

**APPLICATION OF DISCUSSION LEARNING MODEL USING ARCS MOTIVATION STRATEGY TO IMPROVING STUDENT LEARNING OUTCOME****Alifia Fitranti**

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Email: [masriyah@unesa.ac.id](mailto:masriyah@unesa.ac.id)**Abstract**

Several factors can cause a low student learning outcomes in mathematics. One of them is lack of motivation in learning so students are not enthusiastic in learning seen from students who tend to be embarrassed or afraid to ask questions, lack of responding to the teacher, and less responding to the teacher's explanation. Therefore, the importance of innovative learning and motivation can help students get the optimal learning process. This study aims, to describe the effectiveness of learning and improving student learning outcomes through discussion learning with ARCS motivation strategy about the surface area and volume of cube in 8<sup>th</sup> grade of junior high school. This study use a quantitative descriptive study using one group pretest-post test study. The subject of this study are student of VIII-B in one of junior high school in Wonoayu with a total of 32 students. Data collection's methods are using tests (pretest and post test), questionnaires and observations. Data were analyzed descriptively quantitatively. To find out the increase in student learning outcomes in VIII-B class, the data were analyzed using n-gain. The results of this study include the ability of teachers to manage learning including good categories, students activities including active categories with an average percentage of 99.98 %, the response of students included in the good category with a percentage of 100%, completeness student learning there are 28 students completed with a percentage of 87,50% and increased student learning outcomes including the medium category. Based on the results of the research data, the implication of the results of this study is the determination of appropriate learning models and strategies can be used to improve student learning outcomes. This is indicated by the gain score obtained by students belonging to the medium category. The use of the discussion learning model in this study is said to be effective because it has fulfilled 4 components, namely student learning activities, student responses, student learning completeness and increased student learning outcomes.

**Keywords:** discussion, ARCS motivation, result of learning**INTRODUCTION**

*Political and Economic Risk Consultant* (PERC) in Sujarwo (2018) stated the results of a survey that from 12 countries in Asia ranked education in Indonesia ranked 12th. This caused the results of learning mathematics of Indonesian students currently at a level that has not been satisfactory. This is shown from the results presented by *Organisation for Economic Co-operation and Development* (OECD) (2018), the 2018 PISA results in mathematics get an average value of 379 out of 489 determined average scores and are ranked 72 of 78 countries. Student learning outcomes in mathematics are low, occurs due to various things. One of them according to Ardilla and Hartanto (2017) is the lack of student motivation towards mathematics. Based on the results of research conducted, Very low

motivation of students towards lessons seen from students who tend to be shy or afraid to ask, not responding to the teacher, and not responding to the teacher's explanation. The teacher's role is very necessary to form a learning innovation by involving students in the learning process such as expressing opinions, discussing the solution of a problem.

One of innovative learning is discussion learning. According to Suryosubroto in Afandi (2013), the word discussion is the exchange of opinions about a problem or together looking for a solution of a problem by a group of people. According to Herijon (2014), the word discussion is the process of exchanging ideas to solve problems. In expressing an opinion there is a limitation of a problem that is the topic of conversation. It is noted that the discussion is not far off the mark and wide so that

the results of the discussion can be drawn right and correct conclusions.

Discussion learning model is the steps of learning carried out in the learning environment by conducting discussions to resolve a problem given by the teacher. According to Lacen (1997) discussion as a learning method that can help students to organize and develop their own knowledge. Discussion can build students to be able to respond to each problem and relate it to everyday life. One of the lessons that can use the discussion learning model is mathematics because the subject matter delivered can be related to everyday problems so that student learning is more meaningful.

Discussion according to Wiyanto (2000), comes from the Latin language meaningful discussion or discussion. While in English the discussion comes from the word discussion which means discussion or discussion. In Indonesian, the word discussion means the exchange of opinions between two or more people about a topic of problems to achieve a certain goal. 3 elements of the discussion are 1) a conversation between two or more people, 2) the existence of a subject matter, 3) there is a goal to be achieved.

In addition to effective learning, good strategies are needed to achieve learning goals. One of them is the motivation given by the teacher to students. This is supported by Hamalik's statement (2014) that teachers' efforts to increase student motivation depend on the seriousness and attitude of responsibility in implementing learning so that learning can be carried out according to learning objectives. According to Uno (2007) motivation is one of the things that determines perseverance in learning so that later it will affect learning outcomes. Therefore, the learning process in the classroom needs the direction of a teacher who gives encouragement or motivation to students in the hope of achieving learning in accordance with what has been prepared.

Meanwhile, according to Sardiman (2007), the word motivation comes from the word motive which means encouragement. In English, motivation comes from the word to move. Motive is referred to as something that makes or causes someone to do something in order to achieve a certain goal.

Learning process in the classroom it is very necessary motivation so that in receiving the learning material students are excited so that learning outcomes and student achievement can increase. The statement is supported by a statement of Sardiman (2007) that student learning outcomes depend on the level of student motivation. Learning outcomes can be optimal if there is the right motivation. One of the external motivations is ARCS motivation stands for Attention, Relevance,

Confidence, and Satisfaction. Research related to ARCS motivation has been widely carried out, one of which is research conducted by Asiani et al (2017) that there is an increase in student learning outcomes after implementing ARCS motivation strategy. Other research related to ARCS motivation was conducted by Maidiyah and Fonda (2013) that the application of ARCS learning models to statistical material can influence student motivation and learning outcomes. The differences with this study are about the aspects that observed were not only learning outcomes and learning completeness but also the teacher's ability to manage learning and student's response toward the discussion learning model with ARCS motivation strategy.

ARCS motivation strategy is a strategy or way to motivate students to improve learning outcomes so that students are encouraged to do learning. ARCS motivation was developed by John. M Keller. Through the theory of expectation values that contain the value of the goals to be achieved and the expectation of the success of the strategy, Keller (2010) developed into 4 principles of motivational theory namely Attention, Relevance, Confidence, Satisfaction. This learning motivation emphasizes student attention to learning, associates learning with student experience, increases student confidence, and fosters student satisfaction in learning. So, the ARCS motivation strategy is that the teacher carries out learning in the classroom by motivating students by growing student interest and attention (attention), the linking the learning material with daily lives of students (relevance) that can foster a sense of self confidence in things to be resolved (confidence) so that a sense of satisfaction arises in them towards the process and learning outcomes (satisfaction).

Based on the description above, the purpose of this study is to describe the effectiveness of learning which consists of the management of teacher's ability to manage learning, student's activities, student's responses, completeness of student's learning and improvement of student's learning outcomes by applying discussion learning models with ARCS motivation strategy.

## METHOD

This research uses descriptive research with a quantitative approach with a one group pretest post-test study design, which is a study that provides a test (pretest) first before giving treatment then giving a test (post-test) after giving treatment. Pretest and post-test is used to determine the comparison of student learning outcomes before and after treatment. The treatment given in this research is mathematics learning which uses discussion learning model with ARCS motivation

strategy. Population in this research is a class VIII student at SMP Negeri 2 Wonoayu with sample selection using cluster sampling technique that is sampling in the form of groups in a population. In this study, several class groups in the population were taken randomly, the selected class was the sample in the study, namely class VIIIB.

The methods used in collecting data in this study include 1) Observation, to collect data related to the management of learning and student activities during learning. 2) Tests, to get data on student learning outcomes conducted before and after learning. The test is carried out objectively by being supervised by researchers and partner teachers so the test results can be obtained in accordance with the results of individual student abilities. 3) Questionnaire, which uses a closed questionnaire that is a questionnaire in the form of a statement along with the choice of answers. Questionnaire is used to get student's response data to the learning that has been done. Students fill out questionnaires after carrying out learning by using discussion learning models with ARCS motivation strategy.

The data that analyzed in this study are:

1. The teacher's ability to manage learning
  - Steps to analyzing data from the teacher's observation sheet during manage a learning are:
    - a. Give a score on each aspect of the teacher's ability to manage learning for each meeting
    - b. Convert scores (scores) to the ability of teachers to manage learning selected from the lowest score at all meetings with the following criteria.

Table 1 criteria of teacher's ability to manage learning

Mode Score	Category
Score $\leq 1,0$	Less
$2,0 \geq \text{Score} > 1,0$	Enough
$3,0 \geq \text{Score} > 2,0$	Good
$4,0 \geq \text{Score} > 3,0$	Very Good

(Masriyah, 2018)

- c. Calculate mode score of the teacher's ability to manage learning at each meeting.
  - d. Convert mode score of the teacher's ability to manage learning at each meeting chosen from the lowest score at all meetings.
2. The student's activities

After the learning process student activity data is analyzed by:

$$\text{Percentage of student's activities} = \frac{\text{frequency of student's activity that appears}}{\text{the number all of student's activities}} \times 100\%$$

(Masriyah, 2007)

According to Kirana (2013), if the average percentage of student activity during two meetings  $\geq 80\%$ , students can be said to be active. Otherwise, if the average percentage of student activity during two meetings  $< 80\%$  then the student is said to be passive.

### 3. The student's response

After the learning process, student's response data that have been obtained are analyzed with the following steps.

- a. Determine the score on each answer choice using the likert scale

Table 2 Score category

Student's score category	Favorable test item score	Unfavorable test item score
SS	4	1
S	3	2
TS	2	3
STS	1	4

(Masriyah, 2018)

Note :

STS: very disagree

S: agree

TS: disagree

SS: very agree

- b. Count many students who choose the answer choices on each item questionnaire
- c. Calculate student response scores on each student's choice of answers using a likert scale
- d. Count the number of student response scores on each item statement
- e. Calculate the percentage of students' response scores on each item in the answer choices using the formula:

$$P = \frac{p}{p \max} \times 100\%$$

(Kirana, 2013)

Note:

P : Percentage of student's response score (SRS)

p : Total score for each statement

p max: Maximum total score for each number choices

- f. Describes the percentage obtained according to the categories in the following table.

Table 3 Percentage of student's response category

Percentage	Category
$25\% \leq P < 45\%$	Less
$45\% \leq P < 65\%$	Enough
$65\% \leq P < 85\%$	Good
$85\% \leq P < 100\%$	Very good

(Masriyah, 2016)

If the percentage of students' response scores reaches good or very good assessment criteria, the student's response to learning is positive.



Otherwise, if the student response score reaches the assessment criteria are not good or good enough, the student's response to learning is said to be negative.

#### 4. The student's learning completeness

KKM determined by SMPN 2 Wonoayu in mathematics is 76. If the student learning outcomes more than or equal to the KKM value standard set by the school, students can be said to be complete. According to Fitriyari and Masriyah (2016), group completeness or class completeness is achieved if there are  $\geq 75\%$  of students who get a KKM grade. To find out classical completeness, obtained using the formula:

$$\text{Percentage of student's learning completeness} = \frac{\sum \text{students who're complete}}{\sum \text{all students}} \times 100\%$$

(Riduwan, 2010:13)

#### 5. The improvement student learning outcomes

The normalized gain score is used to determine the increase in student learning outcomes. Test results that have been obtained are analyzed by comparing the difference in scores *post-test* and *pretest* with the highest score obtained by students using the following formula.

$$g = \frac{\text{Post test score} - \text{Pretest score}}{\text{Maximum score} - \text{Pretest score}}$$

(Hake, 1999)

After obtaining normalized gain score then convert it in the following table

Table 4 Criteria of n-gain score

Range	Criteria
$0,3 \geq g > 0$	Low
$0,7 \geq g > 0,3$	Medium
$1,00 \geq g > 0,7$	High

(Hake, 1999)

## FINDING AND RESULT

This study was conducted at VIII B class of SMPN 2 Wonoayu. In this study, teachers who teach VIII B class who had previously coordinated discussion learning with ARCS motivation strategy will be observed while conducting the learning process. The researcher and her partner observed the management of teacher's ability to manage learning and student's activities. Data was collected during 3 meetings, they are on March 19, 7 and 8 April 2020.

After the research has been conducted, data obtained by the teacher's ability to manage learning, student activity data, student's response data, student's learning completeness data and data of student's learning

outcomes improvement in SMPN 2 Wonoayu. The result of research data are described as follows.

### 1. The teacher's ability to manage learning

Observation of learning management is conducted during the learning process by applying a discussion learning model with ARCS motivation strategy at the second and third meetings. The results of observations of learning management conducted are shown through the scores on the learning management observation sheet. Based on observations of the management of learning, the results obtained from each meeting are as follows.

Table 5 Data of learning management's observation

Num b	The aspect observed	Score		Catego ry
		P I	P II	
1.	Introduction that includes:			
	a. Delivering the learning objectives	3	3	Baik
	b. Giving apperception questions and stimulate student's curiosity ( <i>Attention</i> )	3	2	Cukup
	c. Linking problems with daily life ( <i>Relevance</i> )	3	3	Good
	d. Explaining the discussion rules	3	3	Good
2.	Core activities that includes:			
	a. Delivering the problem	3	3	Good
	b. Observing student interactions each group	2	2	Enough
	c. Asking student's ideas in solving problems ( <i>Confidence</i> )	2	1	Lack
3.	Closing activities that includes:			
	a. Summarizing the results of the discussion	3	3	Good
	b. Providing corrective feedback	3	3	Good

Num b	The aspect observed	Score		Catego ry
		P 1	PI I	
	c. Giving praise and prizes to groups who present in front of the class (Satisfaction)	2	2	Enough
Mode of each meeting		3	3	Good

Note : **PI : The first meeting PII : The second meeting**

Based on the table above, in the first and second meeting scores obtained assessment of learning management with the value of mode 3 with good categories. On the learning management observation sheet several aspects were observed, including intriduction activities, core activities, and closing activities that were adjusted to the Lesson Plan (RPP) that had been designed using discussion learning models with ARCS motivational strategies. Based on the results of observations on the ability of teachers to manage learning, teachers have been able to manage learning well indicated through the observation scores that are categorized as good in every aspect observed. The statement is in line with the results of a study conducted by Fitriani (2017) that the ability of teachers to manage learning well due to systematic planning such as preparing the Lesson Plan (RPP) so that it matches the expected goals. However, there is one aspect that gets a score of 1 namely the activity of asking students' ideas in solving problems. Although the planning process has been conducted maximally and as well as possible, it happens due to unstable connections that hinder the learning process. This is not in accordance with the statement on the results of research conducted by Sumarni (2012) that the ability of teachers to manage learning can be increased due to the planning and implementation of the lesson plans that have been prepared. there is one aspect that gets a score of 1 namely the activity of asking student's ideas in solving problems. Although the planning process has been conducted optimally and as well as possible, it happens due to unstable connections that hinder the learning process. This is not in accordance with the statement on the results of research conducted by Sumarni (2012) that the ability of teachers to manage learning can be increased due to the planning and implementation process of the lesson plans that have been prepared.

## 2. The student's activities

Observation of student activities is conducted during the learning process that applying the discussion learning model to the ARCS motivation strategy at the second and third meetings. Observations were made on one group (6 students) by one observer, a research partner. The results of observations of student activities conducted are shown through the scores on the observation sheet of student activities. Based on observations that have been made, data obtained from observations of student activities at each meeting are as follows.

Table 6 Data of student's activities

Nu m be r	Student's activities	Percentage		Aver age
		P1	P2	
1.	Paying attention to the presentation of powerpoint by the teacher (Attention)	23,0 7%	21,6 8%	22,38 %
2.	Answering teacher questions about material related to daily life (Relevance)	15,3 8%	14,4 5%	14,92 %
3.	Working on Student Activity Sheets (LKPD)	23,0 7%	21,6 8%	22,38 %
4.	Holding a discussions with friends as a group	23,0 7%	21,6 8%	22,38 %
5.	Presenting the results of the discussion (Confidence)	00,0 0%	2,40 %	1,20 %
6.	Responding to the results of other group presentations	00,0 0%	3,61 %	1,80 %
7.	Providing opinions about learning that has been done (Satisfaction)	15,3 8%	14,4 5%	14,92 %

Note : **P1 : The first meeting P2 : The second meeting**

All statements in the observation sheet of student activities are in accordance with the statement of Paul B. Diedrich in Sardiman (2007) that there are several types of student activities that are classified as follows: 1) Visual activities: reading, doing something, 2) Oral activities: opinion in discussions, asking questions , 3) writing activities: writing assignments, copying, 4) listening activities: listening to a presentation friend. Based on observations of student activity at all meetings, an average of 99.98% of all student activities in learning was obtained and said to be active. Students are said to be active if the

percentage of all student activities reaches more than 80%.

While the results of research conducted by Damayanti et al (2013) states that discussion learning can increase student activity in expressing opinions about the results of the discussion. But the statement is not in line with the results of this study because the learning process in this study was conducted online. Therefore student presentation activities are less than optimal and students do not focus on learning material.

### 3. The student's response

Student's responses toward a learning are student's responses to the implementation of discussion learning models with ARCS motivation strategy on the surface area and volume of the cube. The student response questionnaire consisted of favorable (positive) statements in statements 1,4,6,7 and unfavorable (negative) statements in statements 2,3,5,8. Students fill in the student response questionnaire after conducting a learning as much as two meetings. Based on the student response questionnaire in the appendix, the following results were obtained.

Table 7 Data of student's response

Nu mb er	Statement	Tota l scor e	%	Categor y
1.	Students feel easy to understand after joining a mathematics learning about surface and volume of the cube.	101	78,90%	Good
2.	Students feel comfortable with the learning atmosphere in the classroom when learning mathematics about surface area and volume of the cube.	97	75,78%	Good
3.	Students feel enjoy the discussion during learning about surface area and	101	78,90%	Good

Nu mb er	Statement	Tota l scor e	%	Categor y
	volume of the cube			
4.	Discussion learning makes students more confident.	96	75%	Good
5.	Students do not find difficulties in learning mathematics about surface area and volume of the cube in the classroom.	88	68,75%	Good
6.	Students feel that discussion learning about surface area and volume of a cube is useful for daily life.	110	85,93%	Very good
7.	Students feel the problems in learning discussion are presented interestingly.	95	74,21%	Good
8.	Students are satisfied with the discussion about surface area and volume of the cube.	99	77,34%	Good

Note : % : Percentage

According to the data in the table above, it can be seen that all items in the questionnaire are included in both good and very good categories therefore student's responses to learning applying discussion learning models with ARCS motivation strategies can be said to be positive with a percentage of 100%. These results are in line with the results of research conducted by Pono (2012) that students' responses to discussion learning get a positive response with a percentage of 77%.

### 4. The student's learning completeness

In accordance with the KKM standards set by the school, if the learning outcomes obtained by students are less than 76, students are said to be incomplete. Otherwise, if it exceed the KKM standard, students are said to be complete. Data of student's learning completeness in this study are student's learning



completeness after conducting the post test as in the following table.

Table 8 Data of student's learning completeness

Student	Score	Category
1	85	Complete
2	100	Complete
3	90	Complete
4	72	Incomplete
5	100	Complete
6	100	Complete
7	100	Complete
8	100	Complete
9	100	Complete
10	75	Incomplete
11	90	Complete
12	74	Incomplete
13	100	Complete
14	76	Complete
15	90	Complete
16	80	Complete
17	90	Complete
18	88	Complete
19	100	Complete
20	80	Complete
21	88	Complete
22	100	Complete
23	100	Complete
24	90	Complete
25	90	Complete
26	91	Complete
27	100	Complete
28	100	Complete
29	90	Complete
30	72	Incomplete
31	80	Complete
32	100	Complete

Based on the table above, student's learning completeness after conducting discussion learning with ARCS motivation strategy obtained a percentage of 87.5%. These results are consistent with the results of research conducted by Ermi (2015) that the application of the discussion learning model can improve student learning completeness that can be seen from the results in the pre-study percentage

of students who completed only 25.71% and 74.29% incomplete. Meanwhile, after learning completeness learning students get a percentage of 100% and the percentage of students who do not complete 0%. This shows that all students have finished after conducting learning discussions.

In addition, student's learning completeness in this study can be said to be complete with a percentage 87,50% according to research of Suminah (2013) that student's learning completeness when students in the class have finished learning at least 75%.

##### 5. The improvement student learning outcomes

The improvement student learning outcomes obtained from gain score between *pretest* and *post test*. Based on the data analysis that has been done on *pretest* and *post test* score, we obtained a data of improvement student learning outcomes as follows.

Table 9 Data of improvement student learning outcomes

Student	SCORE		N-GAIN	Category
	PRETEST	POST TEST		
1	69	85	0,5	Medium
2	80	100	1	High
3	68	90	0,7	Medium
4	60	72	0,3	Low
5	84	100	1	High
6	96	100	1	High
7	95	100	1	High
8	78	100	1	High
9	80	100	1	High
10	65	75	0,3	Low
11	80	90	0,5	Medium
12	46	74	0,5	Medium
13	84	100	1	High
14	52	76	0,5	Medium
15	84	90	0,4	Medium
16	70	80	0,4	Medium
17	52	90	0,8	High
18	74	88	0,5	Medium
19	95	100	1	High
20	70	80	0,4	Medium
21	54	88	0,7	Medium
22	92	100	1	High
23	82	100	1	High
24	61	90	0,7	Medium

Student	SCORE		N-GAIN	Category
	PRETEST	POST TEST		
25	84	90	0,4	Medium
26	77	91	0,6	Medium
27	80	100	1	High
28	84	100	1	High
29	73	90	0,6	Medium
30	63	72	0,3	Low
31	65	80	0,4	Medium
32	74	100	1	High
Average	74	90	0,6	Medium

Based on the table above, the average of gain score that obtained in the class included medium category with a percentage of 50%. So that, the application of discussion learning models with ARCS motivation strategy can improve student's learning outcomes. That statement is according to research of Setyo (2018) that one of the goals to achieve learning is to improve learning outcomes to get a medium category.

In addition, other research also state that the discussion learning model can improve student's learning outcomes. It is a research by Ermi (2015) states that discussion learning can improve student's learning outcomes, it's shown by a higher percentage of student's completeness then a percentage of student's completeness before conducting a discussion learning and also research by Saadah (2017) states that applying discussion learning model can improve student's learning outcomes. It's shown by the percentage before applying discussion learning the average of student's completeness is 44,45% while after applying discussion learning the average of student's completeness is 100%.

## CLOSURE

### Conclusion

Based on the result data, we can say that discussion learning model using ARCS motivation strategy is effective to teach about the surface area and volume of cube. It's showed by several things as follows.

1. The ability of teacher to manage leaning that applying discussion learning model using ARCS motivation strategy about surface area and volume of cube in students of VIII-B SMPN 2 Wonoayu including a good category.
2. The student's activities during learning process that applying discussion learning model using ARCS

motivation strategy about surface area and volume of cube in students of VIII-B SMPN 2 Wonoayu including a active category with an average percentage of 99,98%.

3. The student's response of VIII- B SMPN 2 Wonoayu toward a learning that applying discussion learning model using ARCS motivation strategy about surface area and volume of cube including a positive category with a percentage of 100%.
4. The student's learning completeness that applying discussion learning model using ARCS motivation strategy about surface area and volume of cube in students of VIII-B SMPN 2 Wonoayu there are 28 students completed with a percentage 87,50%.
5. The improvement student learning outcomes that applying discussion learning model using ARCS motivation strategy about surface area and volume of cube in students of VIII-B SMPN 2 Wonoayu including the medium category.

### Suggestions

1. Teachers should be able to aplplying discussion learning model using ARCS motivation strategy in mathematics learning as an alternative that can be used to improve student learning outcomes by adjusting the discussion learning steps to the ARCS motivation.
2. For other researchers who will conduct the similar research, it is better to use the control class as a comparison class so that the result of research data is not biased.

### REFERENCES

- Afandi, dkk. 2013. *Model Dan Metode Pembelajaran Di Sekolah*. Semarang: UNISSULA Press
- Ardilla, Ayu dan Suryo Hartanto. 2017. "Faktor Yang Mempengaruhi Rendahnya Hasil Belajar Matematika Siswa MTS Iskandar Muda Batam". *Phytagoras*, 6(2): 175-186
- Asiani, Ani. Hariani dan Jonet Ariyanto. "Penerapan Model *Attention, Relevance, Confidence, And Satisfaction* (Arcs) Untuk Meningkatkan Motivasi Dan Hasil Belajar Siswa Kelas X Pemasaran 1 Smk Negeri 1 Surakarta". *BISE : Jurnal Pendidikan Bisnis dan Ekonomi* : 1-11
- Damayanti, Febti, Sudarmanto, Gunawan dan Teddy Rusman. 2013. "Penerapan model pembelajaran diskusi kelompok dengan menggunakan media handout untuk



- meningkatkan aktivitas dan kreativitas". Jurnal Studi Sosial Volume 1 no. 4
- Ermi, Netti. 2015. "Penggunaan Metode Diskusi untuk Meningkatkan Hasil Belajar Materi Perubahan Sosial pada Siswa Kelas XII SMA Negeri 4 Pekanbaru". Jurnal SOROT Volume 10 nomor 2 : 155 - 168
- Fitriani, cut.dkk. 2017. "Kompetensi Profesional Guru Dalam Pengelolaan Pembelajaran Di Mts Muhammadiyah Banda Aceh". Jurnal Magister Administrasi Pendidikan Pascasarjana Universitas Syiah Kuala. Volume 5, no. 2: 88-95
- Fitryasari, Lenny dan Masriyah. 2016. "Penerapan model pembelajaran pengajuan soal (*problem posing*) pada materi volume kubus dan balok di kelas VIII SMP Negeri 1 Krian". Jurnal Ilmiah Pendidikan Matematika MATHEdunesa. Volume 2 no. 5 : 64 - 72
- Hake, R. 1999. *Analyzing Change/ Gain Score*. Indiana: Indiana University
- Hamalik, Oemar. 2016. *Proses Belajar Mengajar*. Jakarta: PT. Bumi Aksara
- Keller, John.M. 2010. *Motivational Design for Learning and Performance: The ARCS Model Approach* (Online) (<https://www.springer.com/gp/book/9781441912497>) diakses 29 November 2018
- Kirana, Krisna. 2013. *Penerapan Model Pembelajaran Kooperatif Tipe Murder Pada Materi Persamaan Garis Lurus Di Kelas VIII SMP Muhammadiyah 5 Surabaya*
- Lacen, Bruce E. 1997. *Conceptions of Discussion as Method and Outcome*. (Online) (<https://files.eric.ed.gov>) diakses pada 3 Mei 2019
- Maidiyah, Erni. 2013. "Penerapan Model Pembelajaran ARCS Pada Materi Statistika Di Kelas XI SMA Negeri RSBI Banda Aceh". Jurnal Peluang Volume 1 No. 2 : 12-21
- Masriyah. 2007. *Modul 9 Penyusunan Non Tes*. Surabaya: Unesa University Press
- Masriyah. 2018. *Asesmen Proses Dan Hasil Belajar*. Surabaya : UNESA University Press
- OECD. 2018. *PISA 2018 Results* (Online) (<http://www.oecd.org/>) diakses pada 6 April 2020
- Pono, Nasihudin. 2012. *Pengaruh pembelajaran menggunakan metode diskusi kelompok terhadap prestasi belajar siswa pada pokok bahasan geometri dimensi tiga di MAN Kalimukti Kec. Pabedilan Kab. Cirebon* (Online) (<http://syekhnujati.ac.id/>) diakses pada tanggal 1 mei 2020
- Riduwan. 2010. *Skala Pengukuran Variabel-variabel Penelitian*. Bandung: Alfabeta
- Saadah. 2017. "Penerapan Metode Diskusi Untuk Meningkatkan Hasil Belajar Matematika Pada Materi Menggunakan Pecahan Dalam Pemecahan Masalah Siswa Kelas V Sdn 003 Tembilahan Kota Kecamatan Tembilahan". Jurnal Primary Program Studi Pendidikan Guru Sekolah Dasar Fakultas Keguruan dan Ilmu Pendidikan Universitas Riau Vol. 6 no. 2: 539-545
- Sardiman. 2007. *Interaksi dan Motivasi Belajar Mengajar*. Jakarta: Raja Grafindo Persada
- Setyo, Arie Anang. 2018. "Keefektifan Pembelajaran Kooperatif Tipe STAD Integrasi Teori Belajar Van Hiele Pada Materi Geomateri di Kelas V Sekolah Dasar". Qalam: Jurnal Ilmu Kependidikan Vol. 6 no. 1 : 1-11
- Simbolon, Herijon, Idris, Irsal dan Effie Efrida Muchlis. 2014. *Penerapan Metode Pembelajaran Diskusi Kelas dan Open-Ended Questions Untuk Meningkatkan Hasil Belajar Siswa Kelas VIII SMPN 2 Bengkulu* (Online) (<http://repository.unib.ac.id/>) diakses pada 6 April 2020
- Sujarwo. 2018. *Pendidikan di Indonesia Memprihatinkan* (Online) (<http://staffnew.uny.ac.id/>) diakses pada 24 November 2019
- Sumarni, Aidar. 2012. *Meningkatkan Kemampuan Guru Dalam Pelaksanaan Pembelajaran Pendidikan Agama Islam Melalui Lesson Study Di Sd Negeri Bandar Setia* (Online) (<http://repository.uinsu.ac.id/>) diakses pada tanggal 14 April 2020
- Suminah. 2013. *Peningkatan hasil belajar siswa dengan menerapkan metode diskusi tipe buzzgroup pada mata pelajaran IPS kelas IV siswa sekolah dasar* (Online) (<http://jurnalmahasiswa.unesa.ac.id/>) diakses pada tanggal 1 mei 2020
- Uno, B. Hamzah. 2007. *Teori Motivasi & Pengukurannya*. Jakarta: Bumi Aksara
- Wiyanto, Asul. 2000. *Seri Terampil Diskusi*. Jakarta: PT. Grasindo



