

**THE DIFFERENCES OF STUDENTS' LEARNING ACHIVEMENT TAUGHT SOMATIC,
AUDIOTORYTORY, VISUAL, AND INTELLECTUAL (SAVI) LEARNING MODEL
AND DIRECTT INSTRUCTION (DI) LEARNING MODEL ON SETS TOPICS IN
VII GRADE AT SMP N 1 BINJAI ACADEMIC YEAR 2014/2015**

Evridya Rizki
FMIPA, Unimed Medan
Email : kie_ridya@yahoo.co.id

Pargaulan Siagian
Dosen Matematika FMIPA Unimed Medan

Abstract

This research is experiment. The purpose of this research was to know the differences of students' learning achievement between SAVI class and Direct Instructional class in mathematical learning process on sets topic at SMP Negeri 1 Binjai. The population of this research was all VII grade students of SMP Negeri 1 Binjai which consists of 9 classes, whereas the sample consist of 2 classes, they are VII-4 as experimental class consists of 30 students and VII-5 as control class consists of 30 students. Experimental class used SAVI, whereas control class used direct instruction learning model. Collecting data technique of this research was pre-test that given in the end of learning process in experimental class and control class. The type of this test is essay test. Before doing hypothesis test, it would be done normality test and homogeneity test beforehand. From the result of those tests, sample was taken from normal distribution and homogeneous population. From the data analysis of experimental class by using t-test with significance level $\alpha = 0.05$, it was obtained that $t_{\text{calculated}} (8.372) > t_{\text{table}} (1.671)$ then H_0 is rejected and H_a is accepted. So, it can be concluded that, there is the difference of students' learning achievement from SAVI class between Direct Instruction class and the improvement of students' learning achievement in SAVI class is better than students' learning achievement in Direct Instruction class. On other words, SAVI learning model can improve the students' learning achievement in grade VII on the set topics at SMP N 1 Binjai academic years 2014/2015.

Keywords : *Learning Achievement, Set Topics, SAVI Learning Model, Junior High School, Binjai, North Sumatra*

INTRODUCTION

SAVI learning models is a student learning process by combining physical movement with intellectual activity and the use of all the senses. SAVI learning model embrace of modern cognitive that learning is most well involve the whole body , all senses , and all the depth and breadth of personal , individual learning styles respecting others by realizing that people learn in different ways. Somatic learning is learning that utilizes and involves the body (tactile, kinesthetic, involves moving the body during physical and learning activities take place). Auditory means learning the sense of hearing. Learning to talk and listen. Visual means, learning must use the sense of sight. The visual learning means learning to observe and describe. Intellectual means learning to solve problems and brooding. Action learners do things with their minds internally when using intelligence to reflect on an experience and create relationships, meaning, plan, and the value of the experience.

According to Dave Meier as the inventor of SAVI learning model, learning does not automatically rise up and tell people to move to and fro, but connecting with the physical movement of intellectual activity and the use of all the senses can have a big impact on learning. SAVI Learning is learning which emphasizes that learning should take advantage of all the senses of the students. In SAVI learning, learning it has to do with the activity, ie physically moving when learning, and utilizing the senses as much as possible and make the whole body or mind are involved in the learning process.

Dave meier advised the teacher to manage the class by using this model. SAVI is a form of learning models created by Dave Meier in his book "The Accelerated Learning Handbook" which is a guide book in designing educational programs that are creative and effective. The basic concept of the learning takes place in a fast, fun, and satisfying. Such as Meier (2000:9) states "some major assumptions learning is a positive learning environment, the total involvement of

students, collaboration among learners, variety that appeals to all learning styles, and contextual learning".

With the SAVI learning model, students can learn mathematics with optimal intellectual activity and the senses are combined in the learning process. So that could be created fun learning, students as learning centers, actively engage students so that they are able to develop their potential with good abilities, interests, learning styles, experience of, and can improve student learning achievement. In accordance with the words Meier (2000:10) "People learn best when they have a variety of learning options that allow them to use all of flavor and exercise their preferred learning style ".

In the learning process, by using SAVI (Somatic, Auditory, Visual, and Intellectual) learning model, it can improve student learning achievement. SAVI learning model is accordance with the curriculum that is being done in schools. SAVI learning models supports the K-13 where students as learning centers where student perform each step in the learning model SAVI.

Conventional learning model is a traditional learning model or also called by student learning centered, because this method has been used as a communication tool between teachers and students in the learning process. In mathematics learning process, the conventional learning model marked by a lot of formulas note and the explanation, and giving the tasks. In accordance with the opinion Arends (2007:289) "direct instruction learning model focuses to academic task".

In this model teacher as learning centered in the classroom. Teachers only gave the material and tasks. So that students are not active in the classroom, students also feel attracted to the subject matter presented. So no wonder, the above model can affect student learning achievement in mathematics.

From interviews conducted with teachers of mathematics in SMP Negeri 1 Binjai, especially in VII grade teacher that students have difficulty in learning the set, especially to find the set

concept from story problems. Many students can not find the member of the operation from story problems and some students difficult to draw venn diagrams. This material is taught in a conventional learning model, where teacher as learning centered. It is thought to affect the student learning achievement are low.

The problem identification in this research are; 1) The student Learning Achievement in mathematics still low. 2) The monotony of learning or teacher-centered learning makes students less interested in learning mathematics. 3) The uses of learning strategy, still less appropriate to the material being taught. 4) Set materials are taught without visual aid. And 5) The understanding of students and students Learning Achievement in set topic are still low.

The problem limitation in this research are; 1) The subjects of this study were student from class VII-4 and VII-5 of SMP Negeri 1 Binjai academic years 2014/2015. 2) Application of learning models SAVI and DI as a learning strategy that is considered in accordance with the material. 3) The ability of students in the learning of mathematics is limited to mastery of the material with a pattern of interactive exercises. And 4) The successful indicators of student is the students Learning Achievement

The problem formulated in this research are; 1) Is there a difference in students' learning achievement taught SAVI (Somatic, Auditory, Visual, and Intellectual) model between DI (Direct Instruction) learning models? And 2) Is the improving of learning achievement in SAVI (Somatic, Auditory, Visual, and Intellectual) class is higher than students' in DI (Direct Instruction) class?

The research objectives in this research are; 1) To know there is a difference in student's learning achievement using SAVI (Somatic, Auditory, Visual, and Intellectual) model. And 2) To know the student learning achievement of student's that using model SAVI (Somatic, Auditory, Visual, and Intellectual) is better than student's learning achievements in DI (Direct Instruction) learning model.

The research benefits in this research are; 1) For the teacher, the result of this study may provide additional knowledge about mathematics learning and serve as one of the inputs to select and develop appropriate alternative learning model for improving students learning achievement. 2) For observers, the results of this study are expected to add insight about mathematical learning model. And 3) For student, SAVI models in learning mathematics can be used as a new experience to improve student Learning Achievement

RESEARCH METHODOLOGY

Locations of research conducted at SMP Negeri 1 Binjai on Jl. Sultan Hasanuddin no.28 Binjai. This study will be plan on first semester of academic year 2014/2015. In this study, researchers took a population are, every class in seventh grade, there are VII-1, VII-2, VII-3, VII-4, VII-5, VII-6, VII-7, VII-8, VII-9 at SMP N1 Binjai Academic Year 2014/2015. researchers took 30 students in class VII-4 and also in class VII-5 in SMP N 1 Binjai Academic Year 2014/2015 as a research sample. Researchers chose a sample based on the results of observations show that both classes are homogeneous or have the same level of intelligence. Class VII-4 is used as an experimental class that will be taught by SAVI learning model, whereas class VII-5 was used as a control class that will be taught with direct instructional model.

This type of research used in this study is an experimental study. According Arikunto (2010:86), experimental research is a type of research that is considered to meet the requirements where there are other groups that do not participate get experimental but observational, which could be called a control class.

Design of study present in the following tabel:

Table 1 Design Research

Group	Pre-test	Learning Model	Post-test
Experiment	T1	X	T2
Control	T1	Y	T2

Description :

T1 =Pre-Test

X =Taught by SAVI Learning model

Y =Taught by direct instruction learning model

T2 =Post-test

There are two variables in the study, namely; 1) Independent Variables, the independent variable in this study is a model of learning SAVI imposed in the experimental group and direct learning model imposed in the control group. 2) Dependent Variable, the dependent variable in this study is the student mathematics learning achievements in class VII SMPN1 Binjai. The research procedure can be seen by this following figure

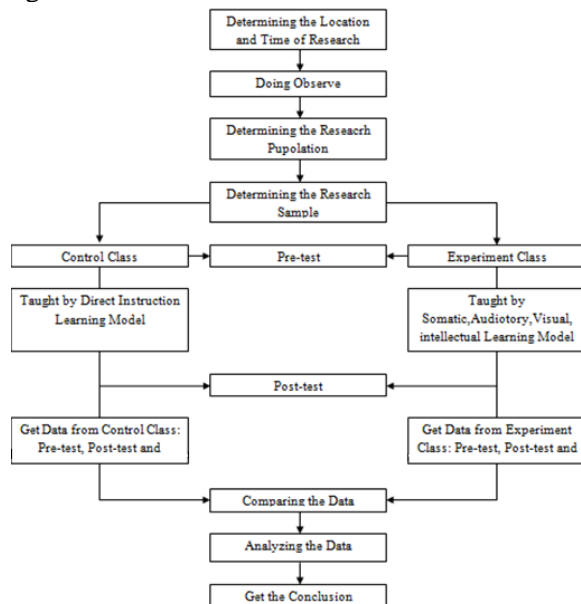


Figure 1 Research Procedure

This study tests were used to obtain data such as the value of learners in mastering the

material being taught. Form of the test used is a essay test as many as 4 questions. Before the test questions used in research, testing needs to be done to obtain validity, reliability, difficulty index, and distinguish problem: 1) To determine the accuracy of the data, we need validity test technique by analyzing the acquired coefficient correlation from the correlation result between scores point sand total score. To correlate each item score with its total score, it is used the correlation of Product Moment of Pearson. The formula of Product Moment correlation (Arikunto, 2007: 327) is as follows:

$$r_{xy} = \frac{n \sum XY - (\sum X)(\sum Y)}{\sqrt{\{n \sum X^2 - (\sum X)^2\}\{n \sum Y^2 - (\sum Y)^2\}}}$$

Description : r_{xy} : correlation coefficient

n : ammount of respondent

X : score of each item

Y : total score

2) Reliability test for variable of essay tests of students' learning achievement will be done by using Cronbach Alfa Coefficient formula (KAC), which is (Arikunto, 2010:239):

$$r_{11} = \left(\frac{k}{k-1} \right) \left(1 - \frac{\sum Var_i}{Var_x} \right)$$

Description:

r_{11} : reliability of the instrument

n : the amount of item

Var_i : i-th total variance

Var_x : total variance

3) To know the difficulty index of essay test is by using this following formula (Asmin, 2012: 221):

$$DI_i = \frac{Mean_i}{Max Score_i}$$

Note:

DI_i : Difficulty index of i-th problem

$Mean_i$: Mean of i-th problem

$Max Score_i$: Maximum score of i-th problem

The criteria used for classification of difficulty index is (Asmin, 2012: 211):

0,00 < p ≤ 0,30: difficult
 0,30 < p ≤ 0,70: medium
 p > 0,70 : easy

4) To know the distinguishing power of essay test is by using this following formula:

$$DP_i = \frac{\text{Mean of HG}_i - \text{Mean of LG}_i}{\text{Max Score}_i}$$

Note:

DP_i : Distinguishing power of i-th problem
 Mean of HG_i : Mean of higher group of i-th problem
 Mean of LG_i : Mean of lower group of i-th problem
 Max Score_i : Maximum score of i-th problem
 (Asmin, 2012: 211)

The criteria for classification of distinguishing power is (Asmin, 2012: 212):

$D \geq 0,40$: very good
 $0,30 \leq D < 0,40$: good
 $0,20 \leq D < 0,30$: need revision
 $D \leq 0,19$: bad

After get the value of research, it must to be analyze by Statistic descriptive to know the mean, median, mode, and deviation standard of datas.

Formula that is used to calculate the mean by manually is:

$$\bar{X} = \frac{\sum x_i}{n}$$

Note:

\bar{X} : Mean for single data
 n : The amount of data/ sample
 $\sum x_i$: the amount of each data

Formula that is used to calculate the median with even data (n=30) by manually is:

$$Me = \frac{x_{\frac{1}{2}n} + x_{\frac{1}{2}n+1}}{2}$$

Note:

Me : Median
 $x_{\frac{1}{2}n}$: $\frac{1}{2}n$ -th data

$x_{\frac{1}{2}n+1}$: $\frac{1}{2}n + 1$ -th data

Formula that is used to calculate deviation standard by manually is:

$$DS = \sqrt{\frac{\sum (x_i - \bar{X})^2}{n - 1}}$$

Note:

DS : Deviation standard
 n : The amount of data
 \bar{X} : Mean
 x_i : i-th data

In this research, calculation of descriptive statistics by using *Descriptive Statistics* in SPSS 18.

To know the difference of students' learning achievement between control class and experimental class, it must be calculated by Independent sample t-test. Before doing the test, the data has normal and homogenous.

Normality test that will be done in this research, by using *Kolmogorov-Smirnov* testing technique with a significance level(α) of 5%. This test is performed if the tested data is a single data or single frequency data, not the data in the frequency distribution of group (Supardi, 2013:134). There are some formulas or manual calculation for normality test, one of them by this formula:

$$Z_i = \frac{x_i - \bar{X}}{ds}$$

Note:

Z = standard value
 x_i = i-th data
 \bar{X} = mean of data
 DS = deviation standard
 $H_0 \leq L_{\text{tabel}}$ so that the sample is normal distribution
 $H_0 > L_{\text{tabel}}$ so that the sample is not normal distribution.

In this study, normality test performed by SPSS using the kolmogorov-Smirnov testing technique with a significant level (α) of 5%.

Homogeneity test conducted in order to test the variance homogeneity of pretest and

post-test score's both classes derived from normally distributed populations.

Homogeneity testing that will be conducted in this research is by using F(Fisher) test with a significance level(α) of 5%. Homogeneity Testing with F test carried out if the data that will be tested comes from two groups of data/sample (Supardi, 2013:142)

hypotheses:

$H_0: \sigma_1^2 = \sigma_2^2$ (variance 1 is equal to variance 2 or homogenous)

$H_0: \sigma_1^2 \neq \sigma_2^2$ (variance 1 is not equal to variance 2 or homogenous)

Criteria testing:

Accept H_0 if $F_{\text{calculation}} < F_{\text{tabel}}$

Reject H_0 if $F_{\text{calculation}} > F_{\text{tabel}}$.

$$F_{\text{calculation}} = \frac{\text{biggest variance}}{\text{smallest variance}}$$

Determine the F_{tabel} for significance value (α),

$dk_1 = dk_{\text{numerator}} = n_a - 1$,

$dk_2 = dk_{\text{denominator}} = n_b - 1$.

N_a = the amount of biggest variance data

N_b = the amount of smallest variance data

Do the test by comparing the value of $F_{\text{calculation}}$ and F_{tabel} . In this study, researches using Levenes' test in SPSS to calculate the homogeneity with a significant level (α) of 5%.

Hypotheses test conducted to determine whether the experimental and control class have differences in the ability or not in the subjects focus of the study after the treatment is given. T-test is tested if the data are normally distributed and homogeneous. If the data analyzed are not normally distribute and homogeneous, used nonparametric statistical test than is the Mann-Whitney. In this research the data is normal distribution and homogeny. So the formula of independent sample T-test as follows:

$$t_{\text{cal}} = \frac{\bar{X}_1 - \bar{X}_2}{s \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$\text{Where, } s^2 = \frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1+n_2-2}$$

Note:

t = t value for correlated sample

\bar{X}_1 = mean of post-test in SAVI classroom

\bar{X}_2 = mean of post-test in DI classroom

n_1 = the amount of subjects in SAVI classroom

n_2 = the amount of subjects in DI classroom

s_1^2 = the variance of SAVI classroom

s_2^2 = the variance of DI classroom

The hypotheses that will be tested are:

$H_0: \mu_1 \leq \mu_2$ (the learning achievement of student's in SAVI class is not better than in DI class)

$H_a: \mu_1 > \mu_2$ (the learning achievement of student's in SAVI class is better than in DI class)

Note:

μ_1 = average of student's achievement taught by SAVI Learning Model

μ_2 = average of student's achievement taught by DI Learning Model

The criteria of hypotheses testing are:

If $t_{\text{cal}} > t_{\text{table}}$ then H_0 is rejected

If $t_{\text{cal}} < t_{\text{table}}$ then H_0 is received

Hypotheses testing that will be conducted in this research is by using *Independent Sample t-test* with a significance level(α) of 5% in SPSS.

From the independent t-test there are the difference of students learning achievement between experimental class and control class.

In addition to analyze pre-test and post-test score data, also conducted the analysis of index gain data. Normalized gain describes the increasing of students' achievement by using SAVI approach. Determining the gain index of experimental class is by using the following formula:

$$\text{gain index} = \frac{\text{posttest} - \text{pretest}}{\text{ideal maximum score} - \text{pretest}}$$

Then the gain index is interpreted by using this following criteria:

Tabel 2. Criteria of gain index

g value	Criteria
$g > 0,7$	High
$0,3 < g \leq 0,7$	Moderate
$g \leq 0,3$	Low

Compare mean test needed to know the improving of students' learning achievement from two classes. By using independent sample t-test the mean of gain index from experimental class are compared to mean of gain index from control class. Independent sample t-test are calculated by using *SPSS 18.0*. After we calculate the gain index for pre-test and post-test from both of classes. We find the improving between two classes by calculating the index gain to compare mean by *SPSS 18.0* with independent sample t-test.

The hypotheses that will be tested are:

$H_0 : \mu_1 \leq \mu_2$ (the improving of student's achievement in SAVI class is not better than in DI class)

$H_a : \mu_1 > \mu_2$ (the improving of student's achievement in SAVI class is better than in DI class)

Note:

μ_1 = average of gain index taught by SAVI Learning Model

μ_2 = average of gain index taught by DI Learning Model

The criteria of hypotheses testing are:

If $t_{cal} > t_{table}$ then H_0 is rejected

If $t_{cal} < t_{table}$ then H_0 is received

RESULT AND DISCUSSION

Before doing the test (pre-test and post-test), it must be to analyzing by four ways, they are validity, reliability, difficulty index, and distinguish problem.

In this study, the researcher took students to be a validator. The researcher use *Windows Excel*

2007 application to calculate the value of validity. The result of pre-test validity can be shown from the table below:

Table 3 Pre-test Validity

Problem Number	Score	Description
1	0.87961	Valid
2	0.845587	Valid
3	0.887732	Valid
4	0.968571	Valid

Table 4 Post-test Validity

Problem Number	Score	Description
1	0.82799	Valid
2	0.8957	Valid
3	0.8846	Valid
4	0.94194	Valid

The researcher use *Windows Excel 2007* application to calculate the value of reliability. The result of pre-test validity can be shown from the table below:

Table 5 Pre-test Reliability

Problem Number	Variance
1	14.33333
2	16
3	17.88889
4	32.22222
Reliability	0,91253

Table 6 Post-test Reliability

Problem Number	Variance
1	14.55
2	14.47
3	16.25
4	31.55
Reliability	0,90269

The researcher use *Windows Excel 2007* application to calculate the value of difficulty index. The result of pre-test difficulty index can be shown from the table below:

Table 7 Pre-test Difficulty Index

PROBLEM	1	2	3	4
MEAN	17.5	12.7	19	23.25
MAX SCORE	20	15	25	40
DI	0.87	0.84	0.7	0.58
CRITERIA	easy	easy	medium	medium

Table 8 Post-test Difficulty Index

PROBLEM	1	2	3	4
MEAN	20.1	15.8	17.2	21.06
MAX SCORE	25	20	25	30
DI	0.8	0.79	0.69	0.7
CRITERIA	easy	easy	easy	Medium

The researcher use *Windows Excel 2007* application to calculate the value of distinguish problem. The result of pre-test distinguish problem can be shown from the table below:

Table 9 Pre-test Distinguish Power

Problem	1	2	3	4
Mean of HG	20	15	23.5	28
Mean of LG	8	9	14.5	17
Max Score	20	15	25	40
DP	0.6	0.4	0.36	0.275
Criteria	very good	very good	good	revision

Table 10 Post-test Distinguish Power

Problem	1	2	3	4
Mean of HG	25	20	20.5	26.5
Mean of LG	17	13	13..5	15.5
Max Score	25	20	25	30
DP	0.32	0.35	0.28	0.37
Criteria	good	good	revision	good

The results of pre-test students' achievement from experiment class and control class included ideal score, maximum score, minimum score,

mean and standard deviation can be showing in the following table;

Table 11 Result of Pre-test

Data	Mean	Median	Mode	Standard Deviation
Experiment Class	65	63	60	12.11
Control Class	62	62	60	12.06

Table 12 Result of Post-test

Data	Mean	Median	Mode	Standard Deviation
Experiment Class	90	93	100	9.95
Control Class	67.2	67	60	11.4

From the Kolmogorov Smirnov test table that calculated by *SPSS 18*, it can be seen that the significant value of experiment class is 0.375 and control class is 0.358. Since the significant value of experiment class is higher than 0.05, then H_0 is accepted or in other word the data is normal distribution. And since the significant value of control class higher than 0.05, then H_0 is accepted or in word the data is normal distribution.

From the homogeneity variance test table that calculated by *SPSS 18*, it can be seen that the significant value (Sig.) of score Based on Mean is 0.188. Since the significant value of Score Based on Mean is higher than 0.05, then H_0 is accepted or in other word there is no variance difference between post-test data of experimental class and control class, or the distribution level of students' achievement in SAVI class is equal to the distribution level of students' achievement in DI class.

Based on the table that calculated by *SPP 18*, it can be seen that the value of $t_{\text{calculation}}$ is 8.372 with significance value of 5% (0.05). Based on the post-test data that is acquired from experimental and control class which consist of 60 students ($N=60$), then the degree of freedom (df) is $60 - 2 = 58$. Then the value of t_{table} is

1.671. It shows that $t_{\text{calculation}} > t_{\text{table}}$, it means that H_0 is rejected and H_a is accepted. Then it can be concluded that the students' achievement in SAVI approach class is better than students' achievement in DI class.

Result of student achievement between the experimental class and control class after learning has been known at post-test analysis with the conclusion that there are an improvement in students' achievement in experiment class and students' achievement in the control class. Therefore, the gain index analysis was conduct to determine the quality improvement of student achievement in the experimental class and the control class after following study by SAVI model and DI model.

Before analysis, the data is converted into the form of an index gain based on the known formulas. This is the descriptive statistical analysis of the data index gain in experimental class and control class.

Table 13 Result of Gain Index

Class	N	g (Gain Index Means')	Criteria
Experiment Class	30	0.761	High
Control Class	30	0.144	Low

Based on the above table, it can be seen that in the average of gain index in experiment class is higher than control class. Where the average in experiment class is 0.761 with the high criteria and the average in control class is 0.144 with the low criteria. This suggest that improvement of students' achievement in experiment class is higher than improvement of students' achievement in control class. However, in more details and to see that is significant or not, it will be test by Independent sample t-test.

Based on the table that calculated *SPSS 18*, it can be seen that the value of $t_{\text{calculation}}$ is 14.086 with significance value of 5% (0.05). Based on the gain index data that is acquired from experimental and control class which consist of 60 students (N=60), then the degree of freedom

(df) is $60 - 2 = 58$. Then the value of t_{table} is 1.671. It shows that $t_{\text{calculation}} > t_{\text{table}}$, it means that H_0 is rejected and H_a is accepted. Then it can be concluded that the improvement students' achievement in SAVI approach class is better than students' achievement in DI class.

In this research, there used two different model learning, they are SAVI learning model and Direct Instruction learning model. SAVI model was applied in experiment class (VII-3) and direct instruction learning model was applied to the control class (VII-4), and each class has 30 students.

The differences of SAVI learning model and direct instruction teaching model was the SAVI learning model that intended to increase the activity of students in learning activities that can improve student achievement with the help of the teacher as a facilitator. And in the learning process teacher provides visual aid and worksheet to describe the problem or the topic, while the direct instruction using teacher-centered model that teacher was the main in the learning process.

Before learning model was given to each class experiment, first performed a pre-test to determine students achievement. From the research result, the average pre-test in experiment class was 65 and the average pre-test in control class was 62. This indicates that both of classes are have small difference. Based on normality and homogeneity testing, both of classes were normal distribution and homogeneous. Upon doing the treatment, students were given post-test to determine students' achievement. The result from the average post-test in experiment class was 90 and control class was 67.2.

Based on the average value of pre-test and post-test from both of classes, it appears that the average of both of tests in experiment class is higher than control class. That means both of learning models provide a positive influence on students' achievement. Also viewed from the average score of post-test, experimental class is higher that the average of control class. The experiment class has 0,761 point for index gain

with high criteria and for control class have 0.144 point for index gain with low criteria.

From pre-test and post-test has done calculated by using independent sample t-test to know the differences score from both of classes. From post-test we get the score of t is 8.372. Since t_{table} is 1.671, so it show that $t_{calculation} > t_{table}$, where $8.372 > 1.671$. it can be conclude that the SAVI learning model can improve students' learning achievement on set topics in grade VII at SMP Negeri 1 Binjai.

The both of classes have improving of learning achievement. To know which class that have a better improving, its' can be calculated by count the value of t of gain index from both of class by using independent sample t-test. That we know the value of $t_{calculation}$ from gain index is 14.086. Since t_{table} is 1.671, so it show that $t_{calculation} > t_{table}$, where $14.086 > 1.671$. it can be conclude that the improvement of students' learning achievement in experiment class or SAVI class is better that students' learning achievement in control class or direct instruction class on set topics in grade VII SMP Negeri 1 Binjai

COCLUSION

Based on the result obtained from analysis of the data and test of hypothesis then can be conclude that; There is the difference of students' learning achievement from SAVI class between Direct Instruction class on sets topic in grade VII. And the improvement of students' learning achievement in SAVI class is better than students' learning achievement in Direct Instruction class on sets topic in grade VII.

On other words, SAVI learning model can improve the students' learning achievement in grade VII on the set topics at SMP N 1 Binjai academic years 2014/2015.

REFERRENCES

- Arends, RI., (2012), *Learning to Teach*, Mc Graw Hill, New York
- Arikunto, S., (2010), *Prosedur Penelitian Suatu Pendekatan Praktik*, Rineka Cipta, Jakarta.
- Asmin, dan Abil Mansyur., (2012), *Pengukuran dan Penilaian Hasil belajar Dengan Analisis Klasik an Modern*, Larispa Indonesia, Medan
- Bahri Djamirah, S., (2006), *Strategi Belajar mengajar*, PT. Asdi Mahasatya, Jakarta
- DePorter, Bobbi dan Mike Hernack., (2011), *Quantum Learning: unleashing the genius in you*, Dell Publishing, New York
- Grouws, A. Douglas and Kristin J.Cebulla., (2000), *Handbook of Improving Student Achievement In Mathematics*, Interbational Academy of Education (IAE), USA
- Hamdani, (2010)., *Strategi Belajar Mengajar*, CV. Pustaka Setia, Bandung
- Kementrian Pendidikan dan kebudayaan, 2013, *Materi Pelatihan Guru Implementasi Kurikulum 2013*, Badan Pengembangan Sumber Daya Manusia Pendidikan dan Kebudayaan dan Penjamin Mutu Pendidikan, Jakarta
- Kementrian Pendidikan dan Kebudayaan., (2013), *Buku Guru Matematika kelas VII SMP/MTs Kurikulum 2013*, Kementrian Pendidikan dan kebudayaan, Jakarta
- Kementrian Pendidikan dan Kebudayaan., (2013), *Buku Siswa Matematika kelas VII SMP/MTs Kurikulum 2013*, Kementrian Pendidikan dan kebudayaan, Jakarta
- Meier, Dave., (2000), *The Accelerated Learning Handbook: A Creatie Guide to Designing and Delivering Faster, More Effective Training Programs*, Mc Graw Hill, New York
- Musfah, Jejen., (2011), *Peningkatan Kompetensi Guru melalui Pelatihan dan Sumber*

- Belajar Teori dan praktik*, Kencana , Jakarta:
- Roestiyah, (2008), *Strategi Belajar mengajar*, PT.Asdi Mahasatya, Jakarta
- Sanjaya, Wina, (2010), *Strategi Pembelajaran Berorientasi Standart Proses Pendidikan*, Jakarta: Kencana
- Sudjana., (2009), *Metode Statistika*, PT. Tarsito, bandung
- Sugiono., (2011), *Statistika untuk Penelitian*, Alfabeta, Bandung
- Supardi, U.S., (2013), *Aplikasi Statistika dalam Penelitian*, Change Publication, Jakarta Selatan
- Trianto, (2009), *Mendesain Model pembelajaran Inovatif-Progresif*, kencana Jakarta
- Undang-Undang Republik Indonesia No.20 Tahun 2003 Tentang Sistem Pendidikan Nasional. Depdiknas
- Unimed, (2011), *Pedoman Penulisan Proposal dan Skripsi Mahasiswa Program Studi Pendidikan FMIPA Unimed*, FMIPA, Medan