

## **The Effect of Discovery Learning Method Application on Increasing Students' Listening Outcome and Social Attitude**

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### **Abstract**

Curriculum of 2013 has been started in schools appointed as the implementer. This curriculum, for English subject demands the students to improve their skills. To reach this one of the suggested method is discovery learning since this method is considered appropriate to implement for increasing the students' ability especially to fulfill minimum criteria of success at school. This study is experimental study with one group pretest-posttest design. Its purpose is to know whether or not discovery learning model implementation could increase students' listening score and social attitude in accordance with curriculum implementation. The subjects of this study are 37 students of class X IPA 5 Public High School 2 Jember in their 2<sup>nd</sup> semester of 2015/2016 academic year. The method used to collect data in the study is test. The research design is one group pretest-posttest design where there is only one group receiving the treatment which result is assessed by pre-test and post-test. The finding shows that there are improvement of both students' listening and attitude scores. Based on data analysis it is concluded that the implementation of discovery learning model could increase students' listening score and social attitude, with significance value of 0,005 ( $z = -2,823$ ,  $p < 0,001$ ), with medium effect size for listening score and significance value of 0,000 ( $-4,875$ ,  $p < 0,001$ ), with large effect size for social attitude.

**Keywords:** Key words: discovery learning, listening score, social attitude

## A. Introduction

Curriculum of 2013 has been started since July 2013 in schools designated as the implementer school. In the curriculum of 2013, there are two teaching categories in English subjects. First, English is taught as a compulsory subject for 2 hours per week, and English as specialization subjects for 3 hours per week.

In the implementation of English teaching, there are four skills that should be taught, namely listening, speaking, reading, and writing. All of these are important skills that must be mastered by the students to reach the purpose of learning English as it is stated in the curriculum. The one which is considered the most difficult skill to be taught is the skill of listening, even though listening is a skill that can not be left behind in language learning, especially in learning English. A learner, if he had never practiced listening in a particular language, then he can only express the unilateral idea in that language, thus he will not be able to communicate with others in that language since communication basically needs ability of speaking and listening.

Related to the matter above, data of daily tests show that the average learning outcomes of listening aspect in class X in one of the high school in Jember, namely 10<sup>th</sup> grade 5<sup>th</sup> science class at Public High School 2 Jember only ranged from 77.7 to 85.1. The 5<sup>th</sup> science class is a class that has the lowest learning outcome in the high school with average score of 77,7

Based on the learning outcome of grade 10<sup>th</sup> science class at Public High School 2 Jember's listening aspect at the 2<sup>nd</sup> semester of 2015/2016 academic year, the researcher found that not all of the students reached the KKM (minimum criteria of success). Only 21 of 37 students that could reach the KKM while 16 others still unable to reach it.

Based on the observation result, researcher found that some students did not understand the learning material and asked their friend when the verbal text was played. This action disturbed another students' concentration at that time so that the listening aspect's learning outcome of 10<sup>th</sup> science class did not reach the class minimum criteria of success that is 85% of the students reach the KKM, where the score needed to reach the KKM is 80. Related to that matter, the researcher was trying to increase the learning outcome of listening aspect. This matter will be the accomplishment target of this research.

The curriculum of 2013 recommends to choose between discovery/inquiry learning, project-based learning, or problem-based learning model in teaching the students. Between those 3 models recommended in the curriculum of 2013 implementation, discovery learning model, on the researcher point of view, is the most suitable model. Discovery learning is the method that takes place when a teacher sets up an experiment, acts as a coach, and provide clues along the way to help students come to solutions. In this way, teachers provide students with certain tools for learning a concept, and the students make sense of the tools (Krisnawati, 2015).

Discovery learning is effective to improve the students' ability in learning English skills. Discovery Learning Method is an effective method to teach writing (Prawerti, 2014), this discovery learning model can improve students' achievement in writing descriptive text (Mukharomah, 2015), and the Implementation of Discovery Learning is an appropriate methods to teach speaking for junior high school students (Irmayanti, 2015).

According to Permendikbud (Ministry of Education and Culture Regulation) No. 65 on 2013 about the standard process, to realize the skill which will be taught, learning model which applies the discovery/inquiry learning model is needed (2013:9). This is related to the suitability of the discovery learning model with listening learning model named three-phase listening. Three-phase listening is a method in learning the listening aspect that consist of 3 phases, those are pre-listening, while-listening, and post-listening (Hedge, 2003).

The main problem of this research is “Can discovery learning model implementation increase students’ listening score and social attitude in accordance with implementation curriculum 2013?”

The main concern of this research is to investigate whether or not discovery learning model implementation could increase students’ listening score and social attitude in accordance with curriculum implementation.

## **B. Literature Review**

Discovery Learning is a learning method that encourages students to ask questions and formulate their own tentative answers, and to deduce general principles from practical examples or experiences. Other definition states that Discovery Learning is a learning situation in which the principal content of what is to be learned is not given but must be independently discovered by the student.

The discovery learning mode requires that the student participates in making many of the decisions about what, how, and when something is to be learned and even plays a major role in making such decisions. Instead of being 'told' the content by the teacher, it is expected that the student will have to explore examples and from them 'discover' the principles or concepts, which are to be learned. Many contend that the discovery learning versus expository debate continues a timeless debate as to how much a teacher should help a student and how much the student should help himself (Bruner, 1983). Moreover he stated lays out two targets for discovery learning theory: 1) Discovery Learning Theory should act as a refined extension of the broad based theory constructivism by focusing on the individual. And 2). Discovery Learning Theory should serve as a way of defining and providing structure to the way in which individuals learn thus acting as a guide for educational research.

Related to the detail of Discovery learning, Bruner (1986) stated some detail as follows: There are four components to the Discovery Learning Theory, 1). Curiosity and uncertainty, 2) Structure of knowledge, 3) Sequencing, and 4) Motivation. It is also determined that there are three principles associated with Discovery Learning Theory namely; 1) Instruction must be concerned with the experiences and contexts that make the student willing and able to learn (readiness), 2) Instruction must be structured so that it can be easily grasped by the student (spiral organization), 3) Instruction should be designed to facilitate extrapolation and or fill in the gaps (going beyond the information given).

Bruner Also identified six indicators or benchmarks that revealed cognitive growth or development namely 1) Responding to situations in varied ways, rather than always in the same way, 2) Internalizing events into a 'storage system' that corresponds to the environment, 3) Increased capacity for language, 4) Systematic interaction with a

tutor (parent, teacher, or other role model), 5) Language as an instrument for ordering the environment, and 6) Increasing capacity to deal with multiple demands.

Discovery learning can be used as a suitable techniques of teaching English especially in the implementation of three phase listening method. The advantage of the three-phase listening method is that the students will acquire the experience needed to understand the listening material step by step through the –pre, while-, and post-listening process. There are several advantages in discovery learning models like (1) this learning model has several phase, those are stimulation, problem statement, data collection, data processing, verification, and generalization; (2) this learning model could be implemented in accordance with the listening aspect characteristics which have 3 phases those are pre-listening, while-listening, and post-listening (Hedge, 2003): (3) this learning model is suitable with the learning approach in the curriculum of 2013 which was called scientific approach which include observing, questioning, rationalizing, associating, and communicating (Kemdikbud, 2013).

Those advantages of discovery learning and its suitability with scientific approach of the curriculum of 2013, combined with the three-phase listening method will help students to find the targeted learning material by themselves. They were conditioned so that they can state their opinions, ask questions, and communicate their ideas about the targeted learning material. With that combination, students can actively find the targeted learning material so that they can understand it more easily. By then, when the listening evaluation is held, the students will be able to answer the question well.

Balim (2009) carried out investigation about the effect of Discovery Learning on Students' Success and Inquiry Learning Skills. He investigated fifty seven grader (30 boys and 27 girls) participated in the study from a public elementary school with a middle class economic profile in Izmir, the third largest city in Turkey. Twenty eight of the students were in the experimental and 29 of them were in the control group. That was a quasi-experimental research design with a pre-test and post-test design. The result of the study shows that there is a significant difference in favor of the experimental group over the control group regarding the average academic achievement, scores of retention of learning, and perception of inquiry learning skills scores, both cognitive and affective level. The conclusions of the study showed that there is a significant difference in favor of the experimental group over the control group in terms of academic achievement scores, perception of inquiry learning scores, and retention of learning scores in both cognitive and affective levels. Thus, it can be stated that the experimental group students, who scored high in the post-achievement test, have high perception of inquiry learning skills scores. Using the discovery learning method, which is one of the various teaching methods in which the students are active and are guided by the teacher, is considered to increase students' success and inquiry learning skills more than the traditional teaching methods.

Kluge (2011) investigate the matter related to discovery learning namely the Interaction Design and Science Discovery Learning in the future classroom to know how students make the interactive models relevant for use as resources in science discovery, and how can interactive models be designed to stimulate discovery. The result of the analysis shows that students need time to experiment with models in order to use the as sources. As novices to the issues being modelled and to the interactive

object, students may find it fruitful to operate on it in a variety of less goal-oriented ways. The successful students constructed an intuitive ontology of the phenomena in a world that is new to them, based on interactions. They were intensely interactive, particularly in the early phases of use and inquiry, and the students' tentative exploring of the model was productive in the sense of making genuine discoveries. This explorative activity paved the way for the gradually more structured activities to complete the inquiry process.

In the Curriculum of 2013 Teacher's Training Material Module of (2015), it was stated that discovery learning model is a model that emphasizes that the learning participants have to find the concept or principle which was unknown to them by themselves. In discovery learning, the material taught is not taught in its final form. The learning participant is driven to identify what is needed to be understood then, they have to find it by themselves the information needed about the learning material. The information acquired then being organized or constructed by them to create their own understanding in a final form.

In accordance to the curriculum of 2013, each assessment both in cognitive and psychomotor is always accompanied by attitude assessment. In this research, in addition of the assessment of listening aspect of learning, the assessment of students' social attitude also been done. The discovery learning model explained above then conditioned to change students' learning pattern from the passive one to be active. Indirectly, it also affects the students' social attitude so that these aspects cannot be separated.

On its implementation in teaching and learning process, there are several phases that need to be done. According to the Educator Profession Development Center, Indonesian Education and Culture Department, there are 3 phases, those are (1) *Planning phase* which is an activity to define the learning objectives, identify students' characteristics, determine the material, develop the teaching material and media, and also design the assessment process.; (2) *Implementation phase* which include the discovery learning activity consist of 6 steps, those are stimulation, problem statement, data collection, data processing, verification, and generalization; and (3) *Assessment*. The assessment can be done as a test form or non-test form (Kemdikbud, 2014). These followings are the specific explanation of the stage in discovery learning:

1. *Stimulation stage*, where teacher can start the teaching and learning activity by asking questions, suggesting to read books, and another learning activities that lead to problem solving preparation. The stimulation in this stage serves to provide interactive condition in learning which could help students to be more active in exploring the material.
2. *Problem statement stage* where the teacher gives chances to the students to identify problems related to the learning material. Then, one of them was chosen and formulated in the form of hypothesis (a temporary answer to the problem question).
3. *Data collection stage* during which students conduct experiments or exploration, while teachers provide opportunities for students to gather as much information relevant to prove whether or not the hypothesis is correct. Data can be obtained through reading the literature, observing the objects, interviewing the sources, conduct their own experiments, and so on.

4. *Data processing stage* which is an activity to process the data and information that has been obtained by the students through interviews, observations, and so on. The data and observation result then being interpreted.
5. *Verification stage* where students perform a careful examination to prove whether or not the hypothesis has been proved, linked to the results of data processing.
6. *Generalization* (drawing conclusion) which is the process of pulling a conclusion that can be used as a general principle and applies to same event or problem by taking into account the results of the verification. Based on the results of verification then the underlying principle of generalization is formulated.

On the discovery learning activities, in addition to knowledge and skill aspects, attitude aspect was also need to be developed. In the attitude aspect, students are expected to reflect religious behavior, have a noble character, knowledgeable, confident, and responsible.

### C. Research Methodology

This research is an experimental research to determine whether there is a significant difference in subjects' scores. The subjects' score mentioned in this case the learning outcomes of students' listening aspect and students' attitude score before the treatment is given (pre-test) and after the treatment is given (post-test). The treatment given is a scientific approach to the implementation of the discovery learning methods combined with three-phase listening technique. The location of this research is Public High School 2 Jember located at 16 Jawa Street, Jember. This study was conducted over three. The research was conducted at the given time because the researchers had to adjust the research process to the teachers teaching schedule.

The main data source in this study is the English teacher of Public High School 2 Jember and The students at 10<sup>th</sup> science class Public High School 2 Jember Semester 2 of 2015-2016 academic year. The subjects in this study were 10<sup>th</sup> grade 5th class Public High School 2 Jember. The students' of this class consist of 37 people with the details of 23 female students and 14 male students. The students in this class have heterogeneous character. There are 4 people or 11% of students that have difficulty to focus while listening session is present.

The subjects in this study were determined based on the learning outcomes in listening aspect at KD (Kompetensi Dasar/Basic Competence) 3.3 and 4.3 about Expressing Attention. Based on the learning outcome, the researcher found out that 10<sup>th</sup> grade 5th class Public High School 2 Jember only has 21 students who have reached the KKM (minimum completeness criteria) while the other 16 did not make it.

The research design used in this study is quasi experimental using one group pretest-posttest design where there is only one group receiving the treatment which result is assessed by pre-test and post-test.

This experimental research procedure begins with a preliminary study to get the problems faced by teachers and students at the same time granting a pre-test, followed by the provision of scientific approach material implemented with discovery learning methods combined with three-phase listening techniques, and then followed by post-test.

In the process of listening, the researchers used a compact disk (CD). The content's characteristics of the CD used are without pictures, without expression, without the speaker's gesture so that students just listen and focus on the content of the conversation. While the equipment used were a laptop, loud speakers, listening material CD and worksheets.

Listening material presented for the second semester of the academic year 2015/2016 refers to the Core Competence and Basic Competence of the curriculum of 2013. Furthermore, the material was included in the English syllabus for Class X.

However, the curriculum of 2013 does not divide the material for semesters 1 and 2. So researchers took the initiative to divide the listening material in accordance with KD (basic competence) into materials for semesters 1 and 2.

Researchers chose the cognitive field of memory, understanding, and application for students of class X semester of 2. As described in the previous section, the researchers set listening tasks in the form of multiple choice, writing the alphabet of the responses, and selecting the right picture. Those three forms of assessment are objective kind of tests (Nurgiantoro, 2001). The researcher also observed the students' attitude during the process in the classroom to take the data about social attitudes of the students during the learning process

From these processes, the researcher got 2 kinds of data. Those are learning outcome of listening aspect data (scores) and the observed data on the social attitudes of the students during the learning process. The data analysis was done in 4 steps including (1) sorting the data collected taken during teaching learning process (2) presenting the data (3) calculating the degree of influence with the SPSS for Windows ver. 16 using a non-parametric statistical tests were similar to-sampled paired t-test, that is Wilcoxon Signed Rank Test, and (4) drawing conclusions based on the results of all the data and analysis obtained.

## D. Findings

### 1. Finding of Listening Test

The result of pre-test and post-test shows that there 37 pairs of listening scores. Descriptive statistic is used to do the first analysis to omit errors and data outliers. From the first process, it is found that there are 7 outliers that are omitted then. They are students no 1, 2, 11, 14, 30, 32 and 37. The following is the description of the Result:

Table 1. Frequency of pretest listening result.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 60	2	6.7	6.7	6.7
66.7	3	10.0	10.0	16.7
73.3	4	13.3	13.3	30.0
80	11	36.7	36.7	66.7
86.7	6	20.0	20.0	86.7
93.3	4	13.3	13.3	100.0

Table 1. Frequency of pretest listening result.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 60	2	6.7	6.7	6.7
66.7	3	10.0	10.0	16.7
73.3	4	13.3	13.3	30.0
80	11	36.7	36.7	66.7
86.7	6	20.0	20.0	86.7
93.3	4	13.3	13.3	100.0
Total	30	100.0	100.0	

Table 2. Frequency of Posttest listening result

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 80	11	36.7	36.7	36.7
86.7	14	46.7	46.7	83.3
87	1	3.3	3.3	86.7
93.3	3	10.0	10.0	96.7
93.7	1	3.3	3.3	100.0
Total	30	100.0	100.0	

Table 3. Descriptive Statistic of Students' Listening Result

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
						Statistic	Std. Error	Statistic	Std. Error
Pre_Test	30	60.0	93.3	79.557	9.2499	-.455	.427	-.214	.833
Post_Test	30	80.0	93.7	85.147	4.5530	.317	.427	-.729	.833
Valid N (listwise)	30								

Table 1 shows that among 30 valid samples, there 9 persons or 30% cannot reach target score (KKM) namely 80. The average of pretest is 79.56 with deviation standard 9.25. On table 2, the result of post-test shows that all valid samples get score minimum 80. The average score is 85.15 with deviation standard 4.55. The result shows that the target score namely 85% of students get score 80 is reached.

After the first analysis, to get the deeper analysis, a test to compare the mean score of pretest and posttest is done. It is to know whether there is significant improvement between the two test results. It is preceded by assumption test to determine the statistic technique to be used. The assumption test used are the test of normality and homogeneity. The following is the result of normality test 30 pair of score of listening gotten

Table 4 Result of Normality test of Students' Listening Result

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre_Test	.219	30	.001	.922	30	.029
Post_Test	.267	30	.000	.796	30	.000

Since the number of subject is less than 50, the researcher uses Shapiro-Wilk technique. From the result, it is known that the significance level of each pretest and post-test are 0.029 and 0.000. Both of them are less than 0.05 meaning that the data are not normally distributed.

The second test is homogeneity test to know whether the research subject are statistically from homogeneous sample. The following is the result of homogeneity test :

Table 5 Result of homogeneity test of Students' Listening Ability

	Levene's Test for Equality of Variances	
	F	Sig.
Pre_Test	.281	.600
Post_Test	.171	.682

Based on the homogeneity test, it is known that the significance level of listening ability for pretest and post-test are 0.600 and 0.682. Both are more than 0.05 meaning that the data are homogen.

Based on the result of the test, it is known that the data gotten do not fulfill the requirement to use parametrik statistics, namely paired sample t test. The requirements are the data must be normally distributed and homogen. That is why the researcher uses non-parametric statistic test similar to paired sample t test namely Wilcoxon Signed Rank. The following is the result of the test.

Table 6 Descriptive Statistics of Students' Listening Score

	N	Percentiles		
		25th	50th (Median)	75th
Pre_Test	30	73.30	80.00	86.70
Post_Test	30	80.00	86.70	86.70

Based on the table 1 above, it can be seen that there is an increase in the median value of the pre-test to the post-test. The median of the pre-test was 80 and the median of the post-test was 86.7. Analysis results by Wilcoxon Signed Rank test on table 7 below shows that the level of significance is 0.005. This number is smaller than 0.05, meaning that there is a significant increase in the value of the pre-test to post-test score.

Table 7 Wilcoxon Signed Ranks Test on The Students' Listening Skill

	Post_Test - Pre_Test
Z	-2.823 <sup>a</sup>
Asymp. Sig. (2-tailed)	.005

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

The strength of the effect of this increase can be determined by calculating the effect size of this variable. Results of this treatment's effect size calculation was  $r = 0.364$ . According to Cohen (1988) in Pallant (2002), the effect size of 0.364 indicates that the treatment given to the students has a medium effect size on improvement of students' listening scores.

In summary, based on the analysis above, it can be seen that there is a significant improvement on listening aspect's learning outcomes of 10th grade 5th class Public High School 2 Jember in Semester 2 Academic Year 2015/2016 with the implementation of discovery learning model,  $z = -2.823$ . The median score of listening aspect's learning outcomes is increasing from the pre-test score ( $Md = 80$ ) to the post-test ( $Md = 86.7$ ). These results indicate that the target of the success of this study is reached, where 85% of students reached KKM (minimum criteria of success) with a value of 80.

## 2. Students' Attitude Score

The result of pre-test and post-test shows that there 37 pairs of attitude scores. Descriptive statistic is used to do the first analysis to omit errors and data outliers. From the first process, it is found that there are 6 outliers that are omitted then. They are students no 1, 6, 7, 27, 29 and 36.

The following is the description of the Result:

Table. 8 Frequency of pretest on Attitude

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 80	31	100.0	100.0	100.0

Table 9 Frequency of post-test on Attitude

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	80	2	6.5	6.5	6.5
	83.3	18	58.1	58.1	64.5
	86.7	11	35.5	35.5	100.0
Total		31	100.0	100.0	

Table 10 Descriptive Statistic of Students' Attitude Result

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Attitude_1	31	80.00	80.00	80.0000	.00000	.	.	.	.
Attitude_2	31	80.00	86.70	84.2935	1.98611	-.103	.421	-.535	.821
Valid N (listwise)	31								

Table 8 shows that among 31 valid samples, all of the have the same attitude score namely 80. The score is categorized 'very good'. In general, the criteria of success is reached. After getting teaching learning process using discovery learning there are improvement on attitude scores from 80 to 84,24

After the first analysis, to get the deeper analysis, a test to compare the mean score of pretest and posttest is done. It is to know whether there is significant improvement between the two test results. It is preceded by assumption test to determine the statistic technique to be used. The assumption tests used are the test of normality and homogeneity. The following is the result of normality test 31 pair of score of attitude.

Table 11 Descriptive Statistics of Students' Attitude Score

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Post-test	.337	31	.000	.747	31	.000

a. Lilliefors Significance Correction

b. Attitude is constant. It has been omitted.

Table 11 shows that normality test cannot be held since all students have the same score (80). Shaphiro-Wilk test for posttest shows the significance level 0.00 meaning that the data are not distributed normally.

Related to homogeneity test, the following the following is the result of homogeneity test for affective scores.

Table 12 Result of Homogeneity test of Students' Attitude Score

	Levene's Test for Equality of Variances	
	F	Sig.
Post_Test	.066	.799

Table 12, the pretest cannot be analyzed for the same reason with normality test namely all valid samples have the same score. On the posttest, it is found that the level of significance in more than 0.05 namely 0.799 meaning that posttest data for attitude is homogen.

Based on the result of the test, it is known that the data gotten do not fulfill the requirement to use parametrik statistics, namely paired sample t test. The requirements are the data must be normally distributed and homogen. That is why the researcher uses non-parametric statistic test similar to *paired sample t test* namely *Wilcoxon Signed Rank*. The following is the result of the test.

Table 13 Descriptive Statistics of Students' Attitude Score

	N	Percentiles		
		25th	50th (Median)	75th
Pre-Test	31	80.00	80.00	80.00
Post-Test	31	83.30	83.30	86.70

Based on the table 13 above, it can be seen that there is an increase in the median value of the pre-test to the post-test. The median of the pre-test was 80 and the median of the post-test was 83.30. Analysis results by Wilcoxon Signed Rank test on table 11 above shows that the level of significance is 0.000. This number is smaller than 0.05, meaning that there is a significant increase in the value of the pre-test to post-test score

Table 14. Wilcoxon Signed Ranks Test on The Students' Attitude Score

			Post Test – Pre Test
Z			-4.875 <sup>a</sup>
Asymp. Sig. (2-tailed)			.000

- a. Based on negative ranks.
- b. Wilcoxon Signed Ranks Test

The strength of the effect of this increase can be determined by calculating the effect size of this variable. Results of this treatment's effect size calculation was  $r = 0.364$ . According to Cohen (1988) in Pallant (2002), the effect size of 0.629 indicates that the treatment given to the students has a high effect size on improvement of students' attitude scores.

In summary, based on the analysis above, it can be seen that there is a significant improvement on attitude aspect's learning outcomes of 10th grade 5th class Public High School 2 Jember in Semester 2 Academic Year 2015/2016 with the implementation of discovery learning model,  $z = -4.875$ . The median score of attitude aspect's learning outcomes is increasing from the pre-test score ( $Md = 80$ ) to the post-test ( $Md = 83.3$ ). These results indicate that the target of the success of this study is reached, where 85% of students reached KKM (minimum criteria of success) with a value of 80.

## E. Discussion

Discovery learning as a learning model that emphasizes learners to find their own principles or concepts that were previously unknown, has been proved that it can improve students' skills in the English subject's listening and affective scores of students. This is shown in the results of statistical analysis using Wilcoxon Signed Rank Test technique which shows that there is a significant increase in the students listening and attitude score with effect size for each variable is medium and high.

Scientific approach with discovery learning methods combined with the three-phase listening technique is indeed effective to improve students' understanding in terms of English language listening ability. Stages in discovery learning that consists of 6 parts, namely stimulation, problem statement, the data collection, the data processing, verification and generalization has been designed in a way to help students improve their English language listening ability. Indirectly, students' attitude aspects which include being polite, caring, honest, discipline, confidence, and responsibility were also affected because these methods provide a place for students to release their potential.

In terms of listening skills, scientific approach with discovery learning method combined with three-phase listening has its own advantages that has been proved to help improve students' English listening ability.

In section 1, the process of 'observing', where there is a discovery learning aspects: stimulation and listening aspects of the three-phase: pre-listening, students are encouraged to prepare themselves by knowing the material that will be tested during the process of listening in later time. In this pre-listening activities, students are invited to observe the example conversation in accordance with the listening material. Here students learn to recognize and understand what they will face later.

Section 2, the process of 'asking' where there is a discovery learning process: problem statement. Teachers encourage students to find what they have not understood the process in the previous section. Teachers also encourage the students to ask questions and state their opinions so that the teacher can ensure students understand what they are doing and can move on to the next section.

Section 3, which is the process of 'collecting information/experiments' where there are aspects of discovery learning: the data collection. Here, students are invited to train his understanding in dialogue in accordance with the listening material. Teachers make sure if students have really understood the material.

Section 4, 'associating' process, which is a process that includes aspects of discovery learning: the data processing and three-phase listening: while-listening. In this section, students started the listening process itself and try their best to solve the problems given with the provision of pre-listening comprehension obtained in the 3 previous section.

Section 5, which is the process of 'communicating' includes aspects of discovery learning: verification and aspect of three-phase listening: post-listening where students can check their work. The students came to know how far their understanding in the listening comprehension they have did.

Section 6 which is the last part of this includes discovery learning aspect: generalization. In this section teachers guide the students to infer the pattern of the target material so that students come to understand what they have achieved and what they need to develop further in order to achieve better results.

The sixth section of the core activities of the scientific approach with discovery learning method combined with the three-phase listening proven to improve students' English listening scores.

In terms of attitude aspects of students consist of religious attitude, polite, caring, honest, discipline, confidence, and responsibility, scientific approach with discovery learning methods combined with three-phase listening are proven to increase students' affective aspects.

Polite and caring attitude is encouraged when the students attend their classes, how they behave in the classroom and how they interact with teachers and classmates, and their concern for the teacher and classmates. The part of the discovery learning that requires more interaction between students and teachers stimulate students to be more polite when interacting with the teacher.

Honesty will be encouraged as they work on the assignment given by the teacher. Discipline, shown by how they behave and their punctuality in doing their tasks. Confidence can be encouraged with more interaction between students and teachers and peers because this discovery learning model requires students to express their opinions. As for the aspects of responsibility, driven by the assignments that the teacher gave them, can be observed by the students' willingness to try finishing the task with the best.

## **F. Conclusion**

Based on the analysis above, it can be concluded that implementation of the scientific approach to discovery learning methods combined with three-phase listening can improve students' listening skills along with social attitudes score. It is characterized by a significant increase in listening scores and social attitudes scores of the students as well as the achievement of predetermined success target.

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Undang-Undang Republik Indonesia nomor 20 Tahun 2013 tentang Sistem Pendidikan Nasional.