

SELF-EVALUATION USING THE MODEL GOAL-FREE EVALUATION IN PHYSICS SUBJECTS IN HIGH SCHOOLS

by Supartin Supartin

Submission date: 18-Jun-2023 01:56PM (UTC+0800)

Submission ID: 2118089334

File name: 4807-Article_Text-20201-22472-10-20230613.pdf (158.1K)

Word count: 4385

Character count: 23690

SELF-EVALUATION USING THE MODEL GOAL-FREE EVALUATION IN PHYSICS SUBJECTS IN HIGH SCHOOLS

Fitriyanti A. Noho, Masri Kudrat Umar*, Ritin Buhungo²⁰, Abdul Haris Odja, Supartin, and Trisnawaty Junus

Physics Education Study Program, Faculty of Mathematics and Natural Sciences, Universitas Negeri Gorontalo, Gorontalo, Indonesia

*Email: masrikudrat@ung.ac.id

Received: February 23, 2023. Accepted: March 11, 2023. Published: March 30, 2023

Abstract: The research objective is to evaluate the implementation of a self-evaluation program using an aimless model evaluation of physics subjects in high school. The evaluation focused on how the self-evaluation program was implemented using three stages prepared by the evaluators or researchers in this study, namely the planning stage, the implementation stage, and the final result stage. The research subjects were students of classes XI, XII, and a physics teacher. The instrument used was a questionnaire containing statements regarding the implementation of self-evaluations carried out by the teacher. The research method uses a quantitative approach with an evaluation type. Data collection techniques using observation and questionnaires. The results of the research on the implementation of the self-evaluation program in physics subjects in high school obtained an average of 81% and above, this figure is included in the very good criteria, and this shows that the program has been successful, but this needs to be continued to be considered and improved to increase student interest in physics.

Keywords: *Self Evaluation, Goal-Free Evaluation, Physics*

INTRODUCTION

Education plays a very important role as an agent for forming the nation's character, so education is required to be able to form national characteristics [1]. Education is also one of the basic efforts to develop potential, which is the most important resource for students, which is carried out by guiding and facilitating their learning activities. At the senior high school level, students have a developed mind with a high curiosity in studying. So, physics is one of the compulsory subjects taught in high school that can support students' potential. Physics is a lesson that explains the knowledge of the universe, which requires the ability to continue to be trained in order to increase thinking power and reasoning abilities [2].

Physics, as one of the subjects of science, is a science based on experiments whose development and application demand high standards in experimental work [3]. Physics is also a science that studies natural phenomena and events through scientific processes that grow on the basis of scientific attitudes and produce products of scientific knowledge in the form of universally applicable concepts, laws, and theories. Basically, learning physics consists of three components, namely the process component, the product component, and the attitude component. Physics as an attitude is expected to be able to develop student character. In addition to mastery of concepts, students must also be emphasized for the development of scientific attitudes through learning experiences [4].

Learning is one of the supports for increasing knowledge, as well as the process of

remembering and even the process of getting facts that can be mastered and can be used according to the needs of students [5]. The goals of learning activities are the development of the affective, cognitive, and psychomotor domains, which have been elaborated for the Education unit [6]. Make learning more meaningful would be nice to involve students' activeness in the learning process; students are expected to be able to grow and develop values that students need for their future. Success of education is not only measured by the level of achievement of knowledge competencies that have been achieved by students. To measure student success, assessment of attitudinal, spiritual, and skill competencies also influences student learning outcomes.

In implementing the 2013 curriculum based on character and competence; Character education is not the responsibility of the school alone but also the responsibility of all parties, namely; parents, government, and society. Therefore, the development of planning and implementation up to the evaluation of learning to form the expected competencies with character analysis that emerges after learning. The development of planning, implementation, and evaluation of learning begins with an analysis of the characters and competencies that will be formed or are expected to emerge after learning [7]. Assessment will produce an overestimated and subjective assessment in the implementation of self-assessment. Self-assessment is also very important for scientific literacy. So this event corresponds to the physics learning process, which requires scientific literacy. It solves the problems faced in the learning process, and a

scientific method and a scientific attitude are needed. However, in this case, also students still have difficulty assessing their own work accurately. In this case, educational evaluation is a form of education system mechanism which has the aim of reviewing educational activities that have been held at certain intervals [8].

Through character education, the attitude independent learning in students will have an impact on the learning outcomes that will be achieved by students, especially in the learning outcomes of the cognitive domain known as learning achievement [9]. In learning physics, social implications show how the impact or influence of physics on social life and the social benefits derived from the development of science and technology. Social application in learning physics in schools can be seen at the level of student independence in learning activities. Doing homework and assignments that have been given by the teacher with how students do not depend on other people and trust their own abilities is a form of student independence. To be able to carry out evaluations, according to [10], evaluators need scientific evaluation because evaluation is a scientific, academic process that should follow a scientific process. Evaluation scientists develop theories in terms of methods and approaches to evaluation as a basis for conducting evaluations.

Evaluation is part of the learning process, which as a whole cannot be separated from teaching and learning activities; carrying out evaluations carried out in educational activities has a very important meaning because evaluation is a measuring tool or process to find out the level of success achieved by students on teaching materials or materials that have been submitted so that with an evaluation, the objectives of learning will be seen accurately and convincingly [11]. Evaluation should be carried out every day with a systematic and planned schedule; this can be carried out by an educator by placing evaluation integrally in the planning and implementation of learning material lesson units. On the other hand, what needs to be considered by a teacher is need for student involvement in evaluation so that students can consciously realize the progress of the learning outcomes they have achieved in a comprehensive and measurable manner [12]. The success or failure of education in achieving its goals can be seen after evaluating the quality output or the graduates it produces. In terms of output graduates, the results are in accordance with what is the purpose of education; that way, the efforts of education can be considered successful, but if, on the contrary, it can be considered a failure, in this section, it can be understood how important the evaluation of learning is in the educational process [13].

This evaluation also has an important role in creating student motivation in learning. Teachers or

educators can find out the behavior or scientific attitudes of students during learning activities take place. In this case, we focus on self evaluation using a model target free evaluation in physics subjects in high school, where this model in carrying out program evaluation evaluators do not need to pay attention to what the program objectives are. What needs to be considered in the program is how it works (performance) of a program, by identifying appearances that occur (influence) both positive things (i.e., things that are expected) and negative things (which are not expected). Stages of aimless evaluation it is not certain how it will be implemented because it all depends on the evaluator who will carry out the evaluation according to what is happening in the field. It is also known as the effect model or effect model that has a wider scope in order to explain all the consequences of the program [14].

Based on the description above, the formulation of the problem in this study is how to do the planning, implementation, and finally-result stages of self-evaluation in physics subjects in high school.

RESEARCH METHODS

The research method uses a quantitative approach with an evaluative type. Data collection techniques using observation and questionnaires. Observations were carried out by direct observation, and questionnaires using questionnaires containing statements regarding self-evaluation were distributed to teachers and students in grades XI and XII majoring in science at five schools in Pohuwato district, namely SMAN 1 Popayato, SMAN 1 Randangan, SMAN 1 Buntulia, SMAN 1 Marisa, SMAN 1 Paguat, with a total of 36 teachers and 1593 students.

Sources of data are obtained using a questionnaire instrument or questionnaire, which is a data collection technique that is carried out by giving a set of questions or written statements to respondents to answer. In this study, a questionnaire was made containing a list of statements related to the research. Researchers want to make it easier for sources to provide answers to statements [15]. A questionnaire containing statements that aim to gather information about the self-evaluation process using a Likert scale [16] and according to the stages set by the evaluator or researcher. The data to be obtained will be described descriptively and will be described in the form of tables containing numbers in the form of the Number of respondents' answers, scores, and average values as formulated by the researcher. Then the data obtained will be processed or processed, and the results of the respondents' answers are then recapitulated and analyzed with percentages. Furthermore, the data obtained in this questionnaire is useful for

obtaining data, and then it will be processed or processed; the results of the respondents' answers are then **12** apitulated and analyzed with percentages; the formula is as follows:

$$P = \frac{F}{N} \times 100\%$$

Information:

P= Percentage

F = Frequency/number of respondents' answers

N = Number of respondents [17].

Table 1. Likert scale

No	Symbol	Category	Mark
1	VO	Very often	5
2	O	Often	4
3	St	Sometimes	3
4	Sd	Seldom	2
5	N	Never	1

the data that is presented is presented in the form of a diagram, and then categorization is carried out. **16** categorization consists of five categories, namely very good, good, enough, not good, and very less [18].

Table 2. Range of Self-Evaluation Values

No	Achievement Percentage	Interpretation
7 1	81-100%	Very good
2	61-80%	Good
3	41-60%	Enough
4	21-40%	Not good
5	0-20%	Very less

RESULTS AND DISCUSSION

Self-evaluation is an attempt to find out an overview of what students or students have done during the learning process at school [19]. Goal-

free evaluation (Michael Scriven's) is a goal-free evaluation model, which means assessors or evaluators, take data from various reports or records based on reality or concrete and unwanted impacts in educational programs [20]. The results of self-evaluation research use models that target Free Evaluation on physics subjects in senior high schools in the Pohuwato district, which contains three factors using three stages in it, namely, Planning, Application, and the final result.

Self Evaluation Using the Goal-Free Evaluation Model in the Teacher's Perspective

The data obtained is related to self-evaluation research with a total of 36 respondents for physics teachers in high school according to the evaluation model stages in Tables 3, 4, and 5.

Based on Table 3. The planning stage in this study is related to the implementation of evaluations at schools regarding self-evaluation in physics subjects in high schools. It contains several indicators with an average score of 89%; this figure shows that the implementation of self-evaluation at the planning stage is in the very good category.

Based on Table 4. Stage application in this study regarding the implementation of evaluations in schools regarding self-evaluation in physics subjects in high school obtained an average score of 88%; this figure indicates the implementation of self-evaluation at the application falls into the very good category.

18 Based on Table 5. The stage final result in this study related to the implementation of evaluations in schools regarding self-evaluation in physics subjects in high school obtained an average value of 81%. This figure indicates the implementation of self-evaluation the finally-result fall into the very good category.

Table 3. Focus on stage achievements planning

NO	Statement	Respondent Answer					Σaverage	Criteria
		VO	O	St	Sd	N		
Make a layout or evaluation grating								
1	[Prepare exam grids that include school identity, school year, subjects, teaching materials, class, and applicable curriculum]	29	7	0	0	0	96%	5 Very good
2	[Setting self-evaluation guideline goals]	19	14	1	1	1	87%	Very good
3	[Determining self-evaluation guidelines]	19	14	1	1	1	87%	Very good
4	[Determining the aspect of the question (process and product)]	20	13	2	0	1	88%	Very good
5	[Assembling question items]	18	15	2	1	0	88%	Very good
Determining student attitude and interest assessment indicators								
6	[Seeing the percentage of attendance or absence in	23	10	3	0	0	91%	Very

7	physics class hours] [Observing student activities during learning activities]	27	7	2	0	0	94%	5 good Very good
8	[Completion of student learning tasks given by the teacher]	27	8	1	0	0	94%	Very good
9	[Assessing the neatness of notebooks or other learning materials (assignment books)]	25	9	2	0	0	93%	Very good
Organizing and determining assessment aspects and assessment types								
10	[Conduct an assessment in the form of a statement in the questionnaire]	16	11	4	5	0	81%	Very good
11	[Conduct an assessment with questions in the form of multiple choice]	20	11	5	0	0	88%	Very good
12	[Assess using a Likert scale]	15	13	7	0	1	83%	Very good
	access level planning						89%	Very good

Table 4. Focus on the achievement of stages application

No	Statement	Respondent answer					Σaverage	Criteria
		VO	O	St	Sd	N		
1	Recording students' attitudes towards something during physics lessons.	20	14	1	1	0	89%	5 Very good
2	Record the names of students who have participated actively in responding to the symptoms studied	22	12	2	0	0	91%	Very good
3	Giving open and closed questions (obstacles, symptoms, or problems experienced when participating in physics learning) to individual students	19	14	2	1	0	88%	Very good
4	Make direct observations using the journal	17	13	5	1	0	86%	Very good
	access level application						88%	Very good

Table 5. Focus on stage achievements finally-result

No	Statement	Respondent Answer					Σaverage	Criteria
		VO	O	St	Sd	N		
1	Processing questionnaire data are given to students	13	16	2	5	0	81%	Very good
2	Reviewing interview data	12	17	3	4	0	81%	Very good
	access level finally-result						81%	Very good

Self-Evaluation Using the Goal-Free Evaluation Model in the Student's Perspective

Based on Table 6. Implementation of 18. Student's Perspective Self-Evaluation Process in this study related to the implementation of evaluations in schools regarding self-evaluation in physics subjects in high school obtained an average value of 82%; this figure indicates the implementation of self-evaluation at the implementation of the Student's Perspective Self-Evaluation Process fall into the very good category.

The results of self-evaluation research use models Target Free Evaluation on physics subject in senior high schools in the Pohuwato district, which contains three factors using three stages in it, namely; Planning, Application, and The final result. The level planning contains several

indicators, namely making a layout or evaluation grid; this indicator shows point 1. Preparing an evaluation grid that includes school identity, school year, subject, and class obtained an average value of 96%, included in the very category Good. Point 2 is used to set goals for self-evaluation guidelines; an average value of 87% is included in the very good category. Point 3 for establishing self-evaluation guidelines obtains an average score of 87%, included in the very good category. Furthermore, point 4 for determining aspects of questions (process and product) obtained an average value of 88%, included in the very good category. In point 5, Assembling the questions, an average value of 88% is included in the very good category. So, the physics teacher at school is said to be very good at making layouts or evaluation grids.

Making a layout or evaluation grid in this self-evaluation research is a matrix format that contains information to be used as a guide in writing and assembling assessment sheets or self-assessment

questionnaires. The grids are arranged according to the purpose of using the self-assessment test. With this guide, self-assessment sheet writers can produce assessment indicators easily.

Table 6. The Focus of the Implementation of the Self-Evaluation Process on the Student's Perspective

No	Statement	Respondent Answer					Average	Criteria
		SS	S	KK	J	TP		
1	Learners serve as respondents for the evaluation of self-assessment	452	916	179	34	11	82%	Very good
2	Students write their name, class, and school name on the self-assessment questionnaire	713	782	75	14	8	87%	Very good
3	Students read the guidelines on the self-assessment questionnaire	521	837	186	29	19	83%	Very good
4	Students give tick marks according to the questions in the questionnaire	590	874	92	21	15	85%	Very good
5	Students answer interview questions from teachers individually regarding behavior/attitude	405	886	240	43	19	80%	Good
6	Students tell the problems, symptoms, and problems during physics learning	298	689	427	94	85	73%	Good
7	Students get solutions or advice from the teacher	597	791	163	32	9	84%	Very good
	Achievements in the Implementation of the Student's Perspective Self-Evaluation Process						82%	Very good

Determine Indicator of Assessment of Student Attitudes and Interests, at point 6 Determining Indicator of Assessment of Student Attitudes and Interests obtained an average value of 91%, included in the very good category. Item 7, for observing student activity during learning activities takes place obtained an average value of 94%, included in the very good category. For point 8, which is used for the Completion of student learning books given by the teacher, an average value of 94% is included in the very good category. At point 9 for Assessing the Neatness of notebooks or the completeness of other learning materials (assignment books), an average value of 93% is included in the very good category. Thus, physics teachers at school are stated to be very good at determining indicators of assessing students' attitudes and interests. Determining indicators of assessing students' attitudes and interests referred to in this self-evaluation research is the expression of one's values or outlook on life, which is manifested in actions or student behavior. Attitude assessment is useful as part of learning to reflect or reflect the understanding and progress of individual student attitudes. The main purpose of the teacher's attitude assessment is to get feedback. This feedback is useful for teachers to be able to see student responses as students' interest in learning physics.

Compiling and determining aspects of assessment and type of assessment, at point 10, which is used to carry out assessment in the form of statements, an average value of 81% is included in the very good category. For point 11, for

conducting an assessment with questions in the form of multiple-choice, an average value of 88% is included in the very good category. Furthermore, for point 12, which is used to carry out an assessment using a Likert scale, an average value of 83% is included in the very good category. Thus, the physics teacher at school was stated to be very good at compiling and determining aspects of assessment and types of assessment. Arranging and determining aspects of assessment and this type of assessment are the limits or benchmarks in the assessment process; before conducting an assessment, the teacher must first determine benchmarks so that it makes it easier for the teacher to assess students.

Level application, in point 1, which is used to record students' attitudes towards something during physics learning, an average value of 86% is included in the very good category. For point 2, which is used to record the names of students who have participated actively in responding to the studied symptoms, an average value of 88% is included in the very good category. Furthermore, for point 3, which is used to provide open and closed questions (obstacles, symptoms, or problems experienced when participating in physics learning) to individual students, an average value of 91% is included in the very good category. Furthermore, for point 4, which is used to make direct observations using journals individual students, an average value of 87% is included in the very good category. The implementation of this self-evaluation process is a student's self-reflection

related to learning by conducting self-assessments to obtain information on the problems and difficulties experienced by students when learning physics.

Level finally result Finally Resultsthis is the process of collecting data and turning it into information that can be used for student self-reflection as a motivation for student interest in learning, and the teacher as a solution and advisor so that students have progressed towards learning physics. Stage finally result obtained an average score of 81%, included in the very good category.

This Self-Evaluation from Student Perspective was carried out well as obtained from the research data, containing seven indicators with an average score of 82%. Students were used as respondents for the self-assessment evaluation to obtain an average score of 82%, included in the very good category. Students reading the guidelines on the self-assessment questionnaire obtained an average score of 87%, included in the very good category. Students who read the guidelines on the assessment questionnaire themselves obtained an average score of 83%, included in the very good category. Students gave a checkmark according to the questions in the questionnaire to obtain an average score of 83%, included in the very good category. Students answered interview questions from the teacher individually regarding behavior/attitude, obtaining an average score of 68%, included in the good category; students tell constraints, symptoms, and problems during physics learning to get an average score of 73%, included in the good category. Students who get solutions or advice from the teacher obtain an average score - an average of 84% is included in the very good category.

CONCLUSION

Based on the results of research on self-evaluation using the goal-free evaluation model in physics subjects at several high schools in Pohuwato District, it can be concluded that the implementation of self-evaluation using the aimless evaluation in the subject of physics in high school is very good obtaining a score of 86% in the teacher's perspective and 82% in the student's perspective and is in the very good category.

REFERENCES

- [1] Makhrus, M., Rokhmat, J., Kosim, K., & Harjono, A. (2022). Development of learning media and online test based smartphone android in physics learning on work and energy topic. *Jurnal Pijar Mipa*, 17(3), 420-423.
- [2] Pratiwi, A. K., Makhrus, M., & Zuhdi, M. (2021). The effectiveness of learning media based on the guided inquiry model to improve students science literature skills and scientific attitudes. *Jurnal Pijar Mipa*, 16(5), 636-639.
- [3] Sriyono, S. (2019). Pengembangan Instrumen Penilaian Sikap Sosial Berbasis Proyek Pada Pembelajaran Fisika Sma. *Jurnal Pendidikan Surya Edukasi (JPSE)*, 5(2), 159-168.
- [4] Prasetya, I. E., Yusuf, M., & Buhungo, T. J. (2022). Description of students learning motivation towards the use of phet simulation in physics online learning in terms of self-efficacy and anxiety levels. *Jurnal Pijar Mipa*, 17(1), 23-28.
- [5] Santos, J., Jesmin, T., Martis, A., Maunder, M., Cruz, S., Novo, C., ... & Carvalho, C. V. D. (2021). Developing emotional intelligence with a game: The league of emotions learners approach. *Computers*, 10(8), 97.
- [6] Pratiwi, S. N., Cari, C., & Aminah, N. S. (2019). Pembelajaran IPA abad 21 dengan literasi sains siswa. *Jurnal Materi dan Pembelajaran Fisika*, 9(1), 34-42.
- [7] Mulyasa. (2016). Pengembangan Dan Implementasi Kurikulum 2013. Bandung: PT. Remaja Rosdakarya
- [8] Syafitri, U. F., Karim, S., & Efendi, R. (2020). Profil Tingkat Keakuratan Penilaian Diri Peserta Didik Sma Pada Pembelajaran Fisika. *Jurnal Inovasi Dan Pembelajaran Fisika*, 7(2), 105-110.
- [9] Sari, R. I. (2019). Analisis Tingkat Kemandirian Belajar Siswa Pada Mata Pelajaran Fisika Kelas XII MAN 1 Batang Hari. *Jurnal Pendidikan Fisika Dan Teknologi*, 5(2), 296.
- [10] Hajaroh, M., Studi, P., Pendidikan, K., Yogyakarta, U. N., Teori, P., Evaluasi, P., & Kebijakan, E. (2018). Pohon Teori Evaluasi Kebijakan dan Program (Metode, Nilai dan Menilai, Penggunaan). *Foundasia*, 9(1), 27-42.
- [11] Idrus, L. (2019). Evaluasi dalam proses pembelajaran. *Adaara: Jurnal Manajemen Pendidikan Islam*, 9(2), 920-935..
- [12] Siregar, R. L. (2017). Evaluasi Hasil Belajar Pendidikan Islam. *HIKMAH: Jurnal Pendidikan Islam*, 6(1), 59-75.
- [13] Ratnawulan, E. dan H. . R. (2014). *Evaluasi Pembelajaran*. Bandung : Pustaka Setia.
- [14] Rubito, R., & Soeprijanto, S. (2016). Evaluasi Program Sekolah Unggulan SMA Negeri 2 Sangatta Utara Kabupaten Kutai Timur Suatu Model Evaluasi Dengan Pendekatan Tujuan Independen (*Goal Free Evaluation*). *Jurnal Evaluasi Pendidikan*, 7(2), 107-112.
- [15] Sugiyono. (2017). *Metode Penelitian Kuantitatif, Kualitatif, R & D*. Bandung: CV Alfabeta.
- [16] Bahrn, S., Alifah, S., & Mulyono, S. (2018). Rancang Bangun Sistem Informasi Survey Pemasaran Dan Penjualan Berbasis Web.

- TRANSISTOR Elektro Dan Informatika, 2(2).
- [17] Arikunto, S. (2021). Dasar-Dasar pada SMA Kelas X Se-kecamatan Evaluasi Pendidikan Edisi 3. Majalaya Kabupaten Karawang Bumi Aksara.
- [18] Arikunto, S. (2015). *Dasar-Dasar Evaluasi Pendidikan Edisi 2*. Jakarta: Bumi Aksara.
- [19] Haryanto. (2020). Evaluasi pembelajaran; konsep dan manajemen. In *UNY Press*.
- [20] Massey, O. T. (2011). A proposed model for the analysis and interpretation of focus groups in evaluation research. *Evaluation and program planning*, 34(1), 21-28.

SELF-EVALUATION USING THE MODEL GOAL-FREE EVALUATION IN PHYSICS SUBJECTS IN HIGH SCHOOLS

ORIGINALITY REPORT

16%

SIMILARITY INDEX

14%

INTERNET SOURCES

12%

PUBLICATIONS

2%

STUDENT PAPERS

PRIMARY SOURCES

1	Ratu Noor Khalidah, Ahmad Suriansyah, Aslamiah Aslamiah. "Management of Al-Qur'an Learning in Early Children", Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini, 2022 Publication	2%
2	journal.gmpionline.com Internet Source	1%
3	freefoto.ca Internet Source	1%
4	proceeding.upincase.upy.ac.id Internet Source	1%
5	ejournal.upsi.edu.my Internet Source	1%
6	jp.feb.unsoed.ac.id Internet Source	1%
7	journal.upy.ac.id Internet Source	1%

8	journal.trunojoyo.ac.id Internet Source	1 %
9	Rudi Haryadi, Heni Pujiastuti. "Fun physics learning using augmented reality", AIP Publishing, 2022 Publication	<1 %
10	etheses.uin-malang.ac.id Internet Source	<1 %
11	Indah Karunia Sari, Yenny Anwar, Meilinda Meilinda. "The profile of biology teaching and learning materials from scientific literacy perspective", JP BIO (Jurnal Pendidikan Biologi), 2021 Publication	<1 %
12	Submitted to Lyceum of the Philippines University Student Paper	<1 %
13	Maya Nurani. "Implementation of behavioristic theory in online learning of Indonesian lessons in class IV of elementary school", JURNAL PENDIDIKAN DASAR NUSANTARA, 2022 Publication	<1 %
14	T H T Maryadi, H S Pramono, Y I Hatmojo, E Prianto, Sunomo. "Development of Human Machine Interface (HMI) Training Kit as A Learning Media for Industrial Automation	<1 %

Engineering Practical Courses", Journal of Physics: Conference Series, 2021

Publication

15

Ahmad Agus Saputra, Ixora Sartika Mercuriani, Dewi Puspo Rini. "Android-based e-module of excretory system to improve high school students' engagement", AIP Publishing, 2023

Publication

<1 %

16

M Ahied, A Y R Wulandari, F Munawaroh, I Rosidi. "Students' responses on the development of flash learning media in light material", Journal of Physics: Conference Series, 2020

Publication

<1 %

17

jptk.ppj.unp.ac.id

Internet Source

<1 %

18

www.ijese.net

Internet Source

<1 %

19

journal.uniku.ac.id

Internet Source

<1 %

20

journal.unnes.ac.id

Internet Source

<1 %

21

eprints.walisongo.ac.id

Internet Source

<1 %

22

docplayer.info

Internet Source

<1 %

23

journal.unismuh.ac.id

Internet Source

<1 %

24

core.ac.uk

Internet Source

<1 %

25

Daniel Youkee, Gibrilla F Deen, Mamadu Baldeh, Zainab F Conteh et al. "Stroke in Sierra Leone: Case fatality rate and functional outcome after stroke in Freetown", *International Journal of Stroke*, 2023

Publication

<1 %

26

jurnal.umsu.ac.id

Internet Source

<1 %

27

ejournal.aibpmjournals.com

Internet Source

<1 %

28

pub.unj.ac.id

Internet Source

<1 %

29

R C Hardyanti, Hartono, Fianti. "The Analysis of Physics Learning in Senior High School of Semarang Based on The Scientific Approach and Assessment", *Journal of Physics: Conference Series*, 2018

Publication

<1 %

30

ejournal.unib.ac.id

Internet Source

<1 %

31 ijasr.org
Internet Source

<1 %

32 jipp.unram.ac.id
Internet Source

<1 %

Exclude quotes On

Exclude matches Off

Exclude bibliography On