COMPARISON OF SOCIAL SCIENCE STUDY OUTCOMES USING A MAKE A MATCH MODEL WITH HANDOUT-ASSISTED SNOWBALL THROWING

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ABSTRACT

Various learning models can eliminate students' boredom while learning. The make a match and snowball throwing learning models are learning models that use a game system. The problem in this study is whether the social studies integrated learning outcomes using the make a match model are better than the snowball throwing learning model assisted by handout media for class VIII students of SMP Negeri 18 Banda Aceh. This study aims to find out whether the learning outcomes of integrated social studies using the make a match learning model are better than the snowball throwing learning model assisted by media handouts for class VIII students of SMP Negeri 18 Banda Aceh. This study uses a quantitative approach, with the type of experimental research. Sampling was taken using purposive sampling technique, two classes were taken from class VIII-4 and VIII-5, totaling 60 participants. Data collection techniques using pre-test data and post-test data. Data analysis techniques using the t test. The results of data processing obtained tcount > ttable or 3.13 > 1.67 so that Ha is accepted. It can be concluded that the integrated social studies learning outcomes taught using the Make A Match learning model are better.

Berbagai model pembelajaran dapat menghilangkan kebosanan siswa saat belajar. Model pembelajaran make a match dan snowball throw merupakan model pembelajaran yang menggunakan sistem permainan. Permasalahan dalam penelitian ini adalah apakah hasil belajar IPS terpadu dengan model make a match lebih baik daripada model pembelajaran snowball throw berbantuan media handout pada siswa kelas VIII SMP Negeri 18 Banda Aceh. Penelitian ini bertujuan untuk mengetahui apakah hasil belajar IPS terpadu dengan model pembelajaran make a match lebih baik daripada model pembelajaran snowball throw berbantuan media handout pada siswa kelas VIII SMP Negeri 18 Banda Aceh. Penelitian ini menggunakan pendekatan kuantitatif, dengan jenis penelitian eksperimen. Pengambilan sampel dilakukan dengan menggunakan teknik purposive sampling, diambil dua kelas yaitu kelas VIII-4 dan VIII-5 yang berjumlah 60 peserta. Teknik pengumpulan data menggunakan data pretest dan data posttest. Teknik analisis data menggunakan uji t. Hasil pengolahan data diperoleh thitung > ttabel atau 3,13 > 1,67 sehingga Ha diterima. Dapat disimpulkan bahwa hasil belajar IPS terpadu yang dibelajarkan dengan model pembelajaran Make A Match lebih baik.

Introduction

Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and the skills needed by themselves, society, nation and state (Department of National Education, 2003). Efforts are made to create a conducive learning atmosphere and learning process by improving the quality of teachers and updating the abilities possessed by teachers, as well as equalizing the distribution of teachers throughout the region. Selection of a learning model that is appropriate to the subject matter and class conditions is a basic strategy that must be owned by a teacher. The selection of learning models is an important role in teaching and learning activities, because it greatly influences the learning outcomes and student activity. The learning model is student-centered, where the teacher gives assignments and questions and provides materials and information designed to help students solve problems.

Ismail (2008:27) states that "The learning model *make a match* is a learning model that invites students to look for answers to a question/pair of a topic through a pair of card games with a predetermined time limit. From the notion of learning models *make a match*, then it can be concluded that the learning model *make a match* is a learning model where students are asked to find pairs of their cards, the cards consist of cards containing questions and cards containing answers. One of the advantages of this technique is that students play while learning about concepts or topics in a fun classroom atmosphere. In addition, this model can also be applied to all subjects and levels of education.

Application of cooperative learning model type *make a match* and *snowball throwing* media-assisted *handout* expected to foster enthusiasm for learning and improve their learning outcomes. *Make a match* is a type of cooperative learning model, where the teacher explains in advance about the material to be discussed, then the teacher prepares cards containing questions and answers, and students are asked to find pairs of these cards.

According to Istarani (2012: 65) the advantages of learning model s*make a match* a this model creates a new enthusiasm for learning, besides that they can also remember the concept of the lesson easily, but the negative impact is that besides the teacher it is difficult to prepare good questions, time problems are also a factor to consider, because this model takes a lot of time, so The teacher must be able to control the time as well as possible so that this learning model can be implemented in one meeting.

Learning model *snowball throwing* or rolling snowball is a learning model using paper containing questions made by each student and shaped like a ball and then thrown in turn to students who are in other groups where each of them will answer the questions they get. This model trains students' courage in expressing their opinions and trains their skills in making and answering questions, (Adhiatmika, 2017: 215)

Advantage *snowball throwing* is that students are able to develop their thinking skills, besides that they are also more active in learning, and learning is more effective. Besides having advantages, the model*snowball throwing* also has some drawbacks namely; (a) The group leader is unable to explain properly so that it becomes an obstacle for his members to understand the material to be discussed; (b) Classes are often noisy because groups are made by students; and (c) Students with problems tend to make trouble (Adhiatmika, 2017:218).

Media in the teaching and learning process is defined as graphic, photographic, or electronic tools to capture, process, and rearrange visual or verbal information, educational media are used in the context of communication and teacher and student interaction in the learning process, learning media can clarify the presentation messages and information so as to expedite and improve the process and learning outcomes Mufarokah (2009:104).

According to Syah (2006: 144) the factors that influence student learning are as follows: Internal factors (factors from within the learner), namely physical factors or physical conditions and psychological factors; External factors (factors from outside students), namely environmental conditions around students; The learning approach factor, namely the type of student learning effort which includes the strategies and methods used by students to carry out activities to study the subject matter.

The formulation of the problem in this study is whether social studies learning outcomes are integrated using a cooperative learning model *make a match* better than the learning model *snowball throwing* media-assisted *handout* class VIII students of SMP Negeri 18 Banda Aceh?

The purpose of this study was to find out whether social studies learning outcomes were integrated using a type of cooperative learning model *make a match* better than models *snowball throwing* media-assisted *handout* class VIII students of SMP Negeri 18 Banda Aceh.

Method

This research was conducted at SMP Negeri 18 Banda Aceh which is located at Jalan Teungku Chik, Dipineung Raya No.7, Kota Baru, Kec. Kuta Alam, Banda Aceh, Aceh. This research was conducted in the even semester of the 2021/2022 school year

This study uses a quantitative approach, which uses data in the form of numbers and is analyzed statistically. Sugiyono (2018: 8) argues that. This type of research is included in the type of experimental research. The implementation of this study used two different treatments for the experimental class. The first class was given treatment using a learning model *make a match*, and for the second class using the learning model *snowball throwing*. The two experimental classes both use the media *handout.*

The initial test was carried out to find out the basic abilities of students, besides that it was also to find out whether there were students who had studied the material at home before being taught by the teacher at school. The initial test was carried out before the learning took place using the learning model *make a match* and *snowball throwing* in each class.

The data analysis technique used in this study is a quantitative analysis technique that uses statistical formulas to find out the comparison of the learning outcomes of students in class VIII-4 and students in class VIII-5 at SMP Negeri 18 Banda Aceh after implementing the learning model. *Make a match* and *snowball throwing* media-assisted *handout.*

The data analysis technique begins with the initial ability analysis technique of students by giving *pre-test* to the experimental class 1 and experimental class 2 before being given the subject matter. Furthermore, the data is processed using the ANNOVA formula (*Analysis of Variances*). Furthermore, material is given in two meetings, at the end of the meeting will be given *post-test*, which aims to determine the learning outcomes of students after being given the material.

The next stage is to test the hypothesis to see the comparison of the two models using the t-test formula. Before doing the t-test, you must first observe the value *post-test* whether the values are normally distributed and homogeneous by carrying out the normality test and homogeneity test.

Result and Discussion

The implementation of research at SMP Negeri 18 Banda Aceh aims to see the comparison of student learning outcomes. The data obtained from the research results are pre-test data and post-test data, where pre-test and post-test data are obtained from test scores in experimental class I and experimental class II. Pre-test data is processed using the ANNOVA formula, while post-test data is analyzed using the t-test. Before doing the t-test, first conduct a prerequisite test, namely the normality test and homogeneity test, after passing the prerequisite test the data is analyzed using the polled variance model t-test formula. The pre-test scores of experimental class I and experimental class II students can be seen in Table 1.

Table 1. Pre-Test Score of Experiment Class I and Experiment Class II

Experiment Class I			Experiment Class II		
Num	**Name**	**Score**	**Num**	**Name**	**Score**
1	Ahmad Fahriansyah	55	1	Afnan	40
2	Aprida Andeska	40	2	Alya Najwa Febrina	55
3	Ayu Ratna Sari	25	3	Amira Khansa Luthfiya	50
4	Cahaya Fitri	55	4	Aqila Anatasya	30
5	Dara Azizi	45	5	Arsyad Azka Daulay	15
6	Fahri Aulia	20	6	Dinda Maulina	50
7	Khumaira Azkia	35	7	Dzaky Murdhani	45

Experiment Class I			Experiment Class II		
Num	**Name**	**Score**	**Num**	**Name**	**Score**
8	M. Fathan Harefa	25	8	Fatin Arifa	50
9	M. Naufal Annafis	15	9	Hural Nabila	55
10	M. Shalahuddin Ayyubi	35	10	Ikhlasun Akhyar	30
11	Maulina	20	11	Khalil Akram	15
12	Muhammad Al Kausar	40	12	M. Aqil Karimy	55
13	Muhammad Aldi	55	13	M. Aidil Akbar	55
14	Muhammad Alief	35	14	M. Ikhsan Saputra	25
15	Muhammad Aulia	55	15	M. Januar Syaputra	25
16	Muhammad Farhan	45	16	M. Sulthan Al Shafich Birga	45
17	Muhammad Furqan	50	17	M. Saryulis Al Falaq	30
18	Nailal Husna	40	18	Muhammad Arief Akbar	35
19	Putra Akbar Ramadhan	45	19	Muhammad Nadhir	50
20	Putri Melati	50	20	Naurah Nisrina	25
21	Raina Rahma	50	21	Nurqusayri Al Ghifari	30
22	Rindiani Wulan Lestari	45	22	Riska Nabila	45
23	Sahla Arzaq	40	23	Riska Rianti	50
24	Siti Anzila	30	24	Riska Zaira	50
25	Varissa Febry	35	25	Ruhammah	55
26	Wilda Marjana	20	26	Safira Putri Ragil	25
27	Zakirah Zuhaira	55	27	Siti Khansa Faadhilah	45
28	Zaskia Zahira	35	28	Siti Zafira	40
29	Zia Zahra	50	29	Widya Antasya	45
30	Zulbahri	50			
31	Zulkhairi Ramadhan	55			
	Total	1.250		**Total**	1.165
	$\bar{x}_1$	40,32		$\bar{x}_2$	40,17

Source: Research Result, 2023

Based on the data in Table 1 above, it is known that the pre-test value of students in experimental class I is 40.32 and the pre-test value in experimental class II is 40.17

Table 2. Tabulation of Anova calculation

Num	**Experiment Class I**		**Experiment Class II**		**Total**	
	X_1	X_1^2	X_2	X_2^2	X_{total}	X_{total}^2
1	55	3025	40	1600	95	9025
2	40	1600	55	3025	95	9025
3	25	625	50	2500	75	5625
4	55	3025	30	900	85	7225
5	45	2025	15	225	60	3600
6	20	400	50	2500	70	4900
7	35	1225	45	2025	80	6400
8	25	625	50	2500	75	5625
9	15	225	55	3025	70	4900
10	35	1225	30	900	65	4225
11	20	400	15	225	35	1225
12	40	1600	55	3025	95	9025
13	55	3025	55	3025	110	12100
14	35	1225	25	625	60	3600

Num	Experiment Class I		Experiment Class II		Total	
	X_1	X_1^2	X_2	X_2^2	X_{total}	X_{total}^2
15	55	3025	25	625	80	6400
16	45	2025	45	2025	90	8100
17	50	2500	30	900	80	6400
18	40	1600	35	1225	75	5625
19	45	2025	50	2500	95	9025
20	50	2500	25	625	75	5625
21	50	2500	30	900	80	6400
22	45	2025	45	2025	90	8100
23	40	1600	50	2500	90	8100
24	30	900	50	2500	80	6400
25	35	1225	55	3025	90	8100
26	20	400	25	625	45	2025
27	55	3025	45	2025	100	10000
28	35	1225	40	1600	75	5625
29	50	2500	45	2025	95	9025
30	50	2500	45	625	50	2500
31	55	3025	45	625	55	3025
∑	1250	54850	1165	51225	2415	196975
N	**n_1=31**		**n_2=29**		**N=60**	

Source : Research Result, 2023

According to Table 2, to determine the Fcount value, you must first follow the steps of the anova test, namely calculating the total number of squares, calculating the number of squares between groups, calculating the number of squares in the group, and calculating the mean square in the group.

To prove whether H0 is accepted, Fcount is compared with Ftable. From the F distribution table with the value of dkant = m-1 = 2-1 and dkdal = N - m = 60-2 = 58 at a significant level of 5%, Ftabel = 4.01 is obtained. Based on the data above, it is known that Fcount < Ftable means that there is no significant difference between the initial ability scores of students in experimental class I and experimental class II.

Table 3. Post-Test Frequency Distribution List of Experiment Class II

Num	Score Test	f_i	x_i	x_i^2	f_ix_i	$f_ix_i^2$
1	55 – 60	5	57,5	3.306,25	287,5	16.531,25
2	61 – 66	4	63,5	4.032,25	254	16.129
3	67 – 72	4	69,5	4.830,25	278	19.321
4	73 – 78	7	75,5	5.700,25	528,5	39.901,75
5	79 – 84	4	81,5	6.642,25	326	26.569
6	85 – 90	5	87,5	7.656,25	437,5	38.281,25
	Total	**29**			**2.111,5**	**156.733,25**

Source : Data Processing, 2023

Table 4. Recapitulation of the Normality Test Results

Num	Class	χ^2_{hitung}	χ^2_{tabel}	Description
1	Eksperimen I	3,351	11,070	**Normal**
2	Eksperimen II	6,938	11,070	**Normal**

Source : Research Result, 2022

Hypothesis Test

Hypothesis test is the final part of experimental research after testing annova, normality, and homogeneity. Because the prerequisite test has been fulfilled, it can proceed to hypothesis testing, the data is processed using the t-test which is a type of parametric statistical hypothesis testing provided that the data must be normally distributed and homogeneous. Because the number of experimental samples is not the same (n1≠n2) and has the same variance, the t-test model polled variance formula is used in hypothesis testing. In accordance with the previous calculations, it is known:

$\bar{x}_1$ = 78,77
$\bar{x}_2$ = 72,81
S_1^2 = 72,58
S_2^2 = 106,93
n_1 = 31
n_2 = 29

Furthermore, the data is entered into the calculation formula to test the hypothesis.

$$t_{hitung} = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{(n_1-n_2)s_1^2 + (n_2-1)s_2^2}{n_1+n_2-2}\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}}$$

$$t_{hitung} = \frac{78,77 - 72,81}{\sqrt{\frac{(31 - 29)72,58 + (29 - 1)\ 106,93}{31 + 29 - 2}\left(\frac{1}{31}+\frac{1}{29}\right)}}$$

$$t_{hitung} = \frac{5,96}{\sqrt{\frac{(145,16) + (2.994,04)}{58}\left(\frac{60}{899}\right)}}$$

$$t_{hitung} = \frac{5,96}{\sqrt{\frac{3.139,2}{58}\left(\frac{60}{899}\right)}}$$

$$t_{hitung} = \frac{5,96}{\sqrt{\frac{188.352}{52.142}}}$$

$$t_{hitung} = \frac{5,96}{\sqrt{3,612}}$$

$$t_{hitung} = \frac{5,96}{1,90}$$

t_{hitung}=3,13

The statistical conditions proved are:

H_0 : Integrated social studies learning outcomes using the make a match model are the same as learning outcomes using the snowball throwing learning model assisted by handout media.

H_a : Integrated social studies learning outcomes using the make a match model are better than using the snowball throwing learning model assisted by handout media.

Furthermore, the t_{hitung} is compared with the t_{tabel} at a significant level of 5% with dk = (n1 + n2-2) which is 31 + 29 - 2 = 58. The results obtained in accordance with these provisions are the value of t_{hitung} = 3.13 and t_{tabel} = 1.67. Based on the value of t_{hitung} and t_{tabel} that $t_{hitung} > t_{tabel}$ is 3.13 > 1.67, so that Ha is accepted, it can be concluded that the integrated social studies learning outcomes taught using Make A Match learning model is better than using Snowball Throwing learning model.

Based on the results of research and data processing conducted in this study, that the learning outcomes of students using the make a match learning model are better than the learning outcomes using the snowball throwing learning model assisted by handout media in class VIII students of SMP Negeri 18 Banda Aceh.

Integrated social studies learning outcomes using the snowball throwing learning model are not good because when students answer questions from their friends only one or two people answer the question, while

other students do not want to provide answers, they prefer to talk with other group members rather than answering and making questions.

This is in line with research conducted by Ramadhani, and Aryeni (2017: 410) found that the learning outcomes taught using the make a match type cooperative learning model obtained an average of 76.5, which is better than the learning outcomes of students taught using the snowball throwing type cooperative learning model which obtained an average of 66. The make a match type cooperative learning model had better results than the snowball throwing type cooperative learning model.

The additional findings that are in accordance with this research cited by Aliputri (2018: 70) are not much different from the results of Ramadhani's research experiencing an increase in learning outcomes after using the make a match model from 51% increased to 94%, this shows that student learning outcomes have improved well after using the make a match model.

Another finding that is in accordance with this research cited by Musniati (2008: 18) is not much different from the results of Aliputri and Ramadhani's research from data processing proves that learning outcomes with the make a match method have better results than the scramble learning model, namely the make a match learning model has an average score of 76.75 and the scramble learning model has an average score of 71.

Conclusion

Based on the results of research and discussion, the conclusion that can be drawn from this study is that the learning outcomes of students taught with the make a match learning model are better than using the snowball throwing learning model. This is based on the average value of experimental class I = 76.77 and the average value of experimental class II = 72.75 with the t-test obtained t_{tabel} = 1.67 and t_{hitung} = 3.13 significant level of 5% and degrees of freedom (dk) = 58. Based on the value of t_{hitung} and t_{tabel} that $t_{hitung} > t_{tabel}$ is 3.13> 1.67, so the hypothesis Ha is accepted, it can be concluded that the integrated social studies learning outcomes taught using the Make A Match learning model are better than using the Snowball Throwing learning model.

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Bibliography

Adhiatmika, Made Wihendra. Ketut Agustini., dan I Gede Partha Sindu. 2017. *Pengaruh Model Pembelajaran Kooperatif Tipe Snowball Throwing Terhadap Hasil Belajar Siswa Pada Mata Pelajaran TIK Kelas VIII SMP Negeri 5 Tejakula. Kumpulan Artikel Mahasiswa Pendidikan Teknik Informatika (KARMAPATI)*, 6, (1). Hal. 214-223.

Aliputri, Dhestha Hazilla. 2018. P*enerapan Model Pembelajaran Kooperatif Tipe Make A Match Berbantuan Kartu Bergambar Untuk Meningkatkan Hasil Belajar Siswa. Jurnal Bidang Pendidikan Dasar* (JBPD), 2, (1A). Hal. 70-77.

Arikunto, Suharsimi. 2013. *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: Rineka Cipta.

Departemen Pendidikan Nasional. 2003. *Undang-Undang Nomor 20 Tahun 2003,* Tentang Sistem Pendidikan Nasional. Jakarta: Depdiknas.

Ismail. 20018. *Active Learning: 101 Cara Belajar Peserta Didik Aktif.* Bandung: Nusamedia.

Istarani. 2012. *58 Model Pembelajaran Inovatif*. Medan: Media Persada.

Mufarokah, Anissatul. 2009. *Strategi Belajar Mengajar*. Yogyakarta: Teras.

Musniati. 2018. *Perbandingan Hasil Belajar Peserta Didik Menggunakan Model Pembelajaran Make-A Match Dan Scramble Pada Pelajaran Geografi Kelas X SMA Negeri 12 Banda Aceh*. *Jurnal Ilmiah Mahasiswa Pendidikan Geografi FKIP Unsyiah*. 3, (1). Hal. 18-26.

Ramadhani, Annisa, dan Aryeni 2017. *Perbandingan Hasil Belajar Siswa yang diajar Menggunakan Model Pembelajaran Kooperatif Tipe Make A Match Dengan Snowball Throwing pada Sub Materi Invertebrata*

di Kelas X Sma Swasta Al Hidayah Medan Tahun Pembelajaran 2015/2016. *Jurnal PELITA PENDIDIKAN*, 5, (4). Hal. 410-414.

Sugiyono. 2018. *Statistika Untuk Penelitian*. Bandung. Alfabeta.