### USING ENGLISH ANIMATION MOVIE TO IMPROVE LISTENING ABILITY OF UNDERGRADUATE STUDENTS

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#### **ABSTRACT**

This experimental research is designed to find the effect of applying English animation movie to improve listening ability of undergraduate students. One of the authentic media which can be used in listening comprehension is film or video. Animation movies in particular make language come alive. Students who enjoy listening to their favorite animation characters will enjoy the challenge of imitating their characters' speech. Plus, animation movies are appropriate for all age group. The population of this research was 240 undergraduate students of first semester at English Study Program of Teacher Training and Education Faculty of Nommensen HKBP University in Pematangsiantar Municipality. The sample of this research was randomly chosen based on their classes. Students of Group C was as experimental group; and the control group was students of group D. Each of group consists of 35 students. To collect the data, multiple-choice test was conducted to both groups. There were 5 short dialogs where each had 5 questions. So, there were 25 items. The media used in test was in audio form without any visual. Using t-test in analyzing data, it is found that t-value (2,11) is higher than t-table (1,667) at level of significant 5%. This means that using English animation movie is effective to improve students' listening achievement.

**Keywords:** memory, English animation movie, pronunciation, listening, vocabulary

#### VI. INTRODUCTION

Listening is one of the ultimate skills in learning a language, including in English for Foreign Language (EFL). Richard (2008:3) stated that listening has the fundamental function to facilitate understanding of spoken discourse involving understanding a speaker's accent or pronunciation, the speaker's grammar and vocabulary, and comprehension of meaning. Since listening, with its crucial rules, covers many language aspects, it cannot be downplayed and separated in using a language.

Listening can be done by using a media which is supported by sound, like film. According to Harmer (2007:304), audio-visual such as film, video or DVD can be used as media in learning listening. Films provide sound or spoken language and moving pictures that can be used to learn listening skills. In Kusumaradyati (2004) proved in her study that film as media in learning language should be encouraging at least to four pedagogical values: listening, speaking, reading and writing.

There are a lot of media that can be used in teaching a language. One of them can be from authentic media. Jordan (1997) said that text which is not made for pedagogical use includes authentic media. The authentic media can be taken from song, article, film, and others. The use of the authentic media in teaching listening is relatively common. It is applicable and beneficial in listening comprehension. The use of authentic material will genuinely improve listening comprehension (Harmer, 2007:304). Therefore, teachers do not have to depend on textbooks as their media. They can apply alternative sources as the teaching media in order to be more creative in teaching English, including teaching listening skill.

One of the authentic media which can be used in listening comprehension is film or video. Since film provides audio-visual aid in listening activity, it has more advantages in helping listening comprehension. In line with Harmer, Sand (1956: 10) added that people can learn faster and easily by audio visual processes than by verbal explanation only. This implies that

involvement of visual in teaching listening is powerful to help students comprehend listening materials.

Animation movies in particular make language come alive. Students who enjoy listening to their favorite animation characters will enjoy the challenge of imitating their characters' speech. Plus, animation movies are appropriate for all age group.

Based on issues above, this research tends to answer these following problems:

- a. What is the effect of using English animation movie on the first semester students' listening ability?
- b. What is the effect of using conventional media on the first semester students' listening ability?
- c. Which one is more effective to improve students' listening ability?

#### VII. LITERATURE REVIEW

#### 7.1 Listening

#### 2.1.1 Definition of Listening

Harmer (2001:199) stated that listening is an active and purposeful processing of making sense of what we hear. It is the way in which people extract meaning from the discourse they hear. Listening is a skill in a sense that it's a related but distinct process than hearing which involves merely perceiving sound in a passive way while listening occupies an active and immediate analysis of the streams of sounds. This correlation is like that between seeing and reading. Seeing is a very ordinary and passive state while reading is a focused process requiring reader's instrumental approach. Listening has a "volitional component". What 'listening' really means is 'listening and understanding what we hear at the same time'. So, two concurrent actions are demanded to take place in this process.

According to Rost (1990), listening comprises some component skills which are:

- a. discriminating between sounds,
- b. recognizing words,
- c. identifying grammatical groupings of words.
- d. identifying expressions and sets of utterances that act to create meaning,

- e. connecting linguistic cues to nonlinguistic and paralinguistic cues,
- f. using background knowledge to predict and later to confirm meaning and recalling important words and ideas.

#### 2.1.2 Listening Process

Duzzer (1997) stated there are two types of processes for listening have been in practice, they are defined so according to the ways of processing the text while listening:

- a. Bottom up processing, like reading, learners utilize their linguistic knowledge to identify linguistic elements in an order from the smallest linguistic unit like phonemes (bottom) to the largest one like complete texts (top). They link the smaller units of the language together to form the larger parts and it's a linear process where meaning is derived automatically at the last stage. It is absolutely "text based" process where learners rely on the sounds, words and grammar in the message in order to create meaning.
- b. Top-down interpretation, on the other hand, requires learners to go to the listening with their prior knowledge of topic, context, and type of text as well as knowledge of language to reconstruct the meaning using the sounds as clues. "This back ground knowledge activates a set of expectations that help the listener to interpret what is heard and anticipate what will come next."

It is assumed that bottom up process is applied while practicing minimal pairs, taking pronunciation tests, listening for specific details, recognizing cognates and word-order pattern but top-down interpretation is used in the activities like listening for the main idea, predicting, drawing inferences, and summarizing where learners relate what they know and what they hear through listening comprehension.

According to the types of situation where the understanding takes place, listening is divided into:

a. Reciprocal or interactive Listening where the listener is required to take part in the interaction and alternately listens and speaks. Interactive listening situations include face-to-face conversations and telephone calls in which listener has a

chance to ask for clarification, repetition, or slower speech from conversation partner.

b. Non-reciprocal or non-interactive Listening where the listener is engaged in listening passively to a monologue or speech or even conversation. Some non-interactive listening situations are listening to the radio, CDs, TV, films, lectures etc. and here listener usually doesn't have the opportunity to ask for clarification, slower speech or repetition.

#### 2.1.4. Listening Activities

Knowledge about the factors and the processes of listening comprehension elaborated above may serve as a guide when teachers would like to incorporate listening skills into their EFL classes. Van Dunkel (1997) argued that listening instruction comprises three kinds of activities, namely: pre-listening, while-listening, and post-listening.

First of all, the teacher should engage the learners in a pre-listening activity. It aims at establishing the purposes of listening activity and activating the schemata by encouraging the learners to think about and discuss what they already know about the content of the text or the dialogue. It also provides the background needed for them to understand the text or the dialogue and focuses the learners' attention on what to listen for.

The next step that the teacher should do is while-listening activity, in which she gives listening tasks to the learners. There are a variety of activities that can be done in this stage to develop listening skills. Lund (1990) proposed some listening activities listed below:

- 1. Doing is the listener responds physically such as in Total Physical Response (TPR)
- 2. Choosing is the listener selects from alternatives such as pictures, objects, texts, or actions
- 3. Transferring is the listener transforms the message such as drawing a route on map, or filling in a chart
- 4. Answering is the listener answers questions about the text;
- 5. Condensing is the listener takes notes or makes an outline;

- 6. Extending is the listener goes beyond the text by continuing the story or solving a problem;
- 7. Duplicating is the listener simply repeats or translates the message;
- 8. Modeling is the listener performs a similar task, e.g. gives instructions to a coworker after listening to a model;
- 9. Conversing is the listener is an active participant in a face-to-face conversation.

The tasks can be designed in such a way that they combine several types of the above activities to avoid boredom as a result of monotonous exercises. Also, they have to include activities that require the learners to perform both top-down and bottom-up processing. For instance, to develop bottom-up skills the teacher may use 'choosing' by having learners listen to a dialogue consisting of sentences spoken with rising and falling intonation. One the other hand, to develop top-down skill he can ask them to get the gist of the exchange.

After completing the while-listening activity, the teacher closes the lesson with post-listening activity by helping the learners evaluate success in carrying out the tasks. He discusses the answer to the exercises with them so that they get feedback about the tasks they have performed. Lastly, he has to try integrating listening with the other language skills.

#### 7.2 Media

#### 2.2.1 Overview of Media

Teaching is a process of communication. It has to be created through the way of teaching and exchanging the message or information by every teacher and student. The message can be knowledge, skills, ideas, experiences, and many others. Through the process of communication, the people can receive the message or information. To avoid misunderstanding in the process of communication, media are needed in the process of teaching.

Media play an important role in a teaching and learning process. Media are needed to reach the objectives of teaching-learning process. As a teacher, we should use various media or teaching aids in giving the material to the students as stated by Harmer (2001:134) that "as a language teacher, we use a variety of teaching aids to explain language meaning and

construction, engage students in a topic or as the basis of a whole activity." According to Gerlach and Elly (1980:241), a medium is any person, material, or event that establishes conditions which enable learners or students to acquire knowledge, skills, and attitudes. In addition, Brown (1977:2-3) defined media as the tools or the physical things used by a teacher to facilitate the instruction. From the definitions above, the writer makes a conclusion that media are the tools, materials, or events that establish conditions used by a teacher to facilitate the instruction to acquire knowledge, skill and attitudes, and engage the learners in a topic or as the basis of a whole activity.

The teachers' creativity in using media will increase the probability that students will learn more and the knowledge will retain better in their mind. There are many media that can be used in a teaching-learning process. Gerlach and Elly (1980: 297) classified media in six general categories:

- a) Picture
  - Picture consists of photographs of any object or event, which may be larger or smaller than the object or event it represents.
- b) Audio recording
  Recording is made on magnetic tape,
  discs, motion picture, and soundtrack.
  These are reproductions of actual event or
  sound track.
- c) Motion picture
  - A motion picture is a moving image in color or black and white produced from live action or from graphic representation.
- d) Television
  - This category includes all types of Audio Video electronic distribution systems; which eventually appear on television monitor.
- e) Real things
  - Simulation and model, this category includes people, events, objects and imitation of real things. Imitation of real things can be used as a substitution for the actual objects or event. They are, in fact, life itself, often in its natural settings. Simulation is the replication of real situation, which has been designed to be as near the actual event or process as

- possible. Many media, including the computers, tape recordings, and motion pictures can be used for simulation. A model is replication or representation of reality. It is often in scale and may be miniature, exact size or enlargement.
- f) Program and computer-assisted instruction
  Programs are sequences of information (verbal, visual, or audio) which are designed to elicit predetermined responses. The most common examples

(verbal, visual, or audio) which are designed to elicit predetermined responses. The most common examples are programmed textbooks or instructional programs prepared for computers.

From the categories above, not all of them can be applied in the classroom. According to Gerlach and Elly (1980:254), to select the appropriate media, the teacher must consider the characteristics of the students which directly relate to the learning process, such as verbal abilities, visual and audio perception skills, experience, intelligence, motivation, personality and social skills.

### 2.2.1 Roles of Media in a Teaching-Learning Process

The use of media in a teaching-learning process is very important. Locatis and Atkinson (1984) gave a brief explanation on the roles of media or instructional media as follows:

- a. To entertain
- b. To inform
- c. To instruct

Using media in the instructional activity can support students to understand the material. Reiser and Dick (1996:67) proposed the benefits of using media in instructional activities as follows:

- 1. Motivating students
- 2. Informing students of objectives. Teacher presents instructional objective orally or writing through media. The media can convey the purpose of the instruction.
- 3. Helping students recall prerequisites. Media can remind students the activities before starting the lesson. The media are presented via the chalkboard, an overhead transparency or a written handout. These media can build their prior knowledge.
- 4. Presenting information and example. The media can deliver information and examples to the students. They depend on

the nature of the learning outcomes which are expected. It helps teacher to teach effectively.

5. Providing practice and feedback. The media show the activities to be practiced and feedback to the students.

Therefore, the instructional media are useful in the instructional activity. They will help teacher teach material and interest students' motivation efficiency.

#### 2.2 Using Movie in Teaching Listening

We should encourage the students to see as many films as possible outside the classroom or parts of films in the classroom. Watching films is very important as it increases their visual and critical awareness. Watching films in the classroom can be realized through recording them. We have tried to make the activity of filmwatching an active rather than a passive one. This can be done in a variety ways as setting questions about the film, promoting discussions in small groups, asking the students to comment on various things, inviting criticism, etc. We may also stop the film from time to time and ask the students what has happened so far or guess what might happen next. Another way might be turning the sound down and asking the students to imagine or make up dialogues.

Anyway it is difficult to use films in the classroom. Sometimes they are difficult to understand but some other films are easy to understand because there is a clear conventional story line, as love stories, epics and sciencefiction drama which have simple plots. Of great importance are the subtitles and dubbing which might be in English. They help a lot the aim of helping learning English through films, depending on the procedure the teachers decide to follow. Sometimes the teachers recommend students to see a film dubbed into or subtitled in Indonesian, if possible, before seeing it in English. It would be great to find English films with English subtitles. They make understanding the language easier as listening to authentic language is more difficult than seeing the expressions written, thus matching the words with pictures and voice.

Sherman (2003:16) said, "The eye is more powerful than the ear". In this case the students are offered both reading and listening. Judging

from our experience usually students prefer reading than listening, with few more exceptions. While using a film in the classroom to help our English we have paid attention to the accent, voice, body language, choosing of the words, training ear and the eye, lifestyle, plot idea, summary, what's going on, why and how, and many other things depending on the aim we have put to ourselves. The overall aim has always been to maximize comprehension and learn more English. But we all know that watching a full feature film needs more time than teaching hours. So, we need to be able to fit films into a classroom schedule organizing different activities that help this aim. In order to save time, we might tell the story of the film ourselves, illustrating it by showing three or four key scenes without telling the end. Another way is the use of video-cassette. The students may watch the film themselves in the videoclassroom or at home and come the next day and present what they watched and what happened in the film.

Another way of using the films to teach English is that of comparing the film with the book if the same story appears in both ways. This kind of activity can be done before or after watching the film, it can be used to adopt or compare characters, to compare differences and similarities, using the Venn diagram, between the book and the film, the examples might be numerous. The book may be used to supplement and clarify the film, but at the same time the film may be used to illuminate the book. All these could be done through several activities.

We may also give assignments to our students, write about your favorite film, your favorite characters, your favorite actors, what makes them your 'favorites', the differences you see if a book has been made into a film, etc. When a preliminary work is done before watching the film the above activities may produce interesting writing activities. These kinds of activities also contribute to the promotion of critical thinking especially in evaluating films and improving language skills.

Other ways of using films in the classroom are: Segmenting the film, prewatching, while-watching and post-watching activities, which are very useful as cloze exercises, quizzes, related readings, web sites,

film presentations, discussions, research work, etc. Of course, there are not ready made recipes to be followed. Teachers should be creative and decide themselves for the procedures that they feel that have worked well.

#### 2.3 Some Considerations

To make a listening lesson as effective as possible, the teacher should bear several things in mind. Van Dunkel (1997), for example, suggested that listening should be relevant to the learners' purpose, so that their motivation and attention can be kept high. If they learn English to study in the university, monologues in the form of mini-lectures are the most suitable tasks in the listening class. However, if the learners are bank employees who study English to enable them to communicate with English-speaking customers, the appropriate materials will be dialogues in various banking contexts. Besides relevance, authenticity needs special attention. In order to be authentic, the language presented in the listening materials should reflect real discourse characterized by hesitations. rephrasing and accents. Van Dunkel disagrees to texts or dialogues which are modified or simplified to make it easier for the learners to grasp meaning because this can destroy authenticity. According to her, the difficulty level of the materials can be controlled by the selection of tasks: beginners require simpler tasks than the advanced learners. She also underlined the necessity of developing both topdown and bottom-up processing skills in listening class.

Nunan (1997) added that the former should be done first, so schema building tasks precedes the listening. The application of the two types of skills is supposed to be supported by the appropriate strategies. Both Van Dunkel and Nunan agree upon the inclusion of the strategies for effective listening-such as predicting, asking for clarification and using non-verbal cues-into the materials.

Finally, the teacher needs to keep in his mind that activities should teach, not test, the learners. The teacher, consequently, should avoid employing activities that tend to focus on memory rather than on the process of listening. He should not simply give practice rather than help them develop listening ability. A good example of such misapplication is having the

learners listen to a passage followed by true/false questions. Such a task indicates how much the learners remember rather than helping them develop the skill of determining main idea and details. All of the principles elaborated above should be taken into account by the teacher prior to presenting listening materials in the class.

#### VIII. RESEARCH METHODOLOGY

This chapter provides research design, population and sample, techniques of data collection and procedures of analyzing data.

#### 3.1 Research Design

This is a quantitative research which based on quasi-experimental study. According to Ary, Jacobs, and Sorensen (2010: 265), an experiment is a scientific investigation in which the researcher manipulates one or more independent variables, control any other relevant variables, and observe the effect of manipulation on the dependent variable(s). The dependent variable of this research is the students' ability in listening, and the independent variable is the use of English animation movie.

The goal of experimental research is to determine whether a causal relationship exist between two or more variables. Because the experiment involved control and careful observation and measurement, this research method provided the most convincing evidence of the effect that one variable has on another. In other word, the researcher needed two group of subject, experimental and control group. The experimental group received specific treatment (the application of English animation movie) while control group received conventional treatment (conventional media). Using a control group enabled researcher to see many explanations for the effect of treatment.

This research used design of non-randomized control group, pretest—posttest design. Ary, Jacobs, and Sorensen (2010: 316) argued that non-randomized control group, pretest—posttest design is used in a typical school situation, in which schedules cannot be disrupted nor classes reorganized to accommodate a research study. In such a case, researcher uses

groups already organized into classes or other preexisting intact groups.

#### **Table 3.1 Research Design**

Note:

 $X_1$  and  $X_2$ : Pre and Post Test conducted in experimental group

 $Y_1$  and  $Y_2$ : Pre and Post Test conducted in control group

E : Teaching by using English animation movie

C : Teaching by using conventional media

#### 3.2 Population and Sample

Group	Pre-	Treatment	Post-
_	Test		Test
Experimental	$\mathbf{X}_1$	E	$X_2$
Control	$\mathbf{Y}_1$	C	$Y_2$

A population is defined as all members of any well-defined class of people, events, or objects, meanwhile a sample is a portion of a population (Ary, Jacobs, and Sorensen, 2010: 148). The population of this research was 240 undergraduate students of first semester of English Study Program of Teacher Training and Education Faculty of UHKBPNP.

The sample was chosen by occupying random cluster sampling. It is a <u>sampling</u> technique used when "natural" but relatively heterogeneous groupings are evident in a <u>statistical population</u>. Students of Group C was as experimental group; and the control group was students of group D. Each of group consisted of 35 students.

#### 3.3 Data Collection

To collect the data, multiple-choice test was conducted to both groups. There were 5 short dialogs where each had 5 questions. So, there were 25 items. The media used in test was in audio form without any visual.

#### 3.4 Steps in Analyzing Data

The data were analyzed by following steps as follows:

1. Scoring the test based on rubric

$$S = \frac{T}{n} \times 100$$

2.

S = Score T = Correct answer n = number of students

oup

$$\bar{X} = \frac{\sum fx}{N}$$

 $egin{array}{ll} ar{X} &= \mbox{the average score} \\ \sum fx &= \mbox{sum of the raw score} \\ N &= \mbox{number of students} \end{array}$ 

3. Finding standard deviation of each group (Based on Hatch & Farhady, 1982: 59)

$$S = \frac{\sqrt{\sum d^2}}{N-1}$$

S = standard deviation  $\sum d^2$  = sum of mean deviation N = number of students 1 = constant number

4. Finding standard error of difference of mean (Based on Hatch & Farhady, 1982: 112)

$$SE\left(\chi e - \chi c\right) = \sqrt{\left(\frac{se}{\sqrt{N1}}\right)^2 + \left(\frac{sc}{\sqrt{N2}}\right)^2}$$

 $\frac{\sqrt{VN1}}{SE(\chi e - \chi c)} = \text{standard error}$ 

se = standard deviation of experimental

sc = standard deviation of control

N1 = number of students of experimental

N2 = number of students of control

5. Testing Hypothesis (Based on Hatch & Farhady, 1982: 111)

$$t_{test} = \frac{\bar{X}e - \bar{X}c}{SE (\chi e - \chi c)}$$

 $\frac{1}{E_{test}} = \frac{1}{SE(\chi e - \chi c)}$   $\overline{\chi}e = \frac{1}{SE(\chi e - \chi c)}$ = Mean of Post Test in

Experimental  $\bar{X}c$  = Mean of Post Test in Control

 $SE(\chi e - \chi c) = \text{standard error}$ 

#### IX. FINDINGS AND DISCUSSION

#### 4.1 Data Analysis

4.1.1 Students' Score of Pre-test and Post-test in Experimental Group

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Table 4.1 Pre-test and Post-test Scores in Experimental Group

	Experimental Group				
	Pre-	Post-			
Students	test	test	Range		
	(x)	(y) (d)			
1	72	84	12		
2	60	72	12		
3	56	64	8		
4	64	76	12		
5	60	68	8		
6	40	52	12		
7	64	76	12		
8	68	76	8		
9	80	92	12		
10	64	72	8		
11	56	68	12		
12	64	76	12		
13	60	76	16		
14	44	52	8		
15	64	76	12		
16	84	92	8		
17	76	88	12		
18	60	76	16		
19	52	64	12		
20	64	72	8		
21	72	84	12		
22	68	80	12		
23	60	68	8		
24	44	60	16		
25	52	60	8		
26	60	72	12		
27	56	68	12		
28	68	72	4		
29	76	88	12		
30	44	52	8		
31	68	76	8		
32	60	72	12		
33	68	80	12		
34			12		
	56 72	68			
35	72	2560	16		
Σ	2176	2560	384		
MEAN	62,17	73,14	10,97		

Table 4.1 shows the result of students' achievement in experimental group. From the data, it can be seen that: the total score in pre-test is 2176 and the average score (mean) is 62,17. Then, in post test, the total score is 2560 where the average score is 73.14.

4.1.2 Students' Score of Pre-test and Post-test in Control Group

Table 4.2 Pre-test and Post-test Scores in Control Group

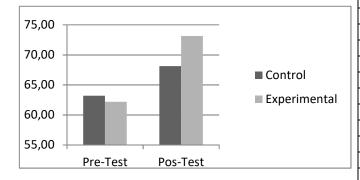
Students	Pre-test (x)	Post-test (y)	Range (d)
1	68	72	4
2	60	60	0
3	68	76	8
4	56	52	-4
5	72	76	4
6	56	60	4
7	64	68	4
8	60	68	8
9	52	56	4
10	64	68	4
11	72	80	8
12	68	72	4
13	60	72	12
14	48	52	4
15	52	56	4
16	72	76	4
17	60	68	8
18	56	60	4
19	64	76	12
20	60	64	4
21	60	64	4
22	56	60	4
23	68	76	8
24	76	80	4
25	52	56	4
26	56	60	4
27	64	68	4
28	68	72	4
29	80	88	8
30	64	68	4
31	84	88	4
32	76	80	4
33	60	64	4
34	52	60	8
35	64	68	4
Σ	2212	2384	172
MEAN	63,20	68,11	4,91

Table 4.2 shows the result of students' achievement. From the data, it can be seen that: the total score in pre-test is 2212 and the average score (mean) is 63,20. Then, in post test, the total score is 2384 where the average score is 68,11.

## 4.1.3 The Progress of Students' Achievement in Listening after Treatment Table

## 4.3 The Progress of Students' Achievement after Treatment

Group	Pre-Test	Pos-Test	Improvement
			_
Control	63,20	68,11	4,91
Experimental	62,17	73,14	10,97



## 4.1.4 Difference of Post-Test Score in Experimental and Control Group

Table 4.4 Post Test Score in Experimental and Control Group and Its Difference

Students         Post Test Experimental Group         Post Test Control Group         Difference Group           1         84         72         12,00           2         72         60         12,00           3         64         76         -12,00           4         76         52         24,00           5         68         76         -8,00           6         52         60         -8,00           7         76         68         8,00           8         76         68         8,00           9         92         56         36,00           10         72         68         4,00           11         68         80         -12,00           12         76         72         4,00           13         76         72         4,00           14         52         52         0,00           15         76         56         20,00           16         92         76         16,00           17         88         68         20,00           18         76         60         16,00           19         64			1		
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$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	10	72	68	4,00	
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$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	16	92	76	16,00	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	17	88	68	20,00	
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$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	20	72	64	8,00	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	21	84	64	20,00	
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$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	25	60			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	26	72	60		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	27	68	68	0,00	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	28	72	72	0,00	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	29	88	88	0,00	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	30	52	68	-16,00	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$				· · · · · · · · · · · · · · · · · · ·	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	33				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$					
Σ 2560 2384,0 176,00					
	MEAN	73,14	68,11	5,03	

Students	Score (x)	Mean	Difference	Difference Squared
1	84	73,14	10,86	117,94
2	72	73,14	-1,14	1,30
3	64	73,14	-9,14	83,54
4	76	73,14	2,86	8,18
5	68	73,14	-5,14	26,42
6	52	73,14	-21,14	446,90
7	76	73,14	2,86	8,18
8	76	73,14	2,86	8,18
9	92	73,14	18,86	355,70
10	72	73,14	-1,14	1,30
11	68	73,14	-5,14	26,42
12	76	73,14	2,86	8,18
13	76	73,14	2,86	8,18
14	52	73,14	-21,14	446,90
15	76	73,14	2,86	8,18
16	92	73,14	18,86	355,70
17	88	73,14	14,86	220,82
18	76	73,14	2,86	8,18
19	64	73,14	-9,14	83,54
20	72	73,14	-1,14	1,30
21	84	73,14	10,86	117,94
22	80	73,14	6,86	47,06
23	68	73,14	-5,14	26,42
24	60	73,14	-13,14	172,66
25	60	73,14	-13,14	172,66
26	72	73,14	-1,14	1,30
27	68	73,14	-5,14	26,42
28	72	73,14	-1,14	1,30
29	88	73,14	14,86	220,82
30	52	73,14	-21,14	446,90
31	76	73,14	2,86	8,18
32	72	73,14	-1,14	1,30
33	80	73,14	6,86	47,06
34	68	73,14	-5,14	26,42
35	88	73,14	14,86	220,82
$\sum (x-X)^2 = \sum d^2$			3762,29	

In table 4.4 above, it can be seen the individual score of students in post-test for both control and experimental group, and its differences or the improvement score. Here, it can be seen that in experimental group, the total score is 2560 and the average score is 73,14. While in control group, the total score is 2384 and the average score is 68,11. The difference or the improvement as the whole students got in post test from control to experimental group is 176 or 5,03 point in average.

# **4.1.5 The Variance and Standard Deviation**Table 4.5 Variance and Standard Deviation in Post Test of Experimental Group

By looking at the data on table 4.5, it is found that the total sum squares of the respondents at the time of administering the post-test in experimental group is 3762,29. Those points are necessarily required in order to determine the standard variation for post-test in experimental group which is in turn compared to the same data at post-test in control group. The following is the standard deviation of post-test in experimental group:

$$S^{e} = \sqrt{\frac{\sum d^{2}}{N - 1}}$$

$$S^{e} = \sqrt{\frac{3762,29}{35 - 1}}$$

$$S^{e} = \sqrt{\frac{3762,29}{34}}$$

$$S^{e} = \sqrt{110,65547}$$

$$S^{e} = 10,52$$

Table 4.6 Variance and Standard Deviation in Post Test of Control Group

StudentsScore (x)MeanDifferenceDifference Squared17268,113,8915,1326068,11-8,1165,7737668,117,8962,2545268,11-16,11259,5357668,117,8962,2566068,11-8,1165,7776868,11-0,110,0186868,11-0,110,0195668,11-12,11146,65106868,11-12,11146,65106868,1111,89141,37127268,113,8915,13137268,113,8915,13145268,11-16,11259,53155668,11-7,11146,65167668,117,8962,25176868,11-9,110,01186068,11-8,1165,77197668,117,8962,25206468,11-4,1116,89216468,11-4,1116,89226068,11-8,1165,77237668,11-7,8962,25248068,11-12,11146,65266068,11-8,1165,77276868,11-9,110,01287268,11<		1	1	T	ı
(x)         Squared           1         72         68,11         3,89         15,13           2         60         68,11         -8,11         65,77           3         76         68,11         7,89         62,25           4         52         68,11         -16,11         259,53           5         76         68,11         7,89         62,25           6         60         68,11         -0,11         0,01           8         68         68,11         -0,11         0,01           8         68         68,11         -0,11         0,01           9         56         68,11         -12,11         146,65           10         68         68,11         -0,11         0,01           11         80         68,11         11,89         141,37           12         72         68,11         3,89         15,13           13         72         68,11         3,89         15,13           14         52         68,11         -16,11         259,53           15         56         68,11         -7,89         62,25           17         68         68,11 <td>Students</td> <td></td> <td>Mean</td> <td>Difference</td> <td></td>	Students		Mean	Difference	
2         60         68,11         -8,11         65,77           3         76         68,11         7,89         62,25           4         52         68,11         -16,11         259,53           5         76         68,11         -7,89         62,25           6         60         68,11         -8,11         65,77           7         68         68,11         -0,11         0,01           8         68         68,11         -0,11         0,01           9         56         68,11         -12,11         146,65           10         68         68,11         -0,11         0,01           11         80         68,11         11,89         141,37           12         72         68,11         3,89         15,13           13         72         68,11         3,89         15,13           14         52         68,11         -16,11         259,53           15         56         68,11         -12,11         146,65           16         76         68,11         7,89         62,25           17         68         68,11         -8,11         65,77	Students		IVICAII	Billerence	
3         76         68,11         7,89         62,25           4         52         68,11         -16,11         259,53           5         76         68,11         7,89         62,25           6         60         68,11         -8,11         65,77           7         68         68,11         -0,11         0,01           8         68         68,11         -0,11         0,01           9         56         68,11         -12,11         146,65           10         68         68,11         -0,11         0,01           11         80         68,11         -12,11         146,65           10         68         68,11         -13,89         15,13           12         72         68,11         3,89         15,13           13         72         68,11         3,89         15,13           14         52         68,11         -16,11         259,53           15         56         68,11         -12,11         146,65           16         76         68,11         7,89         62,25           17         68         68,11         -8,11         65,77		72		3,89	15,13
4         52         68,11         -16,11         259,53           5         76         68,11         7,89         62,25           6         60         68,11         -8,11         65,77           7         68         68,11         -0,11         0,01           8         68         68,11         -0,11         0,01           9         56         68,11         -12,11         146,65           10         68         68,11         -0,11         0,01           11         80         68,11         11,89         141,37           12         72         68,11         3,89         15,13           13         72         68,11         3,89         15,13           14         52         68,11         -16,11         259,53           15         56         68,11         -16,11         259,53           15         56         68,11         -72,11         146,65           16         76         68,11         7,89         62,25           17         68         68,11         7,89         62,25           20         64         68,11         -8,11         16,89		60	68,11	-8,11	65,77
5         76         68,11         7,89         62,25           6         60         68,11         -8,11         65,77           7         68         68,11         -0,11         0,01           8         68         68,11         -0,11         0,01           9         56         68,11         -12,11         146,65           10         68         68,11         -0,11         0,01           11         80         68,11         11,89         141,37           12         72         68,11         3,89         15,13           13         72         68,11         3,89         15,13           13         72         68,11         -16,11         259,53           15         56         68,11         -12,11         146,65           16         76         68,11         7,89         62,25           17         68         68,11         -9,11         0,01           18         60         68,11         7,89         62,25           20         64         68,11         -4,11         16,89           21         64         68,11         -4,11         16,89		76	68,11	7,89	62,25
6         60         68,11         -8,11         65,77           7         68         68,11         -0,11         0,01           8         68         68,11         -0,11         0,01           9         56         68,11         -12,11         146,65           10         68         68,11         -0,11         0,01           11         80         68,11         11,89         141,37           12         72         68,11         3,89         15,13           13         72         68,11         3,89         15,13           14         52         68,11         -16,11         259,53           15         56         68,11         -12,11         146,65           16         76         68,11         7,89         62,25           17         68         68,11         -9,11         0,01           18         60         68,11         -8,11         65,77           19         76         68,11         7,89         62,25           20         64         68,11         -4,11         16,89           21         64         68,11         -4,11         16,89			68,11		259,53
7         68         68,11         -0,11         0,01           8         68         68,11         -0,11         0,01           9         56         68,11         -12,11         146,65           10         68         68,11         -12,11         0,01           11         80         68,11         11,89         141,37           12         72         68,11         3,89         15,13           13         72         68,11         3,89         15,13           14         52         68,11         -16,11         259,53           15         56         68,11         -12,11         146,65           16         76         68,11         -7,89         62,25           17         68         68,11         -0,11         0,01           18         60         68,11         -8,11         65,77           19         76         68,11         -8,11         65,77           20         64         68,11         -4,11         16,89           21         64         68,11         -8,11         65,77           23         76         68,11         7,89         62,25 <td></td> <td>76</td> <td>68,11</td> <td>7,89</td> <td></td>		76	68,11	7,89	
8         68         68,11         -0,11         0,01           9         56         68,11         -12,11         146,65           10         68         68,11         -0,11         0,01           11         80         68,11         11,89         141,37           12         72         68,11         3,89         15,13           13         72         68,11         -3,89         15,13           14         52         68,11         -16,11         259,53           15         56         68,11         -12,11         146,65           16         76         68,11         -7,89         62,25           17         68         68,11         -0,11         0,01           18         60         68,11         -8,11         65,77           19         76         68,11         7,89         62,25           20         64         68,11         -4,11         16,89           21         64         68,11         -4,11         16,89           22         60         68,11         7,89         62,25           24         80         68,11         7,89         62,25 <td>6</td> <td>60</td> <td>68,11</td> <td>-8,11</td> <td>65,77</td>	6	60	68,11	-8,11	65,77
9         56         68,11         -12,11         146,65           10         68         68,11         -0,11         0,01           11         80         68,11         11,89         141,37           12         72         68,11         3,89         15,13           13         72         68,11         3,89         15,13           14         52         68,11         -16,11         259,53           15         56         68,11         -12,11         146,65           16         76         68,11         -7,89         62,25           17         68         68,11         -0,11         0,01           18         60         68,11         -8,11         65,77           19         76         68,11         7,89         62,25           20         64         68,11         -4,11         16,89           21         64         68,11         -4,11         16,89           22         60         68,11         -8,11         65,77           23         76         68,11         7,89         62,25           24         80         68,11         -12,11         146,65		68	68,11	-0,11	0,01
10         68         68,11         -0,11         0,01           11         80         68,11         11,89         141,37           12         72         68,11         3,89         15,13           13         72         68,11         -16,11         259,53           14         52         68,11         -16,11         259,53           15         56         68,11         -12,11         146,65           16         76         68,11         7,89         62,25           17         68         68,11         -0,11         0,01           18         60         68,11         -8,11         65,77           19         76         68,11         7,89         62,25           20         64         68,11         -4,11         16,89           21         64         68,11         -4,11         16,89           22         60         68,11         7,89         62,25           24         80         68,11         7,89         62,25           24         80         68,11         7,89         62,25           24         80         68,11         -9,11         146,65 </td <td>8</td> <td>68</td> <td>68,11</td> <td>-0,11</td> <td>0,01</td>	8	68	68,11	-0,11	0,01
11         80         68,11         11,89         141,37           12         72         68,11         3,89         15,13           13         72         68,11         3,89         15,13           14         52         68,11         -16,11         259,53           15         56         68,11         -12,11         146,65           16         76         68,11         7,89         62,25           17         68         68,11         -0,11         0,01           18         60         68,11         -8,11         65,77           19         76         68,11         7,89         62,25           20         64         68,11         -4,11         16,89           21         64         68,11         -4,11         16,89           22         60         68,11         -8,11         65,77           23         76         68,11         7,89         62,25           24         80         68,11         7,89         62,25           24         80         68,11         11,89         141,37           25         56         68,11         -8,11         65,77 <td>9</td> <td>56</td> <td>68,11</td> <td>-12,11</td> <td>146,65</td>	9	56	68,11	-12,11	146,65
12         72         68,11         3,89         15,13           13         72         68,11         3,89         15,13           14         52         68,11         -16,11         259,53           15         56         68,11         -12,11         146,65           16         76         68,11         -7,89         62,25           17         68         68,11         -0,11         0,01           18         60         68,11         -8,11         65,77           19         76         68,11         7,89         62,25           20         64         68,11         -4,11         16,89           21         64         68,11         -4,11         16,89           22         60         68,11         -8,11         65,77           23         76         68,11         7,89         62,25           24         80         68,11         7,89         62,25           24         80         68,11         7,89         62,25           24         80         68,11         -12,11         146,65           26         60         68,11         -8,11         65,77 <td>10</td> <td>68</td> <td>68,11</td> <td>-0,11</td> <td>0,01</td>	10	68	68,11	-0,11	0,01
13         72         68,11         3,89         15,13           14         52         68,11         -16,11         259,53           15         56         68,11         -12,11         146,65           16         76         68,11         7,89         62,25           17         68         68,11         -0,11         0,01           18         60         68,11         -8,11         65,77           19         76         68,11         7,89         62,25           20         64         68,11         -4,11         16,89           21         64         68,11         -4,11         16,89           22         60         68,11         -8,11         65,77           23         76         68,11         7,89         62,25           24         80         68,11         7,89         62,25           24         80         68,11         11,89         141,37           25         56         68,11         -9,11         0,01           28         72         68,11         -9,11         0,01           31         88         68,11         19,89         395,61 <td>11</td> <td>80</td> <td>68,11</td> <td>11,89</td> <td>141,37</td>	11	80	68,11	11,89	141,37
14         52         68,11         -16,11         259,53           15         56         68,11         -12,11         146,65           16         76         68,11         7,89         62,25           17         68         68,11         -0,11         0,01           18         60         68,11         -8,11         65,77           19         76         68,11         7,89         62,25           20         64         68,11         -4,11         16,89           21         64         68,11         -4,11         16,89           22         60         68,11         -8,11         65,77           23         76         68,11         7,89         62,25           24         80         68,11         7,89         62,25           24         80         68,11         11,89         141,37           25         56         68,11         -12,11         146,65           26         60         68,11         -8,11         65,77           27         68         68,11         -0,11         0,01           28         72         68,11         3,89         15,13 </td <td>12</td> <td>72</td> <td>68,11</td> <td>3,89</td> <td>15,13</td>	12	72	68,11	3,89	15,13
15         56         68,11         -12,11         146,65           16         76         68,11         7,89         62,25           17         68         68,11         -0,11         0,01           18         60         68,11         -8,11         65,77           19         76         68,11         7,89         62,25           20         64         68,11         -4,11         16,89           21         64         68,11         -4,11         16,89           22         60         68,11         -8,11         65,77           23         76         68,11         7,89         62,25           24         80         68,11         7,89         62,25           24         80         68,11         7,89         62,25           24         80         68,11         -12,11         146,65           26         60         68,11         -8,11         65,77           27         68         68,11         -0,11         0,01           28         72         68,11         3,89         15,13           29         88         68,11         -0,11         0,01	13	72	68,11	3,89	15,13
16         76         68,11         7,89         62,25           17         68         68,11         -0,11         0,01           18         60         68,11         -8,11         65,77           19         76         68,11         7,89         62,25           20         64         68,11         -4,11         16,89           21         64         68,11         -4,11         16,89           22         60         68,11         -8,11         65,77           23         76         68,11         7,89         62,25           24         80         68,11         7,89         62,25           24         80         68,11         11,89         141,37           25         56         68,11         -12,11         146,65           26         60         68,11         -8,11         65,77           27         68         68,11         -0,11         0,01           28         72         68,11         3,89         15,13           29         88         68,11         -0,11         0,01           31         88         68,11         19,89         395,61	14	52	68,11	-16,11	259,53
16         76         68,11         7,89         62,25           17         68         68,11         -0,11         0,01           18         60         68,11         -8,11         65,77           19         76         68,11         7,89         62,25           20         64         68,11         -4,11         16,89           21         64         68,11         -4,11         16,89           22         60         68,11         -8,11         65,77           23         76         68,11         7,89         62,25           24         80         68,11         7,89         62,25           24         80         68,11         11,89         141,37           25         56         68,11         -12,11         146,65           26         60         68,11         -8,11         65,77           27         68         68,11         -0,11         0,01           28         72         68,11         3,89         15,13           29         88         68,11         -0,11         0,01           31         88         68,11         19,89         395,61	15	56	68,11	-12,11	146,65
18         60         68,11         -8,11         65,77           19         76         68,11         7,89         62,25           20         64         68,11         -4,11         16,89           21         64         68,11         -4,11         16,89           22         60         68,11         -8,11         65,77           23         76         68,11         7,89         62,25           24         80         68,11         11,89         141,37           25         56         68,11         -12,11         146,65           26         60         68,11         -8,11         65,77           27         68         68,11         -0,11         0,01           28         72         68,11         3,89         15,13           29         88         68,11         19,89         395,61           30         68         68,11         -0,11         0,01           31         88         68,11         19,89         395,61           32         80         68,11         11,89         141,37           33         64         68,11         -4,11         16,89     <	16	76			62,25
19         76         68,11         7,89         62,25           20         64         68,11         -4,11         16,89           21         64         68,11         -4,11         16,89           22         60         68,11         -8,11         65,77           23         76         68,11         7,89         62,25           24         80         68,11         11,89         141,37           25         56         68,11         -12,11         146,65           26         60         68,11         -8,11         65,77           27         68         68,11         -0,11         0,01           28         72         68,11         3,89         15,13           29         88         68,11         19,89         395,61           30         68         68,11         -0,11         0,01           31         88         68,11         19,89         395,61           32         80         68,11         11,89         141,37           33         64         68,11         -4,11         16,89           34         60         68,11         -8,11         65,77     <		68	68,11	-0,11	0,01
20         64         68,11         -4,11         16,89           21         64         68,11         -4,11         16,89           22         60         68,11         -8,11         65,77           23         76         68,11         7,89         62,25           24         80         68,11         11,89         141,37           25         56         68,11         -12,11         146,65           26         60         68,11         -8,11         65,77           27         68         68,11         -0,11         0,01           28         72         68,11         3,89         15,13           29         88         68,11         19,89         395,61           30         68         68,11         -0,11         0,01           31         88         68,11         19,89         395,61           32         80         68,11         11,89         141,37           33         64         68,11         -4,11         16,89           34         60         68,11         -8,11         65,77           35         68         68,11         -0,11         0,01     <	18	60	68,11	-8,11	65,77
21         64         68,11         -4,11         16,89           22         60         68,11         -8,11         65,77           23         76         68,11         7,89         62,25           24         80         68,11         11,89         141,37           25         56         68,11         -12,11         146,65           26         60         68,11         -8,11         65,77           27         68         68,11         -0,11         0,01           28         72         68,11         3,89         15,13           29         88         68,11         19,89         395,61           30         68         68,11         -0,11         0,01           31         88         68,11         19,89         395,61           32         80         68,11         11,89         141,37           33         64         68,11         -4,11         16,89           34         60         68,11         -8,11         65,77           35         68         68,11         -0,11         0,01	19	76	68,11	7,89	62,25
22         60         68,11         -8,11         65,77           23         76         68,11         7,89         62,25           24         80         68,11         11,89         141,37           25         56         68,11         -12,11         146,65           26         60         68,11         -8,11         65,77           27         68         68,11         -0,11         0,01           28         72         68,11         3,89         15,13           29         88         68,11         19,89         395,61           30         68         68,11         -0,11         0,01           31         88         68,11         19,89         395,61           32         80         68,11         11,89         141,37           33         64         68,11         -4,11         16,89           34         60         68,11         -8,11         65,77           35         68         68,11         -0,11         0,01	20	64	68,11	-4,11	16,89
23         76         68,11         7,89         62,25           24         80         68,11         11,89         141,37           25         56         68,11         -12,11         146,65           26         60         68,11         -8,11         65,77           27         68         68,11         -0,11         0,01           28         72         68,11         3,89         15,13           29         88         68,11         19,89         395,61           30         68         68,11         -0,11         0,01           31         88         68,11         19,89         395,61           32         80         68,11         11,89         141,37           33         64         68,11         -4,11         16,89           34         60         68,11         -8,11         65,77           35         68         68,11         -0,11         0,01	21	64	68,11	-4,11	16,89
24         80         68,11         11,89         141,37           25         56         68,11         -12,11         146,65           26         60         68,11         -8,11         65,77           27         68         68,11         -0,11         0,01           28         72         68,11         3,89         15,13           29         88         68,11         19,89         395,61           30         68         68,11         -0,11         0,01           31         88         68,11         19,89         395,61           32         80         68,11         11,89         141,37           33         64         68,11         -4,11         16,89           34         60         68,11         -8,11         65,77           35         68         68,11         -0,11         0,01	22	60	68,11	-8,11	65,77
24         80         68,11         11,89         141,37           25         56         68,11         -12,11         146,65           26         60         68,11         -8,11         65,77           27         68         68,11         -0,11         0,01           28         72         68,11         3,89         15,13           29         88         68,11         19,89         395,61           30         68         68,11         -0,11         0,01           31         88         68,11         19,89         395,61           32         80         68,11         11,89         141,37           33         64         68,11         -4,11         16,89           34         60         68,11         -8,11         65,77           35         68         68,11         -0,11         0,01	23	76	68,11	7,89	62,25
25         56         68,11         -12,11         146,65           26         60         68,11         -8,11         65,77           27         68         68,11         -0,11         0,01           28         72         68,11         3,89         15,13           29         88         68,11         19,89         395,61           30         68         68,11         -0,11         0,01           31         88         68,11         19,89         395,61           32         80         68,11         11,89         141,37           33         64         68,11         -4,11         16,89           34         60         68,11         -8,11         65,77           35         68         68,11         -0,11         0,01	24	80	68,11	11,89	
27         68         68,11         -0,11         0,01           28         72         68,11         3,89         15,13           29         88         68,11         19,89         395,61           30         68         68,11         -0,11         0,01           31         88         68,11         19,89         395,61           32         80         68,11         11,89         141,37           33         64         68,11         -4,11         16,89           34         60         68,11         -8,11         65,77           35         68         68,11         -0,11         0,01	25	56		-12,11	
27     68     68,11     -0,11     0,01       28     72     68,11     3,89     15,13       29     88     68,11     19,89     395,61       30     68     68,11     -0,11     0,01       31     88     68,11     19,89     395,61       32     80     68,11     11,89     141,37       33     64     68,11     -4,11     16,89       34     60     68,11     -8,11     65,77       35     68     68,11     -0,11     0,01	26	60	68,11	-8,11	65,77
28         72         68,11         3,89         15,13           29         88         68,11         19,89         395,61           30         68         68,11         -0,11         0,01           31         88         68,11         19,89         395,61           32         80         68,11         11,89         141,37           33         64         68,11         -4,11         16,89           34         60         68,11         -8,11         65,77           35         68         68,11         -0,11         0,01	27	68		-0,11	
29     88     68,11     19,89     395,61       30     68     68,11     -0,11     0,01       31     88     68,11     19,89     395,61       32     80     68,11     11,89     141,37       33     64     68,11     -4,11     16,89       34     60     68,11     -8,11     65,77       35     68     68,11     -0,11     0,01	28	72		3,89	15,13
30     68     68,11     -0,11     0,01       31     88     68,11     19,89     395,61       32     80     68,11     11,89     141,37       33     64     68,11     -4,11     16,89       34     60     68,11     -8,11     65,77       35     68     68,11     -0,11     0,01					
31     88     68,11     19,89     395,61       32     80     68,11     11,89     141,37       33     64     68,11     -4,11     16,89       34     60     68,11     -8,11     65,77       35     68     68,11     -0,11     0,01	30	68		· · · · · · · · · · · · · · · · · · ·	
32     80     68,11     11,89     141,37       33     64     68,11     -4,11     16,89       34     60     68,11     -8,11     65,77       35     68     68,11     -0,11     0,01	31	88			395,61
33     64     68,11     -4,11     16,89       34     60     68,11     -8,11     65,77       35     68     68,11     -0,11     0,01	32	80	68,11		141,37
34     60     68,11     -8,11     65,77       35     68     68,11     -0,11     0,01	33	64		· · · · · · · · · · · · · · · · · · ·	
35 68 68,11 -0,11 0,01	34	60			
	35	68			0,01
				2991,54	

By looking at the data on table 4.6, it is found that the total sum squares of the respondents at the time of administering the post-test in control group is 2991,54. Those

points are necessarily required in order to determine the standard variation for post-test in control group which is in turn compared to the same data at post-test in experimental group.

The following is the standard deviation of post-test in control group:

$$S^{c} = \sqrt{\frac{\sum d^{2}}{N - 1}}$$

$$S^{c} = \sqrt{\frac{2991,54}{35 - 1}}$$

$$S^{c} = \sqrt{\frac{2991,54}{34}}$$

$$S^{c} = \sqrt{87,986574}$$

$$S^{c} = 9,38$$

#### 4.1.6 Testing Hypothesis

Standard Error of the Difference of Mean:

$$SE (\chi e - \chi c) = \sqrt{\left(\frac{se}{\sqrt{N1}}\right)^2 + \left(\frac{sc}{\sqrt{N2}}\right)^2}$$

$$SE (\chi e - \chi c) = \sqrt{\left(\frac{10,52}{\sqrt{35}}\right)^2 + \left(\frac{9,38}{\sqrt{35}}\right)^2}$$

$$SE (\chi e - \chi c) = \sqrt{\left(\frac{10,52}{5,92}\right)^2 + \left(\frac{9,38}{5,92}\right)^2}$$

$$SE (\chi e - \chi c) = \sqrt{(1,78)^2 + (1,59)^2}$$

$$SE (\chi e - \chi c) = \sqrt{3,16 + 2,51}$$

$$SE (\chi e - \chi c) = \sqrt{5,68}$$

$$SE (\chi e - \chi c) = 2,38$$

Finding out t-test:

$$t_{test} = \frac{\bar{X}e - \bar{X}c}{SE (\chi e - \chi c)}$$

$$t_{test} = \frac{73,14 - 68,11}{2,38}$$

$$t_{test} = \frac{5,03}{2,38}$$

$$t_{test} = 2,11$$

Finding out the degree of freedom (df) as follow:

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df : (Ne-1) + (Nc-1) : (35-1) + (35-1) : 34 + 34 : 68

t-table at 5% of level of significance is

#### 1,667

Based on formula of hypothesis which was designed before, Null Hypothesis is rejected if t-test is higher than t-test. Referring to this, so the hypothesis can be constructed as follow:

As the score of t-test (2,11) is higher than t-table (1,667) at level of significant 5% for two tailed test, so null hypothesis is rejected and alternative hypothesis is accepted.

#### 4.2 Findings

After analyzing the data, the researcher formulates the research findings, as follows:

- 1. The effect of using English animation movie is more significant than conventional strategy on the listening ability of first semester students at English Study Program of FKIP UHKBPNP.
- 2. The difference or the improvement as the whole students got in post test from control to experimental group is 176 or 5,03 point in average.
- 3. The total sum squares of the respondents at the time of administering the post-test in experimental group is 3762,29 where its standard deviation is 10.52.
- 4. Meanwhile, the total sum squares of the respondents at the time of administering the post-test in control group is 2991,54 where its standard deviation was 9,38.
- 5. Testing hypothesis shows that t-test (2,11) was higher than t-table (1,667) at level of significant 5% for two tailed test.

#### 4.3 Discussion

Though using animation movie significantly increase students' listening ability, some obstacles are found during the teaching process, such as:

- 1. Limited vocabulary. Vocabulary is the most crucial problem in listening. Some of the students were failed to comprehend since the speaker's words were unfamiliar to them.
- 2. Different accent and pronunciation.
  Another problem is about pronunciation and accent. Listening test include usually different speakers of accent and pronunciation. Students often get confused when they hear unusual accent.
- 3. Knowledge on text. Not having prior knowledge on the text being listened is also problem. Some of students were failed to correctly answer because the questions require prior knowledge on the text.
- 4. Memory. The students got difficult to quickly remember what they have just heard, then they spent too much time on translating and they did not know which answer is correct. It shows that memorization is also important in listening.
- 5. Listening for gist and details. Most of the students were trying to understand the whole text which resulted time inefficiency. They did not practice listening for gist (cues) or specific kind of information related to the question.

These problems crucially need special attention from the lecturer or teacher. Solving these problems before giving students listening test will surely be beneficial to their improvement.

#### X. CONCLUSION AND SUGGESTIONS

#### 5.1 Conclusion

Using animation movie is effective to improve students' ability in listening at English Study Program of FKIP UHKBPNP. Students are more imaginative and creative after treatment. They are able to predict the context of the text.

### 5.2 Suggestion

Related to the finding of this research, some suggestions are addressed to:

- a. Lecturers and teachers of English. Using animation movie is highly recommended since it produces creative learning. There are so many movie in the internet, but not all of them are suitable as learning media. That is why lecturer needs to carefully select the appropriate one.
- b. Other relevant researchers. It is suggested to apply this media as solution to teaching problem in other learning subjects and research fields. In addition, in the discussion section of this report, some difficulties while listening have been discovered. Other researchers may investigate on the best solution to those obstacles.

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