learning assessment instrument contains divine values and love for the environment. The assessment is carried out in a balanced manner by involving all aspects of students' abilities, so that the results of the assessment can describe students' abilities or learning achievements as a whole. This will certainly help students in forming a noble character. Instrument for assessing spiritual (divine values) and social attitudes (the value of love for the environment) has been achieved and can be used as an attitude assessment instrument in integrated science learning [19]. This is supported by Rosidin where in the study an attitude assessment instrument was produced for the implementation of science learning programs containing divine values and love for the environment that guides in fostering the character of students [2]. Another study, from Paulina developed an assessment instrument containing divine values and love

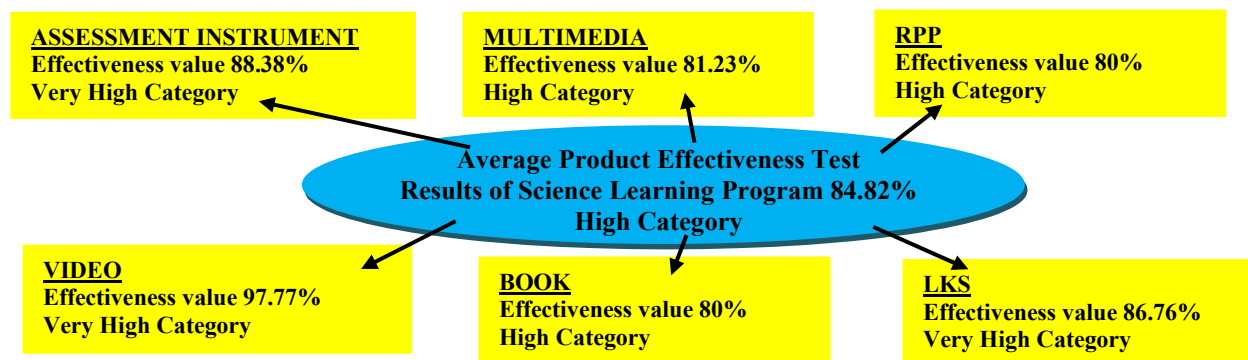
for the environment which created the embodiment of character values in life, such as the character of love for God and all of His creation, independence, responsibility, diplomacy, respect, and polite, generous, helpful, and cooperative [20].

The product of the science learning program containing the values of divinity and love for the environment to strengthen the student's character is declared theoretically feasible as proven by expert validation tests with an average of 87.75% from construction, substance, and language experts to lecturers and science teachers with master's degree. Can be seen in Table 3.

**TABLE 3.** Feasibility Test Results

No.	Form of Learning Program	Feasibility Test Results (%)
1.	RPP	89.41 (eligible category)
2.	LKS	92.6 (eligible category)
3.	Student Book	90.15 (eligible category)
4.	Multimedia	79.6 (eligible category)
5.	Videos	87.82 (eligible category)
6.	Assessment Instrument	94.9 (eligible category)

Then, science learning products containing the value of divinity and love for the environment to strengthen the character of students are declared to be practically used by educators as indicated by practicality which is assessed using a questionnaire by the teacher with aspects of usefulness, attractiveness, and convenience with an average value of 90.47% very practical category. Furthermore, the effectiveness test was carried out by testing the product on junior high school students in the province of Lampung, the average results of the effectiveness test assessment were 84.82 in the high category, as shown in Figure 2.



**FIGURE 2.** Effectiveness Test Results

## CONCLUSION

The development of science learning programs consists of: science consisting of lesson plans, worksheets, student books, multimedia, learning videos, and assessment instruments containing divine values and love for the environment to strengthen the character of these students is declared feasible, practical, and effective. This is indicated by the feasibility test using construction, substance, and language expert validation with an average of 87.75% by lecturers and science teachers who graduated with a Master's Degree in Science Education. The practicality test of the product is stated to be practically used by educators as shown by the practicality which is assessed using a questionnaire by science teachers with aspects of usefulness, attractiveness, and ease of obtaining an average score 90.47% very practical category. Then, the product effectiveness test was declared to be effective as indicated by the product trial to junior high school students in the province of Lampung, the average results of the effectiveness test assessment were 84.82% which belongs to the high category. In addition, this learning program can be used to strengthen the students' character in forming noble.



## REFERENCES

1. Trianto. Designing an Innovative-Progressive Learning Model. (Kencana Prenada Media Group, Jakarta, 2002).
2. U. Rosidin. Research Report Institute of the University of Lampung. (Unpublished, 2013).
3. Dimiyati, and Mudjiono. Belajar dan Pembelajaran. (Rineka Cipta, Jakarta, 2002).
4. Afrizon. UNNES Physics Education Journal 1(1), pp. 1-11 (2012).
5. W. R. Borg, and M. D. Gall. Education Research: An Introduction 4th Edition. (Longman Inc, New York, 1983)
6. E. Yunisma, P. D.I. Nyeneng, and U. Rosidin. Journal of Learning Physics 2 (2), pp. 1-11 (2014).
7. R. Kurniawati, U. Rosidin, and I. Wahyudi. Journal of Learning Physics 2 (1), pp. 1-11 (2014).
8. Samani, Muchlas, and Haryanto. Character Education. (Remaja Rosdakarya, Bandung, 2012)
9. J. M. Asmani. A Guide to the Internalization of Character Education in Schools. (Diva Press, Yogyakarta, 2011).
10. R. Syafitri, U. Rosidin, and C. Ertikanto. Journal of Learning Physics 2 (1), pp. 89-100 (2014).
11. A. Hidayati, U. Rosidin, and E. Suyanto. Journal of Learning Physics 2 (1), pp. 13-23 (2014).
12. Meitikasari, U. Rosidin, and I. Wahyudi. Journal of Learning Physics 2 (1), pp. 23-33 (2014).
13. Arisca F, Nyeneng PDI, and Rosidin U. Journal of Learning Physics 2 (1), pp. 135-146 (2014).
14. F. Kristiawan, P. D. I. Nyeneng, and U. Rosidin. Journal of Learning Physics 2 (1), pp. 51-63 (2014).
15. S. A. Yendra, U. Rosidin, and I. Wahyudi. Journal of Learning Physics 2 (1), pp. 139-151 (2014).
16. Daryanto. Media Pembelajaran. (Gava Media, Yogyakarta, 2010).
17. T. Hermawan, U. Rosidin, and I. Wahyudi, Journal of Learning Physics 2 (1), pp. 79-93 (2014).
18. S. Rohmawati, U. Rosidin, and W. Suana. Journal of Learning Physics 2 (1), pp. 81-94 (2014).
19. Nurhadi, U. Rosidin, and S. Wayan. Journal of Learning Physics 2 (1), pp. 107-118 (2014).
20. Paulina, U. Rosidin, and C. Erikanto, Journal of Learning Physics 2(1), pp. 29-40 (2014).

## ● 12% Overall Similarity

Top sources found in the following databases:

- 4% Internet database
- Crossref database
- 6% Submitted Works database
- 6% Publications database
- Crossref Posted Content database

### TOP SOURCES

The sources with the highest number of matches within the submission. Overlapping sources will not be displayed.

1	<b>UIN Maulana Malik Ibrahim Malang on 2023-05-03</b>	3%
	Submitted works	
2	<b>Kyle Wm. Hall, Timothy W. Sirk, Simona Percec, Michael L. Klein, Watar...</b>	1%
	Crossref	
3	<b>I G A C K Dewi, I W Sadia, I B N Sudria. "Development of Physics Learni...</b>	<1%
	Crossref	
4	<b>jurnal.unpal.ac.id</b>	<1%
	Internet	
5	<b>Anatri Dessty, Yunita Wisandari. "Analysis of natural intelligence in fir...</b>	<1%
	Crossref	
6	<b>Muhammad Muzaini, Sri Rahayuningsih, Nasrun Nasrun, Muhammad H...</b>	<1%
	Crossref	
7	<b>SMA Alfa Centauri on 2021-11-26</b>	<1%
	Submitted works	
8	<b>ejournal.unib.ac.id</b>	<1%
	Internet	

- 9 Udayana University on 2022-12-01 <1%  
Submitted works
- 
- 10 Rochester Institute of Technology on 2023-04-25 <1%  
Submitted works
- 
- 11 journal.uin-alauddin.ac.id <1%  
Internet
- 
- 12 Favorisen R. Lumbanraja, Rifky Ekananda Pramswary, Aristoteles. "Cla... <1%  
Crossref
- 
- 13 A S Pramasdyahsari. "Developing the scripting task for mathematical c... <1%  
Crossref
- 
- 14 Fahrudin Fahrudin, Moch Asmawi, Firmansyah Dlis, Resty Gustiawati. "... <1%  
Crossref
- 
- 15 Keimyung University on 2021-12-29 <1%  
Submitted works
- 
- 16 growingscholar.org <1%  
Internet
- 
- 17 Sriwijaya University on 2023-04-17 <1%  
Submitted works
- 
- 18 Firmansah, I Gusti Putu Suryadarma. "The Influence of Outdoor Learnin... <1%  
Crossref
- 
- 19 G Sari, M Hasan, M Mahidin. "The development of student worksheet b... <1%  
Crossref

**● Excluded from Similarity Report**

- Bibliographic material
- Small Matches (Less than 10 words)
- Cited material
- Manually excluded sources

---

**EXCLUDED SOURCES****watermark.silverchair.com****80%**

Internet

---

**Undang Rosidin, Nina Kadaritna. "Development of science learning program c...****15%**

Crossref