



## Effectiveness of Snowball Throwing Model with Word Square Media on Activity and Student Learning Results in Addictive and Psychotropic Materials

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### Abstract

The result of observation during the teaching internship program (PPL) show that the teaching and learning activities in SMP Mataram Semarang still apply teacher centered learning. Besides, the question and answer session in the teaching and learning activities are still relatively low. Report of the national examination results at SMP Mataram Semarang in the academic year 2014/2015 by BSNP indicate that the absorption of students on the material of addictive substances and psychotropic is still low at 34,29%. An effort to do is to apply the learning model Snowball Throwing through Word Square media. This study aims to investigate the effectiveness of the learning model Snowball throwing through Word Square media toward the activity and the result of student's learning in the material of addictive substance and psychotropic. This research is a Quasi Experimental Nonequivalent Control Group Design. The results of the study showed that the liveliness of experimental group was 92%, while in the control group was 76%. The classical completeness of cognitive achievement in the experimental group was 88%, while in the control group was 48%. The results of t-test showed that there is significant difference on cognitive achievement of the experimental group against the control group. The result of N-gain also showed that the improvement in cognitive achievement of the experimental group was higher than the control group. The classical completeness of affective achievement of the experimental group was 92%, while the control group was 80%. It can be concluded that the learning model Snowball Throwing through Word Square media is effective toward the activity and the results of student's learning in the material of addictive substance and psychotropic. So, Snowball Throwing through Word Square media can be practice on the material of addictive substance and psychotropic and other material that have same problem.

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## **INTRODUCTION**

The result of observation during the teaching internship program (PPL) started from August 20th till October 30th 2015, showed that the teaching and learning activities in SMP Mataram Semarang still apply teacher centered learning. The students only get the information from the teacher, the question and answer session in the teaching and learning activities are still relatively low, whereas there is a significant relation between the students' activities' and the results of students' learning cognitive (Harahap, 2014). The activities are done by students will make them get the information, understanding, skill and any other behaviour, including attitude and moral value (Hamalik, 2013:90).

Report of the national examination results at SMP Mataram Semarang in the academic year 2014/2015 by BSNP indicate that the absorption of students on the material of addictive and psychotropic substances is still low at 34.29%. This is due to the incompatibility between the characteristics of addictive substances and psychotropic substances with the learning model used. The characteristics of addictive substances and psychotropic substances based on KD 4.4 and KD 4.5 require students to classify addictive and psychotropic substances and their examples, to analyze the negative effect of using addictive and psychotropic substances, as well as how to avoid themselves from the influence of addictive and psychotropic substances. The students' ability to classify and analyze can be achieved if the students are given a direct learning experience on the learning object (Putra, 2012:40). However, it can not be applied because the example of addictive substances (alcoholic beverages) and psychotropic including drugs so that it is not allowed to enter the school area freely.

The effort that can be done to overcome the problem is by applying Students Center Learning (SCL) principle where students not only receive knowledge from teachers, but actively involved in the process of learning directed by the teacher. One of the learning model that refers to SCL is a cooperative learning because the learning model can develop the social and personal skills of the students so that the group members will need each other work together in order to achieve success of learning (Altun, 2015).

One type of cooperative model is a Snowball Throwing learning model, this model can develop students' thinking ability by making and answer questions, students are actively involved in learning so that learning becomes effective, and the three aspects (affective, cognitive and psychomotor) can be achieved (Shoimin, 2014:176). In addition, the learning model of Snowball Throwing can also help students build material concepts and help teachers to know the extent to which the knowledge and ability of students on the material Huda (2014:226).

The result of the research by Hanum (2015) concludes that the cooperative learning model of Snowball Throwing type can improve the learning result of the students in SMA N 1 Karangtengah Demak. It is in line with Akhiriyah (2011) which concluded that the model of learning snowball can increase teacher activity, student activity, and the learning result in SDN Kalibanteng Kidul 01 Kota Semarang.

One of the shortcomings of the snowball model is sometimes the students make a matter that is too difficult or outside the subject and require a long time so that the learning objectives are not achieved (Shoimin, 2014:177). The efforts to overcome these shortcomings is to add Word Square learning media. Snowball learning model that is supported by appropriate learning media can improve student learning result (Sunistini, 2013).

Media used in this research is Word Square media. Word Square is a number of words arranged one under another in the form of a square and can be read horizontally or down (Urdang dalam Wurianingrum, 2007:16). Word Square media can encourage students understand the subject, train the students to discipline, train the students meticulously and critical attitude, and stimulate students to think effectively so as to encourage students to make the matter according to the subject and does not require time.

The results of Widayanti's research concluded that Word Square LKS can make students activities and learning result of high school students in Warureja tinggi become high. In addition, the results of Wahyuni also showed that there is increasing activity and result of learning students in SMK 1 Karanganyar after using Word Square media.

This study aims to investigate the effectiveness of the learning model Snowball Throwing through Word Square media toward the activity and the result of student's learning in the material of addictive and psychotropic.

## RESEARCH METHODS

This research was conducted at SMP Mataram Semarang in academic year 2016/2017. The research population is eight grade students of SMP Mataram Semarang. The research sample is class VIII A and class VIII B, which is determined by purposive random sampling technique. The independent variable in this research is the application of the learning model Snowball Throwing with Word Square media, while the dependent variables are student activity and students' learning result on the addictive and psychotropic substance materials.

This research is Quasi Experiment research type Nonequivalent Control Group Design. Research data are student activities, cognitive learning result, and affective learning result. Data of student activity obtained through observation using observation sheet, data of cognitive learning result obtained through multiple choice test, and data of affective learning result obtained by questionnaire of attitude scale. The test questions have been tested for validity, reliability, difficulty and distinguishing power. test is given at the beginning as a pretest and at the end of learning as a posttest. The data of this study were analyzed using descriptive percentage.

Indicators of effectiveness in the study include: (1) classically  $\geq 85\%$  activity students are on active criteria; (2) at least 3 requirements of effectiveness to the learning result are met (a) classically  $\geq 85\%$  cognitive learning result of experimental class to reach KKM ( $\geq 70$ ), (b) Classically  $\geq 85\%$  affective learning result of experimental class students in both criteria, (c) average N-gain experimental class on medium criteria on ( $0,3 \leq g < 0,7$ ) or high ( $g \geq 0,7$ ), (d) cognitive learning result of experiment class students better than control class students proved by t test.

## RESULT AND DISCUSSION

The result of this research is divided into activity, cognitif learning result and affective learning result.

### Students' Activity

The activity of the students were observed by using observation sheet by the observer. There were five groups and three observers. The two observers were each observed two groups and an observer left observed a group. The activities of the students to be observed were when they learn the material, discussing and doing LDS (Students' Discussion Sheet) and LKS (Students' Work Sheet), playing *Snowball Throwing*, presenting, drawing conclusion, and how much their interest to the learning activity. The percentage is shown on table 1

**Table 1** The amount of students categorized as active student during learning activity

Lanjutan tabel 1	y a	Contol Class		Experiment Class	
		Activeness (%)	Classical Activeness (%)	Activeness (%)	Classical Activeness (%)
1.	Very active	12	76	3	92
2.	Active	64		20	
3.	Quite	24		2	

4.	Active	0	0
	Not		
	Active		

The percentage of student’s activity in experimental class had classically reached the completeness criteria ( $\geq 85\%$ ) that was 92% of the 25 students in experimental class were active and the activity of the control class had not classically reached the completeness criteria because only 76% of the 25 students were active. The reason was because there are steps in *Snowball Throwing* learning model which could not be found in expository model, they were discussion, in doing LDS, making and answering question in *Word Square* model, making and throwing paper ball contained question, and presentation in the end of the learning process. This point is in line with Akhiriyah’s research in 2011 which concludes that *Snowball Throwing* model can improve students’ learning activity and result. Besides, the result of investigation by Widiyanti (2013) also concludes that the implementation of observation method with *Word Square* LKS in living creature classification material is effectively affect students’ learning activity and result.

In this research, steps of the *Snowball Throwing* learning model with *Word Square* media has been modified in the way the ball is thrown. Originally, the ball contained question is thrown from a student to another randomly acak (Huda, 2014:227). While in this research, the ball was thrown by a group of student to another group consecutively so that there would not be much noise during the game and the game would run effectively. However, this modification still had weakness. The ball used in the game got crumpled easily and it affected the question written on it. The question could not be easily read by the last group, so that the needed more time to answer the question rather than the first group.

Whether the student is active or not can be seen in the activities which are done during the learning process. In material delivery step, the teacher showed video dealing with addictive and pschotropic substance and asked several questions regarding the video. Students watched the video and answered the questions. In this stage, activities to be observed were *visual activities, listening activities, mental activities, and oral activities*. In grouping stage, the teacher divided the class into groups of five. The grouping is based on student’s number. The teacher asked the captains of the groups and gave them summary of the material and LDS. The next step was the captain of the group got back to their group and the studied the summary and discussed the LDS. The activities to be observed in this stage were *visual activities, listening activities, oral activities, writing activities, and mental activities*.

In *Snowball Throwing* game stage, each group was given LKS. The students wrote five questions regarding the topic and the answers in the form of *Word Square*. Then the students formed it into a ball and threw it to other groups in  $\pm 15$  minutes, each group discussed to answer the most difficult question. Then, after the finished, the ball was thrown to the next group consecutively. It was done until the ball went back to the first group who wrote the questions. The activities to be observed in this stage were *writing activities, mental activities, motor activities, and emotional activities*. In presentation stage, a group presented their LDS result and a group presented their game result. Those group who were free may asked questiona or arguments. The activities to be observed in this stage were *visual activities, listening activities, oral activities, and mental activities*. In the final stages of learning, students and teachers jointly evaluate and draw conclusions. At this stage activity that can be observed is oral activities and mental activities.

Based on activities aspect observed during the learning process, the score of the students can be seen in Table 2

**Table 2** The average score of students activities based on observed aspects

N	Observed Aspect	Control Class	Experiment Class
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ur		Average (%)	Category	Average (%)	Category
1.	<i>Visual Activities dan Listening Activities</i>	71.00	Active	75.50	Active
2.	<i>Oral Activities</i>	54.25	Quite Active	68.50	Active
3.	<i>Writing Activities</i>	73.00	Active	77.50	Active
4.	<i>Motor Activities</i>	-	-	87.50	Very Active
5.	<i>Mental Activities</i>	68.00	Active	75.00	Active
6.	<i>Emotional Activities</i>	74.00	Active	76.00	Active

The highest average score of student activity of experimental class was on *motor activities* aspect. (87.50). The reason was because the learning process in experimental class used Snowball Throwing model which affected students' motoric. This model made the students actively involved in the learning process so that the process become effective and the three aspects of learning (affective, cognitive, and psychomotor) can be achieved (Shoimin, 2014:176). The learning process will be more effective if the students not only gaining knowledge from the teacher, but also actively involved in the learning process which is directed by the teacher (Dun in uda, 2014:7).

Besides, the lowest average score of students' activity of experimental class is in *oral activities* aspect (68.50%). The reason was because the questionin and answering activity between the students during the presentation session was unable to be done maximally, the students tended to asked and answered more through *writin activities* (77.50%), that was by writing and answering question in the form of LKS.

### Students' Learning Result

#### Cognitive Result (Knowledge)

The early result of students' learning process was gained by conducting *pretest*. The result is shown in Table 3.

**Table 3** Pretest Score of Control and Experimental Class

Class	Amount of Student	Nilai		Average
		Highest	Lowest	
Control	25	60	24	40.80
Experiment	25	60	28	42.88

The gap of average score of control class and experimental class was not much, they were 40.80 and 42.88. Homogeneity and normality test of the pretest score showed that both samples has varians or the same early knowledge and was normally distributed. So that the treatment can be given as the research procedure was. The procedure was giving *Snowball Throwin* learning model to experimental class and giving expository learning model to control class. Then, post test was conducted to know the students' understanding level after the learning process. The analysis of the posttest result can be seen in table 4.

**Table 4** Posttest Score of Experimental Class and Control Class

Class	Amount of Student with Posttest Value		Classical Complete ness (%)	Category
	<70	>70		
Control	13	12	48%	Has not succeeded
Experiment	3	22	88%	Successful

Classically, the completeness of cognitive result of experimental class ad reached the success indicator (88%) while control class had not make it yet (44%). The completeness of learning result

classically was said to be success if minimally there are 85% students has reached minimal completeness limit (Mulyasa, 2009:254). Then, t test was done to know the significant difference between cognitive result of control class and experimental class after the treatment given. The analysis of the t test result can be seen inn Table 5.

**Table 5** T test result of posttest of control and experimental class

Class	Avera ge	T <sub>acco</sub> unt	t <sub>table</sub>	$\alpha$	note
Control	70.40	3.83	1.67	5	$t_{hitung} > t_{tabel}$
Experi-ment	80.16	4	7	%	(H <sub>a</sub> accepted)

The result in table 5 showed that  $t_{count}$  is 3.834 with  $t_{table}$  is 1.677. As  $t_{count} > t_{table}$  it can be concluded that H<sub>a</sub> was accepted which means that the cognitive learning result of experimental class was significantly different with control class. N-gain test was done later to know the improvement of students' learning result during the learning process. The analysis of N-gain result is showed in Table 6.

**Table 6** Analysis of N-gain test of control and experimental class

Class	Pretest	Posttest	N-gain	Category
Control	40.80	70.40	0.50	Medium
Experiment	42.88	80.16	0.66	Medium

The analysis of N-gain showed that the cognitive result of experimental class had more improved rather than the control class (Table 6). It was because model *Snowball Throwing* gives more chance to the students to develop their way of thinking while they write and answer questions, also it makes the students prepared with much possibilities because they have no idea of what kind of question their friends will give to them (Soimin, 2014:176).

Also, it makes the students become more responsible to their group so that they will be able to finish the game well. They will help each other in their group and compete with the other group in doing LDS and LKS so that they will understand the material easier. A research result of Hanum (2014) tells that this model can improve students' learning result (knowledge) significantly.

The media used in this research is *Word Square*. This media encourages students to understand better and stimulates students to think effectively (Santoso, 2011). The students became more focus as they connect the questions and the answers given in the *Word Square* boxes. In order to get the right answer, they had to understand the material first. Widiyanti (2013) in her research concluded that the implementation of observation method and *Word Square* LKS on living creature classification is effective towards students' learnin activity and result.

However, there were 12% students (3 students) left in experimental class who had not reached the completeness limit because the posttest result were unable to reach the passing grade (KKM), that was 70. Based on the analysis, those students' activity were categorized as active. It means that there are no correlation between *motor activities* and *mental activities*. Motor activities which is not combined with mental activities will not make the learning result better. A good learning activities is a combination of students' physical activities and mental activities (thinking) during the learning process (Sardiman in Utami).

The reason why those students' score were low was because it was not only students' activity which affect the learning result. There are two main factors affecting students' learning result, they are internal and external factors (Sardiman, 2008:39). Internal factors are student's capability, interest, motivation, and learning activity. External factors are school facilities and infrastructure, learning process model, and media used by the teacher.

Remedial is one of the solution for students who are unable to meet the passing grade. The purpose of remedial in common is not different with the remedial which is set to help the students to

reach the passing grade. Specifically, it is done so that the students with difficulty in learning can achieve their learning result as what they expected (Abu Amadi in Masbur, 2012). A research by Sianipar (2013) proved that after joining remedial program, there are changes in their achievement. They become more diligent in learning, more confident, and more thorough in answering questions.

**Affective Learning Result (Attitude)**

The affective learning result data is obtained from the attitude scale sheet filled by the students. Attitude scale (attitude scales) is a collection of statements about an object of attitude in which the response subject on each statement is then concluded about the direction and intensity of a person's attitude (Azwar, 2015:95). The statements that exist in the attitude scale is related to the intensity of students in avoiding the influence of addictive substances and psychotropic substances in accordance with the basic competencies (KD) that must be owned by students that is KD 4.5. Analysis of affective learning result can be seen in Table 7.

**Table 7** Grade of Student Attitudes of Control Class and Experiment Class

Class	The Amount of Students	The Amount of Students with Affective Grade		classical completeness
		<69%	≥69%	
Control	25	5	20	80%
Experiment	25	2	23	92%

Analysis of affective learning result (Table 7) shows that the affective grade of the experiment class classically has reached the defined criteria of completeness (≥85%) that is 92% students obtained affective grades in good criteria while the control class has not reached the defined completeness criteria that is only 80% students obtained affective grade in good criteria.

The high affective grade in the experimental class is shown when the student can solve the problem of addictive substance and psychotropic abuse in the student discussion sheet at the second meeting. One of the factors influencing the mean affective grade of the experiment class students is higher than the control class is the classical completeness of cognitive grade of the experimental class (88%) higher than the control class (48%).

Attitude structure consists of three components that support each other namely the cognitive, affective, and conative components. The cognitive component contains the individual's perceptions, beliefs, and stereotypes about something. Often this cognitive component can be likened to views (opinion), especially when it comes to the issue or controversial issue (Azwar, 2015:24). So, the more knowledge a person has, the greater the influence of that knowledge on the attitude he takes. This is in line with Rajaratenam's study (2014) which concludes that there is a relationship between knowledge and attitude where a good level of knowledge will create a good attitude as well. Affective learning results can be seen based on affective aspects in Table 8.

**Table 8** Results of Student Affective Learning Based on Affective Aspect

Affective Aspect	Control Class		Experiment Class	
	Mean	Category	Mean	Category
Participation (A2)	77.92%	Good	81.28%	Good
Assessment (A3)	72.72%	Good	72.24%	Good
Organization (A4)	85.28%	Very Good	88.48%	Very Good

Affective areas assessed in this study were affective aspects of participation (A2), assessment (A3), and organization (A4). Analysis of students' affective learning result based on the affective aspect shows that the mean affective grade of the experimental class is higher than the control class (Table 8). The average of affective grades obtained by the highest experimental class on

organizational aspect (A4) was 88.48%. Organization is the willingness to organize the values chosen to be a solid guide in behavior (Purwanto, 2014:52). One of the factors causing high organizational aspect because students have gained knowledge about positive and negative effects of addictive and psychotropic substances so that students have guidelines in using them.

Although attitudinal statements obtained from attitude scales are an indicator of the attitudes students will take in avoiding the effects of addictive and psychotropic substances but it does not mean that they are always entirely trustworthy and can reflect real attitudes. This is due to various factors that hamper the interpretation of the true individual's attitude, one of the factors that can undermine the interpretation is that for some reason the student does not respond as they feels but gives a response that is acceptable to people in general and is considered good (*social desirability*). This situation is generally not easily detected, but there are two ways that can be used to obtain an honest response and improve the accuracy of attitude measurement results (Azwar, 2015:98).

First, use a bogus pipeline. The bogus pipeline method is done by connecting individuals who want to be exposed their attitude to a cable in a sophisticated mechanical instrument designed as if able to know and record their true feelings. Covert measurement method is a method of behavioral observation with the object of observation is physiological reactions that occur outside the control of the person concerned (Brehm & Kassin on Azwar, 2015:99).

## CONCLUSION

Based on the results of research and discussion, it can be concluded that the application of Snowball Throwing model with Word Square media effective to the activities and learning result of students SMP Mataram Semarang on the addictive and psychotropic substances material.

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