Penelitian Program Studi

THE LABORATORY WORK METHOD AND LECTURER'S CREATIVITY TO INCREASE STUDENTS' ACHIEVEMENT IN TEACHING ACADEMIC ENGLISH SUBJECT

Oleh

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LEMBAGA PENELITAN DAN PENGABDIAN MASYARAKAT
UNIVERSITAS HKBP NOMMENESEN
MEDAN
2015

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1. 1. a. Judul Penelitian : The Laboratory Work Method to Increase Students' Achievement in Teaching Academic English Subject
   b. Bidang Ilmu : Pendidikan Bahasa Inggris
   c. Kategori : Penelitian untuk Mengembangkan Fungsi Kelembagaan Perguruan Tinggi

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   a. Nama Instansi :
   b. Alamat :

6. Lama Penelitian : 3 (tiga) bulan

7. Biaya Penelitian : Rp. 13.000.000.00

8. Sumber Dana : Lembaga Penelitian UHN Rp. 10.000.000.00
   : Biaya sendiri Rp. 3.000.000

Medan, 07 Maret 2015

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CHAPTER I

INTRODUCTION

1.1. The Background of the Study

Language is a great part in our life. Language and human beings are two unseparated components. Whenever, wherever and whoever can express feeling and thoughts with language. It is a way, perhaps the most important of language in which human beings interact in social situations. Each language has its own norms, including grammar and structure. Accordingly when message which is transferred from a certain language into others.

"…Language is an arbitrary system of speech sound or a sequence of speech sounds which is used or can be used in interpersonal communication by an aggression of human beings and which rather exhaustively catalogs things, processes and events in the human environment…" (Ramelan, 1984: 45).

Students of Economics are often difficult to understand the subject matter in General English and Business English that are generally practised. This difficulty will bring bad effect to the understanding of the students that will be economical concepts, because basically the facts that abstract or an explanation for the facts and concrete concepts.

Laboratory work is a key of role to improve the students ability and skills in English learning. English Laboratory is compulsion for many topics in English subject as it is known that theoretical aspect has to be proven by practise (laboratory work) in the laboratory. One of the subjects in class of Economic is English Academic, where the subtopics in that subject are ; grammar, writing, reading and listening. One of them is listening that is very interesting to explore by applying laboratory work.

A good quality of education in a country indicates of succes development in education sector in that country. In Indonesia, showed that quality of national education still under

national standard. This matter can be seen from student's achievement in high school especially in English subject.

Teaching method is one factor which influences the quality of education. In teaching process, choosing method and how to use teaching method exactly have to do by lecturers so that will be able to achieve good results. And exact and correct choosing in teaching method is able to decrease learning difficulties because it can improve student's motivation and intellectual activities in lesson that were taught.

There are some teaching methods which is often used by lecturers in teaching process: conventional method, demonstration, discussion and other. The problem is how do lecturers use these methods in teaching process? This is depend on the aim of teaching process. Generally, lecturers are mostly not using the right method in teaching subject in English subject. Using teaching method wrongly isn't based on lesson and type performance that be aims of the study. While the effectiveness of teaching method influenced by conformity among lesson contents and type of performance contents (Hidayanto, 2007)

(Hussain, *et.al*.,2010 ; 129) proved that the traditional teaching method does not enhance academic abilities of the students at desirable level. When compared with the results in posttest, it is clear that the students performed better when taught in technology based learning environment and it helps students develop the abilities of knowledge, comprehension and application as the items of achievement tests were based on these measures.

Succes of teaching learning process is determined by approach of the lecturers to the students. Approach in teaching method can help the lecturers to understand capacity of student's thinking and level of student's difficulty (Montelone,.,2008). Teaching process is more meaningful when learning is applied by not one direction so that it will increase relationship between the students and lecturers and also fellow the students. The lecturers

must give opportunity to the students for thinking process, to ask, to develope creative attitude when it is go on and to “discovery” a new things (Wilson, 2009).

Teaching method need to be improved and appropriate teaching strategies employed as the teaching-learning situation may be demanded. Various teaching methods are introduced for English teaching such as inquiry, project, lecture-demonstration, problem solving, remedial and laboratory experiment (Ross,2007). There is however the need to understand that for different topic in science, the teaching approaches may differ depending on the complexity and structure of the topics so that the purpose of learning which formulated can reach (Sola, 2007). The lecturers should be concerned with the use of variety of methods and procedures.

According to Piaget, inquiry approach is a good education to prepare situation for students to do experiment themselves, in other meaning that they want to use the symbol, give questions and finds answer for the question, to combine one research with others, to compare what is they discovered with another the students (Tarigan., 2006). Using of inquiry approach is one of strategies which can change characteristic of laboratory work. The lecturers are more observing their students; it means the lecturers require students to use their mind during laboratory experiment to go on. For that case, the lecturers need to arrange questions which must be answered by the students. Thus, learning process will give best effectiveness to increase understanding for the students about studying matter.

Laboratory work is an effort in process of teaching using laboratory equipment. Laboratory work give study experiment directly, so that higher meaningful rising. There are chances that students able to do observation, collecting of data, make hypothesis or making prediction based on collecting of data till making conclusion. By laboratory work method students have skill using practise method in face all of problems, so they aren’t easy to believe something that is not true yet certain.

Using laboratory work in process of English learning attention interest in materials that taught. Experiment teaching has purpose to help teaching process in order easily remembered by the students, so that will be able to give longer impression teaching. Teaching method with experiment method will be able to help students thingking concepts of knowledge and real situation in laboratory, by doing practice and experiment. Thus, teaching impression will give better effectiveness to improve students' ability in studying of English in college.

One of subject matter be researcher attention is listening and laboratory work. Teaching of listening and laboratory work is quite difficult, if used conventionally only by conventional method. For that case it is important to think teaching method which able to improve students' interest in learning Academic English, so it will be interest and easy to understand for students. Using laboratory experiment is suitable if it is done in teaching of Academic English as it is explained in indicators and syllabus.

Teaching of laboratory experiment had researched by (Sihole, 2004) she said that resulted of students' achievement was improved by teaching of laboratory experiment because this teaching method taken longer recall than conventional method. Using laboratory experiment in learning is very effective because student able to learn self from from observation in experiment, so that able to improve students' achievement (Hutasoit, 2006). Positive influence for advancing of student achievement was obtained by laboratory experiment, if happened because subject matter that taught by laboratoy experiment able in arising students' interest and attention (Purba, 2008).

Based on the description above, the writer is interested in carrying out a research dealing the improving the knowledge to support listening skill. Because of that, the writer takes courage to write a thesis with the title "**The Laboratory Work and Lecturer's Creativity to Increase Students Achievement in Teaching Academic English Subject".**

1.2. Identification of Problem

1. The quality of teching in Academic English especially for listening and laboratory work is still low.
2. The lecturers are mostly not using the right method in teaching subjects in Academic English.
3. Academic English concept is needed to be improved due to their ability to understand.
4. The subject matter og Academic English such as listeening and laboratory work is difficult for some students.

1.3. The Problem of the Study

Problem of study formulated as follows :

1. How is the effectiveness of teaching by using laboratory work method and inqury approach compare to the students achievement in Academic English learning.
2. Are there any significant differences in the students achievement by using listening and laboratory work and inquiry approach compare to conventional method?

1.4. The Scope of the Study

This study is limited of using laboratory work method and inquiry approach in teaching listening and laboratory work of Academic English, students of second semester, group MA.2 Class of Management and Group of EA.1 Class of Economic, HKBP Nommensen University of Medan, which are then compare to conventional method that is usually conducted in classroom.

1.5. The Objective of the Study

1. To know the effectivenes of listening and laboratory work in improving students' achievement of teaching Academic English.
2. To know the difference of students' achievement by using listening and laboratory work method in teaching Academic English.

1.6. The Significances of the Study

1. To make students have meaningful knowledge by using listening and laboratory work.
2. To be an input in teaching-learning process, especially for English leturers in teaching of Academic English.
3. To be an input to others researches who want to conduct further research.
4. Researcher will be able to develope himself in using laboratory experiment in teaching of English as a lecture or teacher.

CHAPTER II

REVIEW OF RELATED LITERATURE

2.1 Definition of Learning

To obtain an objective understanding of learning, especially learning in university level, to be formulated clearly. Understanding of learning has been often mentioned by experts of psychology, including educational psychologists. According to the psychological sense, learning is a process of changing, changes in behavior as a result of in dail the environment in meeting their daily needs. These changes will be significant for all aspects of behavior. Understanding of learning can be defined as follows: “learning is a process of effort for someone to acquire a new behavior changes as a whole, as a result of his own experience in interacting with their envioronment”.

Changes that occur in a person a lot of nature and type. Therefore, not every change in a person is a change in the meaning of learning. For example, if a person’s hand is a change in the sense of learning: if the hand of a child from a broken crooked hit by a car. Such changes can be classified into a change in the meaning of learning. Similary, a person’s behavior changes that are in the aspects of maturity, growth and development do not include changes in terms of learning.

2.2. Laboratory Work Method in Teaching Academic English.

The progress of knowledge and technology cause everything need experiment. Likewise in learning teaching process, the way to teach in class is using laboratory work method. It means one of taching method where’s student in conducting an experiment about something, observe the process and also write the result. Then the result extended in class and evaluated by the lecturer. By conducting experiment, student must be sure about something

than only accepted from lecturer and book, enrich in experience, developing scientific attude, learning achieverment longer in recall.

Listening and laboratory work is a teaching method where the lecturers or students do something practice knowledge or experimental and also observe the process and result. By implementing listening and laboratory work students conduct observation, taking data, take conclusion based on result of experiment, accrurately. Experiment is a trial to evidence a question or hypothesis. Experiment can be done in laboratory. Define of experiment is learning by doing, consequence experiment can enter into teaching method group.

In the process of learning and teaching with this experimental method, students are given the opportunity to experience their own or do own, follow the process, observing an object, analyzing, verifying and draw their own conclusions about an object, situation or process anything. The role of lecturer in the experimental method is very important, particulary in respect of accuracy and precision so that no mistake and errors in meaning of experimentation in teaching and learning activities. Thus, the role lecturers to make learning activities these become the determinant factor of success or failure of this experimental method (Sagala, 2005).

2.2.1 The Advantages Laboratory Work Method

In applying listening and laboratory work, there are some advantages, as follows:

1. Student have more skill in using scientific method to solve the problem to determine system and environtment.

2. Students more active in thinking and do about by applying listening and laboratory work besides obtain knowledge, practice , experiment and also skill in using laboratory equipment in listening topic.

3. Students are able to evidence the truth of a theory by self.

4. Obviating verbalism danger in learning.

5. Giving complex challenges for students to solve the problem in listening.

6. Giving more opportunities in training intellectual activities to understand the topic.

2.2.2 Laboratory in Teaching

Laboratory in natural science is place where lecturer and students doing practice or and experiment, observation and research. Laboratory is place which support activity in class. Otherwise activity in class is support in laboratory's activity. According to Poerdawarminta that : laboratory is a place where an experiment to take place about everything which relate with physics, chemistry and others, (including language experiment).

Laboratory is scientific science involve students in real experience toward thing and concepts. The rel experienced which which is obtained by laboratory's activity very important to students in teaching learning process. Teaching learning process will more active if students try to use what have been studied (Simamora, 2006)

2.2.3 The Factors which Causing Replace of Laboratory's Function.

Many factors that caused laboratory's function have replaced, as follows ;

1. The lack of ability in managing laboratory.

2. The lack of understanding about laboratory's function.

3. Limitation of lecturer's ability to mastery the subject matter.

4. Generally, lecturer's welfare is still lower so their struggle looking for the other job to increase their income. (Tarigan, 2010).

2.3. Listening and Laboratory Work with Inquiry Approach

By using inqury approach, characteristic of listening and laboratory work will be change. Lecturer have to observe students; it means that lecturers require the students to use their thinking as demonstration to go on. Thus, lecturer arranged questions which must be

answered by the students. In learning teaching process based on inquiry approach; its part is very determine. Part of student's question or redirecting questions has importance part. From the students' side it could be known as far as students think. From lecturer's side, students are guided and redirected to use their thinking with creative and critic.

In studying situation whic uses inquiry approach, part of question is desirable getting attention. Full participation from students only can reached if the lecturers create situation of studying to its aim with giving good and qualified questions. Qualified questions mean not only used lecturer's method, but also when the lecturer applies listening and laboratory work and when the student s conduct listening and laboratory work, discussion, conduct review in field, etc.

Classification of students' question in application inquiry approach as follows ;

1. Divergent Questions / Convergent Question

Divergent question is the question which characteristic uncovered to stimulate as many as alternative of answer from students. The function is to speculate and create answer from students. Convergent question is question which stimulate the students give the answer which has characteristic "to the point" for the question.

2. Question based on Bloom's Taxonomy

Question which is given to the students also can be classified as hierarchy of purpose of instructional.

2.4 Teaching Model Using Conventional Method in Academic English

The conventional method in teaching is known as one of the oldest and most basic pedagogic tools given by philosophy of idealism. As used in applied in education, the lecturing method refers to the teaching procedure involved clarification or explanation of the students of some major idea. The lecturer is more active and students are passive but lecturer also uses question answer to keep them attentive in the class.

Although experience and educational research show that the lecture is less effective than activity methods at school level, many teachers find themselves spending at least 30 to 50 percent of their teaching time in lecturing (Mohan, 2002).

Carter Good's dictionary defines lecture method as an instructional procedure by which the lecturer seeks to create interest, to influence, to stimulate or mould opinion, to promote activity, to impart information or to develop critical thinking, largely by the use of the verbal message, with a minimum of class participation; illustration, maps, charts or other visual aids may be employed as supplement to the oral techniques. Wasley, Edgar B. and Wronsky, Stanley P. suggested that the lecture method serves four basic purposes ; to motivate, to clarify, to review and to expand (Mohan, 2002).

The weakness of conventional method in teaching could be identified as follows ;

1. This method is apt to be missued. The "pouring in" of information is psychological unsound unless it can be done in a meaningful way.

2. Science is best learnt by doing. There is no provision for activities in this method as the students are passive (listener).

3. The rate of imparting information by the lecturer may seem to fast for the students who are restless by nature, preoccupied with their own immediate problems and often handicapped by limitations of vocabulary and background of experience.

4.The lecture method is not very succesful in imparting attitude and skills, as it does not touch the effective and psychomotor faculties of the learner.

5. As student interaction is minimum, social attitudes and values may not be .

6. The lecture method cannot cater to individual grasping capasities of the students fostered. (Sagotsky, et.al., 2008).

2.5. Academic English Curriculum

Many of courses integrate (combine) the five language skills: listening, speaking, reading, writing, and grammar. Examples of classes that address these skills include Academic Interactions (listening/speaking), Academic Preparation (reading/writing), Grammar and Pronunciation. Even though these classes focus on specific skills, but still use and develop all five language skills in class activities. For example, in Grammar class; students will read, speak, and practice grammar in Academic Preparation class.

The students learn English through interesting content, with topics from business, academics and culture. Academic Preparation, Academic Interactions, and Academic Vocabulary classes cover a range of academic topics in one semester. These topics include: Anthropology, Science, Sociology, Psychology, History, Art, and many others.

The General English Program is a flexible, intensive language program for beginner through advanced levels. In addition to class time, it also includes a variety of economy, social and cultural activities. This program is designed for students who want to improve their English language proficiency for everyday or professional use.

Academically bound students interested in the Academic English may find it beneficial to enroll in General English subject before entering their programs as a way of easing into English study.

- Offers multiple levels.
- Runs 14 sessions per semester; each session is once a week.
- Enroll in just one 1-week session
- Choose from 14 or 2 lesson hours per week.

General English is a content-based, integrated skills program in which students take a combination of core and an elective class, depending on the intensity (hours/week) of the

individual program and a balanced weightage will be given to all academic skills including listening, speaking, and application of concepts.

2.5.1. Syllabus

Subject Title **: Academic English**

Level of Study **:** 1st

Semester **:** 2nd

Pre-requisite **:** Nil

Code **: .....**

Hours assigned (seminars) : 14 (contacts)

Status **:** Core / Non-deferrable

Subject Weight **:** 1

Credits **:** 2

Design Length **:** 1 semester

Method of Assessment **:** 100% continuous assessment of laboratory work

Objectives **:**

1. In general, to help students study effectively in the University's English medium learning environment.

2. More specifically, to help students to improve and develop their English language proficiency within a framework of academic contexts. In working towards the achievement of the two interrelated objectives, attention will be given to helping students develop the core competencies identified by the University as vital to the development of effective life-long learning strategies and skills specially in listening and laboratory work.

Brief Description : This course includes exercises by cassette recording of the information conveyed in the form of conversations, short conversations and mini-talks.

Competence Prerequisite : Students are able to understand English spoken about the various discourses that are heard in the form of conversations, short conversations and mini-talks.

Basic Competence :

After following this course students are able to:

1. Mention the purpose of the text is heard
2. Answering questions
3. Describe the meaning of terms that heard
4. Recounting competence, indicators, material, teaching,learning.
5. Understanding verbal information in English either in the form of similar sentences, conversations and announcements
6. Able to respond in accordance with information obtained from the first listening.
7. Ability to understand oral texts about education
8. Able to tell a personal educational background
9. Able to understand the text and answer the questions
10. Able to understand spoken sentences quickly
11. Able to pronounce the sentences reporting accurately and quickly
12. Able to tell Biography in text
13. Able to tell Personal Biography
14. Able to understand the advertisement in the radio
15. Able to understand the terms in the text
16. Able to answer questions related to text

17. Be able to describe their opinions how to learn good english
18. Able to her experience in learning English
19. Being able to compare some cities that have been visited
20. Being able to compare people or objects that are known
21. Understand the comparison contained in the text
22. Able to answer questions
23. Able to lead a stranger to find one place in particular
24. Able tell the contents of the text
25. Understand the terms and facilities are the restaurant
26. Able to tell the contents of the text
27. Able to tell experience experience of cities that were visited
28. Able to discuss the content of text
29. Able to tell the personal life

Sources :

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- Riyanti, Rahaya Dwi Dkk, 1999, *Comprehending Listening*, Open University
- Alexander LG, 1977, *Questions and Answers*, London: Longman

Tucker, Janina and Bemmet, *Eric Van, IELTS to Success*, Sydney: John Willey & Son.

2.5.2. Subject Description

The subject is designed to enable students to use English effectively in the academic contexts they will encounter in their studies. The main emphasis is on improving students' confidence and competence in using English in these contexts. As far as possible, the subject will address the specific language needs of students' ability levels and subject specialisms.

The study method is primarily based on seminars and these will include interactive learning techniques such as discussions and role-plays. Use will also be made of video and tape recordings, relevant Web-based materials/activities for Independent Language Learning. Students in need of additional help will be required to attend a supplementary English programme organised by the English Language Centre.

2.5.3. Teaching and Learning Materials

Academic English published by the Curriculum of Economic Faculty, the HKBP Nommensen University of Medan and specially prepared material from the Centre will be used throughout the course. In addition, lecturers will recommend additional reference materials as required.

This syllabus is indicative. The balance of the components, and the weighting accorded to each will be based on the specific needs of the students. To work towards the accomplishment of its objectives, the syllabus is specified under a single heading consisting of four interrelated strands.

2.6. Conceptual Framework

Academic English is a necessary subject in university level. Sometimes the students get bored in teaching learning process if the lecturer does not make variation in teaching. To get the optimal result require being paid attention, that is study method. One of using method is laboratory work method. In the laboratory work method, students are given the opportunity to experience their own or do own, follow the process so the students remember the Academic English easily. So, laboratory work method makes process of the student receive learning matter will give the best result.

2.7. Hypothesis

To make the study to be focused based on the objective of the research, therefore the hypothesis of this proposed research are given as follows ;

The first hypothesis;

Ho: There is no effectiveness of laboratory work method and inquiry approach to increase student's achievement in high group compare with conventional in teaching Academic English.

Ha: There is effectiveness of laboratory work method and inquiry approach to increase student's achievement in high group compare with conventional in teaching Academic English.

The second hypothesis ;

Ho: There is no effectiveness of laboratory work method and inquiry approach to increase student's achievement in low group compare with conventional in teaching Academic English.

Ha: There is effectiveness of laboratory work method and inquiry approach to increase student's achievement in low group compare with conventional in teaching Academic English.

CHAPTER III

METHODOLOGY RESEARCH

3.1 Design and Planning of the Research

The sample of this study consisted of 60 students of grade 1 studying at Economics faculty, HKBP Nommensen University of Medan. As the college was a public sector institution located in capital, students from various socio-economic backgrounds from different parts of the country were eligible to join it. The age of I grade students had completed first fourteen lesson of their English textbook. Sample students were randomly divided into two groups i.e. control group and experimental group, each consisting of 30 students on equivalent basis. The class sections were allotted randomly to control and experimental groups.

To measure the achievement level of students, two different types of tests (pretest and posttest) were developed by the researcher which were administered after validation. The tests consisted of multiple choice items, short questions and comprehension exercise. The students of experimental group were taught through using conventional method. After collecting the data, the responses were scored; means and t-values were calculated for determining the significance. On this pre-testing the students were divided into two groups' i.e. experimental groups and control groups.

The test for achievement was conceptual in nature. Seven lessons were taught in the pre-testing ad similarly seven lessons were taught in the post testing. But these lessons were different from the pre-test. The split half method (odd-even) was used to test the reliability of post-test scores obtained by the students who formed the sample of the study. The coefficient of reliability was determined through the using of Chi-Quadrate formula estimating reliability from the comparable values of the post- test.

In this researh, the researcher used laboratory work method as a treatment in experimental class (laboratory) and control class taught by using conventional method. Both of classes were taught with the same topic, that's listening and laboratory work at the same time. Design of the research is shown in the table 3.1.

Table 3.1. Design of the Research Effectiveness of Laboratory Experiment Method to Increase Student's Achievement of Academic English

NO	Faculty	Total students	Total class (parallel)	Selected class	Selected sample		Total sample
					HG	LG	
1	Economic	30	3	M.A.2	15	15	30
2	Economic	30	1	E.A.1	15	15	30

where : HG : High Group
LG : Low Group

3.2 Location and Time of the Research

This research was conducted in HKBP Nommensen University of Medan with owning laboratory facility. The research was conducted at academic year 2010/2011 on March up to July 2011. The administration proces have been made to ask the permission to the member of the researcher free to do researh in the class. Agrement from faculty targets have been obtained and the lecturer in the campus had agree to help the researher in preparing the study being succes starting from selection of the target sample, introducing an innovated teaching method , doing teaching activities based on the research procedures prepared by the researcher, conducting evaluations (pre-test and post-test) and obtaining the data.

3.3 Population and Sample

The populations are all the students of the second semester, class of Economy and Management, Economic faculty, HKBP Nommensen University of Medan. The samples are choosen purposively due to the limitation of the researcher, those are group M.A.2 and Group E.A.1. Sample in each class is devided into two classes for each group consisting of one class use laboratory work method and the other as control class use conventional method.

The member of sample will be taken from each group is limited which is divided into two groups, those are high group (HG) is students who have high achievement and low group (LG) is students who have low achievement. Student's achievement is taken from their achievement in second semester. Each class will be given a same conduction but only selected sample which is used as a research sample.

3.4 Variables

There are three different variables in this research, they are ; (1) independent variable, those are variation in the teaching method in classroom which covered the teaching of Academic English by using laboratory work method and the teaching of English Academic by using conventional method, (2) the lecturer's creativity and (3) dependent variable, that is the student's achievement in teaching of Academic English, that is the data obtained from pre-test and post-test.

3.5 Test Instrument

According to Arikunto (2008: 3) Research is a review of class action against the form of an action learning activities, which deliberately raised and occur in a classroom together. The action comes in the form of referrals from teachers or teachers by learners. He also states that the requirements of a good test there are two, namely validity and reliability. Validity is essential to support a test said to be good and reliability is a necessary condition

for a test. Reliability is a test strongly supports the establishment of the validity of the questions that are used. A test may be reliable but not valid, but a valid test is usually reliable. Validity is a measure that indicates the level of validity or the validity of an instrument. An instrument is valid or invalid to have high validity, while the instrument is less valid means to have low validity.

3.5.1. Research Procedures

The research procedures began from administration process to have permission to do experiment in Economic faculty, HKBP Nommensen University of Medan. In to the target, the class sample are choosen to be included in the study, followed by sampling process to obtain experiment class and control class in each of the selected class.

Before the threatments have been done, the samples are homogenized in order to get result. The pre-test is given to obtain the data on the achievement of students on Academic English. The evaluation was conducted prior to the teaching, both for experiment classes and control classes. The data obtained from pre-test was use to see the variation of the samples before the teaching treatment being carried out, where the outlier samples has to be excluded from the data, those are the data obtained for the students with the achievement test are far from the other students.

After the samples are assesed to be homogenous, the study was followed by the teaching treatments for both experiment class and control class. Teaching treatments are given by using laboratory work method to the experiment classes and conventional method for control class.

The data achievement of the students on Academic English were obtained from evaluation test that were conducted at the end of the teaching. The evaluation test were conducted two weeks after the teaching treatment to obtain how far the students understand

the concepts on Academic English with those treated by the laboratory work method compare to a conventional method.

The study is proposed to start from sampling process to obtain experiment class and control class in each of the selected class. The study is then followed by pre-test that was the preliminary evaluation before teaching treatments being carried out. The teaching treatments of laboratory work method was then applied to the experimental class and conventional method was for control class, followed by post-test in all samples. The data collected in this study are the students' achievement (achievement score) from evaluation test in the study.

3.5.2. Arranging the Research Instrument

Before using the evaluation test, the item on the evaluation test has been standardized using standard procedures to standardize the test. The question on the evaluation tests are assessed to investigate the normality, homogenity, validity, reliability and level of difficulties of the instrument. Normality of the test is assessed by using Chi-Quadrate test by determining amount of interval class, where amount of interval class using Chi-Quadrate test according to six areas which are in curve of standard value, determining length of the class, by using formula of bigger data minus smaller divided by six. The homogenity of the test which is used in this research is by dividing the bigger variance to the smaller variance.

According to Arikunto (2009: 66) empirical validity is the validity based on the experience gained by means tested. The validity refers to how test measures and what will be measured. The validity of the test is used in this research is empiric validity, whereas technique which is product moment correlation technique y pearson. The reliability of the test is consistency of measurement. To obtain the reliability of the test in this researh is used Richardson's formula, that's K-R 21 because the test is multiple choices. The difficulties level of the test is also evaluated by using discrimination index of the test to investigate the

ability of the instrument to differ among the students. The standard test chosen in this study are 20 problems and all of them are group into set of standard evaluation test, the pre-test and post-test.

3.5.3. Teaching Treatment

Teaching treatment are proposed to be conducted to experimental class and control class. The experimental class is given the teaching procedures by using laboratory work method. The control class is given teaching treaching treatment by using conventional method. The steps to variables in this researh are controlled, where both of classes are given the same subject matter that is listening and laboratory work, the time of teaching of subject matter is considered same and lecturer who is teaching subject matter is considered the same lecturer.

For the experiment class of laboratory work teaching method have been arranged the teaching procedure starting from divided the students into set of group of four students and then to the students the explanation to the subject being taught are given starting from the simple concept followed by complex concepts and question problems. The teaching was then followed by given a set of experimental manuals to the students to be conduct in the laboratory. Each set of the experiment have to be completed by the students until all the experiments are done in company by taking note and observations, followed by answering the given questions.

After the experiment have finished, the students (one group) are then ask to report their observation in group while giving chance to other group to give confirmation and comments, followed by the explanation from the lecturer on the right answer. The lecturer was then taught the way of solving the problem given in the laboratory manual. The lecturer was then taught the way of solving the problem related to the topic of listening and laboratory work.

For control class of conventional method have been arranged the teaching procedure starting from giving the explanation on the subject being taught to the students on a simple concept to complex concept followed question problems. Among the explanations, the lecturer giving question to be answered by the students related to subject. After teaching process has finished, then the students are asked to give comments, followed by the explanation from the lecturer with the right answer. The lecturer had taught the way of solving the problem related to the topic of listening and laboratory work.

3.5.4. Data Collection and Analysis

The proposed data to be obtained in this study is students' achievements. Students achievements is obtained from the students achievement to solve the problem in evaluation tests, they are pre-test and post-test. There are 20 questions are used that covered the Academic English. The data are counted from students achievement in sample class for the right answer. The data are based on the class and treatment group. Pre-test is carried out before the teaching treatment into the experiment class and control class. The score obtained in the pre-test is set up to measure the students' achievement in subject matter as well as to homogenize the sample.

The data on teaching Academic English were taken by conducting test, by using post-test, those are the evaluation after two weeks teaching. The score obtained in the post-test are intended to measure the students' achievement in subject matter by the effect of the laboratory workt method and conventional method. The results are calculated to investigate the influence of the innovated teaching method on to the students's achievement in Academic English. The decision has been made based on the measurement and hypothesis testing by using statistic, as well as the calculation comparison for the experimental class and the control class.

CHAPTER IV

ANALYSIS AND DISCUSSION

4.1. Validation of Instruments and Data Analysis

The data which are obtained are students' achievement that is students' value by answering question in evaluation. Data are grouped based on the class and group which are tested. The effectiveness of method which is given to increase students' achievement in using laboratory work method and inquiry approach for each treatment group and treatment in conventional method. The data are collected, tabulated and analyzing by statistic method.

4.1.1. Analysis of Instrument Data

Before using test instrument as evaluation in process of collecting data the first has done tye out to expert valuator, amount of valid instrument whic is acquired 20 instruments. Valid test instrument is used as istrument in this research to get the result of students' achievement in each class.

Table 4.1. Validity of the test instrument.

No	Indicators	instrument test	key answer	cognitive aspect	valid	invalid
1	Understanding verbal information in English either in the form of similar sentences, conversatio	**1.**[**A**] Tom is riding a bike. [B] The bike is upside down. [C] Tom is repairing the bike. **2.**[A] Professor Graff doesn't usually write on the blackboard. [B] Students are rarely bored in Professor Grafts class. [**C**] The professor uses graphs when she lectures.	**A** **C**	**C6** **C6**	√ √	

No	Indicators	instrument test	key answer	cognitive aspect	valid	invalid
2	ns and announcements communicative Able to respond in accordance with information obtained from the first listen.	**3**.[A] They are with them. [B] It is with them. [**C**] They are with her. **4.**[A] I passed the test because I studied hard. [**B**] I won't do well on the test if I don't study. [C] I failed the test because I didn't study enough. **5.**[A] How long is the school term? [B] Why did you turn over the stool? [**C**] I wish I know how to get to the dormitory. **6**.[A] The boat owner must be rich. [**B**] This man must be the owner. [C] Those men are both rich. Organic farming has become one of the fastest growing trends in agriculture recently. Over the past ten years, sales of organic products have increased a staggering 20 percent, with retail sales per year of more than 9 billion dollars. Farmers have realised that organic farming is an incredibly	**C** **B** **C** **B**	**C6** **C5** **C5** **C5**	√ √ √ √	

No	Indicators	instrument test	key answer	cognitive aspect	valid	invalid
		cost-effective method because it can potentially be used to control costs, as well as to appeal to higher- priced markets. Apart from these monetary benefits, organic farming also naturally results in positive ecological outcomes for the environment. Organic farming relies on practices that do not harm the environment, and for this reason, chemicals and synthetic medicines are prohibited. All kinds of agricultural products can be produced organically, including grains, meat, eggs, and milk. In order for agricultural products to be certified as organic, they must be grown and processed according to regulations established by the Department of Agriculture. Certification involves two stages: the submission of a system plan and an inspection of processing facilities. The certification process is a stringent one and must be undertaken every year. Inspite of these rigorous requirements, some people remain concerned about				

No	Indicators	instrument test	key answer	cognitive aspect	valid	invalid
3	Capable of understanding english spoken about the various discourses that are heard in the form of statements, short conversations and mini-talks.	the safety of organic food. However, research has shown that organic produce contains lower levels of both chemicals and bacteria than food which is produced using conventional farming methodsLast but not least, organic farms are better for wildlife that those run conventionally. Scientists have discovered that organic farms contain more species of plants, birds, and insects due to the fact that the absence of chemicals from pesticides and fertilizers makes these areas richer habitats for animal. **7.** What have farmers realised about organic farming? [A].It is more costly than conventional farming. [B].It is more cost-effective than conventional farming. [C]It results in lower profits than conventional farming. **8**. In what way does organic farming benefit the environment? [A]. It does not use chemicals. [B]. It uses only synthetic materials.	**B** **A** **C**	**C4** **C4** **C4**	√ √ √	

No	Indicators	instrument test	key answer	cognitive aspect	valid	invalid
4		[C]. It can be used to control produce. **9.** What comment did the speaker make about the certification process? [A]. Most farmers can pass it easily. [B]. It involves a great deal of processing. [C]. It involves quite strict standards. **10.** Which concern do some people have about organic food? [A]. cost [B]. safety [C]. production methods **11.** How does organic farming improve wildlife? [A]. It results in a greater variety of species. [B]. It reduces the amount of insects. [C]. It increases livestock. **12.** Have you been to see the new movie yet? [A]. Yes, I'm going tomorrow. [B]. No, it wasn't very good. [**C**]. Yes, I went yesterday. **13**.I'm taking some clothes to the	**B** **A** **C** **A** **B**	**C3** **C3** **C3** **C3** **C3**	√ √ √ √ √	

No	Indicators	instrument test	key answer	cognitive aspect	valid	invalid
	Capable of understanding english spoken about the various discourses that are heard in the form of statements, short conversations and mini-talks.	cleaners. Is there anything I can drop off for you? [**A**]. No thanks, all my stuff's clean. [B]. Be careful not to break it. [C]. Please get me some, too. **14**.How are things going so far? [A]. They've already gone [**B**]. We've accomplished a lot. [C]. It's not too far	**B**	**C2**	√	
		For problems 4-6, choose the answer that means about the same thing as the statement you hear. **15**.Frank never would've gone to the lecture if he'd known how boring it was. [A]. He didn't want to go. [**B**]. He didn't like it. [C]. He never went.	**A**	**C2**	√	
		16.We first thought we'd buy several paintings, but we settled for only one when we found out how expensive they were. [**A**]. We bought one. [B]. We bought several [C]. We didn't buy any **17. T**his'll be a fine essay with a little	**C**	**C2**	√	

No	Indicators	instrument test	key answer	cognitive aspect	valid	invalid
5	Understand the kinds of information conveyed in the language spoken both monologues and dialogues	bit of polishing [A]. It's perfect now. [B]. It needs a lot more work [**C**]. It's quite good already **Now you will hear a short talk. You may write notes during the lecture. You will be asked questions after the lecture** There'll be a two-week exhibit of the paintings of the little-known master, Laura Bernhart, at the Claire Osmond Galleries starting on the fifteenth of the month and running through the thirtieth. Bernhart's known for her innovative designs in abstract expressionism. Since Bernhart lived a rather solitary life and died while only in her twenties, few people are aware of her works. This showing at the Osmond Galleries will provide many with an introduction to her works. Though a true original, she declared a spiritual heritage from Salvador Dali, the famous Spanish painter. **18**.Where is the exhibit? [A].The Art Museum [B].the Dali Galleries	**C** **B** **B**	**C1** **C1** **C1**	√ √ √	

No	Indicators	instrument test	key answer	cognitive aspect	valid	invalid
		[**C**]. the Osmond Galleries **19**.What is Bernhart known for? [A]. her copies of Dali's paintings [**B**]. the originality of her designs [C]. her exhibitions **20**. What will going to the exhibit allow most people to do? [A]. to see Salvador Dali's paintings [**B**]. to see Bernhart's works for the first time [C]. to learn about Spanish art				

The number of test which is obtained are 20 and each has represented five indicators in syllabus. Valid test instrument is used in this researh to determine the increasing of students' achievement from pre-test and post-test.

Table 4.2. Table of class grouping based on high and low group in each class

A. Experimental Class

Group MA.2

High Group **Low Group**

No	Name's code	Pre-test	Post-test	No	Name's code	Pre-test	Post-test
1	***A1***	47	60	**1**	***P6***	73	80
2	***B2***	47	53	**2**	***Q7***	73	80

No	Name's code	Pre-test	Post-test	No	Name's code	Pre-test	Post-test
3	***C3***	43	53	**3**	***R8***	57	70
4	***D4***	43	60	**4**	***S9***	67	80
5	***E5***	43	60	**5**	***T0***	73	73
6	***F6***	43	50	**6**	***U1***	47	80
7	***G7***	40	53	**7**	***V2***	67	80
8	***H8***	37	53	**8**	***W3***	73	77
9	***I9***	37	53	**9**	***X4***	73	73
10	***J0***	33	60	**10**	***Y5***	47	83
11	***K1***	33	60	**11**	***Z6***	57	80
12	***L2***	33	53	**12**	***A7***	47	73
13	***M3***	33	53	**13**	***B8***	57	73
14	***N4***	33	43	**14**	***C9***	73	80
15	***O5***	33	43	**15**	***D0***	67	80
	Total	**578**	**807**		**Total**	**371**	**694**
	Average	**38.53**	**53.80**		**Average**	**24.73**	**46.26**
	Standard Deviation	**5.43**	**5.63**		**Standard Deviation**	**4.81**	**5.33**

A. Experimental Class

Group EA.1

High Group **Low Group**

No	Name's code	Pre-test	Post-test	No	Name's code	Pre-test	Post-test
1	***A1***	47	63	**1**	***P6***	30	50
2	***B2***	43	60	**2**	***Q7***	30	53
3	***C3***	40	50	**3**	***R8***	30	53
4	***D4***	37	63	**4**	***S9***	27	47
5	***E5***	37	47	**5**	***T0***	27	53

No	Name's code	Pre-test	Post-test	No	Name's code	Pre-test	Post-test
6	***F6***	37	43	**6**	***U1***	27	50
7	***G7***	37	40	**7**	***V2***	23	53
8	***H8***	37	47	**8**	***W3***	23	47
9	***I9***	33	47	**9**	***X4***	23	47
10	***J0***	33	50	**10**	***Y5***	23	53
11	***K1***	33	60	**11**	***Z6***	23	60
12	***L2***	33	53	**12**	***A7***	23	63
13	***M3***	33	43	**13**	***B8***	23	57
14	***N4***	33	53	**14**	***C9***	13	50
15	***O5***	33	53	**15**	***D0***	13	57
	Total	**546**	**772**		**Total**	**358**	**793**
	Average	**36.40**	**51.46**		**Average**	**23.86**	**52.86**
	Standard Deviation	**4.23**	**7.35**		**Standard Deviation**	**5.23**	**4.74**

B. Control Class

Group MA.2

High Group **Low Group**

No	Name's code	Pre-test	Post-test	No	Name's code	Pre-test	Post-test
1	***A1***	43	47	**1**	***P6***	27	30
2	***B2***	40	47	**2**	***Q7***	27	40
3	***C3***	37	33	**3**	***R8***	27	30
4	***D4***	37	37	**4**	***S9***	27	47
5	***E5***	37	37	**5**	***T0***	27	33
6	***F6***	33	37	**6**	***U1***	23	30
7	***G7***	33	37	**7**	***V2***	23	47
8	***H8***	33	37	**8**	***W3***	23	47

No	Name's code	Pre-test	Post-test	No	Name's code	Pre-test	Post-test
9	***I9***	33	40	**9**	***X4***	23	30
10	***J0***	33	40	**10**	***Y5***	23	30
11	***K1***	33	40	**11**	***Z6***	23	40
12	***L2***	33	40	**12**	***A7***	20	30
13	***M3***	33	33	**13**	***B8***	17	23
14	***N4***	30	40	**14**	***C9***	13	23
15	***O5***	30	40	**15**	***D0***	13	23
	Total	**518**	**585**		**Total**	**336**	**503**
	Average	**34.53**	**38.00**		**Average**	**22.40**	**33.53**
	Standard Deviation	**3.58**	**4.01**		**Standard Deviation**	**4.77**	**8.6**

Group EA.1

High Group **Low Group**

No	Name's code	Pre-test	Post-test	No	Name's code	Pre-test	Post-test
1	***A1***	43	47	**1**	***P6***	27	40
2	***B2***	37	47	**2**	***Q7***	27	33
3	***C3***	37	43	**3**	***R8***	27	33
4	***D4***	37	40	**4**	***S9***	27	33
5	***E5***	30	43	**5**	***T0***	27	33
6	***F6***	30	43	**6**	***U1***	27	33
7	***G7***	30	43	**7**	***V2***	27	30
8	***H8***	30	40	**8**	***W3***	23	30
9	***I9***	30	40	**9**	***X4***	23	30
10	***J0***	30	37	**10**	***Y5***	23	30
11	***K1***	30	37	**11**	***Z6***	23	50
12	***L2***	27	40	**12**	***A7***	20	23

No	Name's code	Pre-test	Post-test	No	Name's code	Pre-test	Post-test
13	***M3***	27	40	**13**	***B8***	20	30
14	***N4***	27	40	**14**	***C9***	17	33
15	***O5***	27	40	**15**	***D0***	17	23
	Total	**472**	**620**		**Total**	**3.55**	**484**
	Average	**31.46**	**41.33**		**Average**	**23.66**	**32.26**
	Standard Deviation	**4.77**	**2.99**		**Standard Deviation**	**3.73**	**6.4**

4.1.2. Test of Data Analysis

The first test of analysis data that have to be done before testing hypothesis are test of normally and homogenity. The normallity test is done to know distribution of data. The normaliy test thatis used in this research either on experimental or control class is using chi-quadrate test. Result of X^2_{count} experimental class is 10,42, value of Chi-Quadrate list in α = 0.05; dk = 5 is 11.07. Based on the measurement shown that $X^2_{count} < X^2_{table}$ (10.42 < 11.07) it is concluded if data is normal distribution. While in control class X^2_{count} is 10.06, value of Chi-Quadrate list in α = 0.05; dk = 5 is 11.07. Based on the measurement shown that $X^2_{count} < X^2_{table}$ (10.06 < 11.07) it is concluded if the data is normal distribution.

The homogenity test is done to know the homogenoty of sample. Measurement of homogenity shown that value of F_{count} smaller than $F_{table,}$ $F_{count} < F_{table}$ (1.03 < 1.39) it is concluded if students' achievement are homogenity.

4.2. Students' Achievement before Teaching Treatment

The data which is needed to discuss in this research is the result of prior evaluation pre-test and post-test. By analyzing data will be known how the effectiveness of teaching Academic Englsih by using laboratory work method to increase students' achievement of Economic students', second semester, HKBP Nommensen University of Medan.

Before giving treatment in experiment and control class, the first is giving pre-test for students to know their beginning knowledge. The result of pre-test is also important to know how far the degree of their normallity and homogenity. The result of collecting data in pre-test shows that generally students in both of the two classes (M.A.2 and E.A.1) are not understand yet about subject matter in Academic English, it can be seen from students' achievement in the table below ;

Table 4.2 Students' Achievement

class	**group**	**value of pre-test**	
		experiment	**control**
M.A.2	HG	38.53 (5.43)	34.53 (3.58)
	LG	24.73 (4.81)	22.40 (4.77)
E.A.1	HG	36.40 (4.23)	31.46 (4.77)
	LG	23.86 (5.23)	23.66 (3.73)
Total	**HG**	**37.46 (4.83)**	**32.99 (4.17)**
	LG	**24.29 (5.02)**	**23.03 (4.25)**
	Total	**30.87 (4.92)**	**28.04 (4.21)**

Where ; HG : students who have high value in pre-test
LG : students who have low value in pre-test

From the data above, can be seen that students' achievement is still low, each of class has low average achievement. The value of average in experimental class is (30.87 ± 4.92) while in control class is (28.04 ± 4.21); both of them have low achievement. The analysis of data shows that there is no significances different for them. Averaging value of high group in experimental class is (37.46 ± 4.83) and for control class is (32.99 ± 4.17), aren't significantly different with t_{count} 4.47 > t_{table} 1.990. Averaging value of low group in experimental class is (24.29 ± 5.02) and for control class is (23.03 ± 4.25), aren't

significantly either, with T_{count} 1.26 T_{table} 1.990. The aanalysis of data shown that students in both of class have low achievement in Academic English teaching.

4.3. Student's Achievement After Teaching Treatment

The influences of laboratory experiment method to increase student's achievement can be seen after teaching treatment by the post-test. The post-test is done in order to know authorizing level of students to increase the subject matter of Academic English. The result of the post-test which is obtained after learning based on group of the school can be seen in the table below ;

Table 4.3. average value and standard deviation of students' achievement in the post-test

class	group	value of post-test	
		experiment	control
M.A.2	HG	55.80 (5.63)	39.00 (4.01)
	LG	46.26 (5.33)	33.53 (8.60)
E.A.1	HG	51.46 (7.35)	41.33 (3.00)
	LG	52.86 (4.74)	32.26 (6.40)
Total	**HG**	**53.63 (6.49)**	**40.16 (3.50)**
	LG	**49.56 (5.03)**	**32.89 (7.50)**
	Total	**51.59 (5.76)**	**36.52 (5.50)**

The result from the table shows that students' achievement in experimental class 51.59 ± 5.76 is higher than control class 36.52 ± 5.50 it shows that there is a significance of student's achievement. Averaging value of high group in experimental class (53.63 ± 6.49) is higer than control class (40.16 ± 3.50) it shows that there is significant difference with T_{count} 13.47 > T_{table} 1.990. In low group of experimental class, the averaging value is (49.56 ± 5.03)

is higher than control class (32.89 ± 7.50) it shows that there is difference but not significant with T_{count} 16.67 > T_{table} 1.990. The result of data analysis of the averaging value in the post-test in both of class shows that there is increasing influence of students' achievement after giving laboratory work method.

4.3.1. Testing of Hypothesis

Testing of hypothesis is done once. The first hypothesis is use the post-test from high group. Testing of second hypothesis used the post-test from low group. Criterion of hypothesis as follows ;

The First Hypothesis

Ho : there is no effectiveness of laboratory experiment method to increase students' achievement in high group (HG) compared with conventional method in teaching of Academic English.

Ha : there is effectiveness of laboratory experiment method to increase students' achievement in high group (HG) compared with conventional method in teaching of Academic English.

Table 4.5 Data of the post-test for high group in experiment and control class.

Class	S	S2	$\bar{X}$	N	t_{count}
Experiment	6.49	42.12	53.63	45	13.47
Control	3.50	12.25	40.16	45	

Criterion of hypothesis test ;

Rejected of Ho if $-t_{½} > t > t_{½}$ because of $T_{count} > T_{table}$ e.g. 13.47 .> 1.990 or T_{count} in area of refusing Ho so it can be concluded that refusing Ho and accepting Ha. It means that there is effectiveness of laboratory work method to increase students'

achievement in high group (HG) compared with conventional method in teaching of Academic English.

The Second Hypothesis

Ho : there is no effectiveness of laboratory experiment method to increase students' achievement in low group (LG) compared with conventional method in teaching of Academic English.

Ha : there is effectiveness of laboratory experiment method to increase students' achievement in low group (LG) compared with conventional method in teaching of Academic English.

Table 4.5 Data of the post-test for low group in experiment and control class.

Class	**S**	**S^2**	**$\bar{X}$**	**N**	**t_{count}**
experiment	5.03	25.30	49.56	45	16.67
control	7.50	56.25	32.89	45	

Criterion of hypothesis test :

Rejected of Ho if $-t_{½} > t > t_{½}$ because of $T_{count} < T_{table}$ e.g. 16.67.> 1.990 or T_{count} in area of refusing Ho, so it can be concluded that refusing Ho and accepting Ha. It means that there is no effectiveness of laboratory work method to increase students' achievement in low group (LG) compared with conventional method in teaching of Academic English.

4.3.2. The Effectiveness Percentage of Laboratory Experiment Method.

The effectiveness is a condition which shows how much what have been planned could be achieved. In this research, the effectiveness refers to measure the influence of laboratory experiment method to increase the students' achievement in teaching of Academic English. The effectiveness percentage of high group which tested by applying laboratory work method is 29.96% and for low group is 50.39%, whereas effectiveness percentage of high group which tested by applying conventional method is 15.52% and for low group is 37.15%

Calculation of Normally Test

Experimental Class

Interval	***f***	***Fh***	***(Fo-fh)***	***(fo-fh)²***	***(fo-fh)²/fh***
34-41	5	2.34 % x 60 = 1	4	16	16
42-46	13	13.53% x 60 = 8	5	25	3.12
47-51	15	34.13% x 60 = 21	-6	36	1.71
52-56	22	34.13% x 60 = 21	1	1	0.04
57-61	5	13.53% x 60 = 8	-3	9	1.12
62-66	0	2.34 % x 60 = 1	-1	1	1
Total	**60**	**60**			**X^2 =10.42**

Calculation of the normality

$$X^2_{count} = \frac{fo-fh^{\,2}}{fh}$$

= 10.42

From X^2 distribution list number of interval are six (k = 6), so that dk = 6-1 = 5, value of Chi-Quadrate table in α = 0.05 ; dk = 5 is 11.07. there by showing that X^2 count < X^2 table, (10.42 < 11.07) it can be concluded if data above is normal distribution.

Calculation of Normally Test

Control class

Interval	***f***	***Fh***	***(Fo-fh)***	***(fo-fh)²***	***(fo-fh)²*** / ***fh***
23-27	5	2.34 % x 60 = 2	3	9	4.5
28-32	8	13.53% x 60 = 8	0	0	0
33-37	15	34.13% x 60 = 21	-6	36	1.71
38-42	21	34.13% x 60 = 21	0	0	0
43-47	11	13.53% x 60 = 8	3	9	1.12
48-52	0	2.34 % x 60 = 2	-2	4	2
Total	**60**	**60**			**X^2 = 9.33**

Calculation of the normality

$$X^2_{count} = \frac{fo-fh^{\,2}}{fh}$$

= **9.33**

From X^2 distribution list number of interval are six (k = 6), so that dk = 6-1 = 5, value of Chi-Quadrate table in α = 0.05; dk = is 11.07. there by showing that $X^2_{count} < X^2_{table}$, (10.42 < 11.07) it can be concluded if data above is normal distribution.

Calculation of Homogenity Test

The homogenity test is done to know the homogenity of sample. Testing of knowing the homogenity of data in this research is done by comparing the biggest variant with smallest.

Hypothesis

Ha : $\sigma^2 : \sigma^2$ (there is no diffrent of variant between high and low group)

Ho : $\sigma^2 : \sigma^2$ (there is different of variant between high and low group)

By counting of standard deviation from data of population is resulted as follows :

Table 9.1. Homogenity test result in teaching of Academic English

Class	**S**	S^2	$\bar{X}$	**n**	F_{count}	F_{table}
experiment	6.38	36.95	50.34	60	1.03	1.39
Control	6.41	38.04	37.57	60		

Value of F count is smaller than F $_{list}$, $F_{count} < F_{table}$ (1.03 < 1.39), it can be concluded if students' achievement are homogenous.

Calculation of Hypothesis Test

The First Hypothesis

Ho : there is no effectiveness of laboratory experiment method to increase students achievement in high group compared with conventional method.

Ha : there is eefectiveness of laboratory experiment method to increase students' achievement in high group compared with conventional method.

A. Data of pre-test for high group in experimental and control class

$S_1 = 4.72$ $S = 22.62$ $\bar{X}_1 = 36.66$ $n_1 = 45$

$S_2 = 4.75$ $S = 23.55$ $\bar{X}_2 = 33.37$ $n_2 = 45$

Data in both of samples is homogenity and $n_1 = n_2$, hence for testing hypothesis using formula as follows :

$$t_{count} = \frac{\overline{a^2}}{n1} + \frac{b^2}{n2}$$

$$t_{count} = \frac{\overline{a^2}}{n1} + \frac{b^2}{n2}$$

$$= \frac{\mathbf{3.29}}{\mathbf{1.02}}$$

$$= \mathbf{3.23}$$

Value of t_{table} at dk = $n_1 + n_2 = 88$ and $\alpha = 0.05$ is not defined in list so it is obtained by interpolation :

$T_{(0.975.60.)} = 2.000$

$T_{(0.975.120.)} = 1.980$

So that t_{list} $= 2.000 + \frac{88-60}{120-60} (1.980-2.000)$

$= 2.000 + 0.47 (-0.02)$

$= 1.990$

Critical area at : $t < -t_{½\alpha}$ and $t > t_{½}$

$T < -t_{(0.025)(88)}$ and $t > t_{(0.025)(88)}$

$t < -1.990$ and $t > 1.990$

Criterion of hypothesis test ;

Rejected of Ho if $-t_{½} > t > t_{½}$. Because of $t_{count} > t_{table}$ e.g. $3.23 > 1.990$ or t_{count} in area of refusing Ho, so it can be concluded refusing Ho and accepting Ha. It means there is

effectiveness of laboratory work method to increase students' achievement in high group compared with conventional method in teaching of Academic English.

B. Data of the post-test for high group in experimental and control class.

$S_1 = 4.83$ $S = 29.39$ $\bar{X}_1 = 52.82$ $n_1 = 45$

$S_2 = 3.61$ $S = 13.20$ $\bar{X}_2 = 40.33$ $n_2 = 45$

Data in both of samples is homogenity and n1=n2, hence for testing hypothesis using formula as follows :

$$t_{count} = \frac{\overline{a^2}}{n1} + \frac{b^2}{n2}$$

$$t_{count} = \frac{\overline{a^2}}{n1} + \frac{b^2}{n2}$$

$$= \frac{12.49}{0.94}$$

$$= 13.28$$

Value of t_{table} at $dk = n_1 + n_2 = 88$ and $\alpha = 0.05$ is not defined in list so it is obtained by interpolation :

$T_{table} = 1.990$

Critical area at : $t < -t_{½\alpha}$ and $t > t_{½}$

$t < -t_{(0.025)\,(88)}$ and $t > t_{(0.025)\,(88)}$

$t < -1.990$ and $t > 1.990$

Criterion of hypothesis test ;

Rejected of Ho if $-t_{½} > t > t_{½}$. Because of $t_{count} > t_{table}$ e.g. $13.28 > 1.990$ or t_{count} in area of refusing Ho, so it can be concluded refusing Ho and accepting Ha. It means there is effectiveness of laboratory work method to increase students' achievement in high group compared with conventional method in teaching of Academic English.

The Second Hypothesis

Ho : there is no effectiveness of laboratory experiment method to increase students achievement in low group compared with conventional method.

Ha : there is effectiveness of laboratory experiment method to increase students' achievement in low group compared with conventional method.

A. Data of pre-test for high group in experimental and control class

$S_1 = 4.88$ $S = 24.00$ $\bar{X}_1 = 23.98$ $n_1 = 45$

$S_2 = 3.80$ $S = 15.11$ $\bar{X}_2 = 22.40$ $n_2 = 45$

Data in both of samples is homogenity and $n_1 = n_2$, hence for testing hypothesis using formula as follows :

$$t_{count} = \frac{}{\sqrt{\frac{a^2}{n1} + \frac{b^2}{n2}}}$$

$$t_{count} = \frac{}{\sqrt{\frac{a^2}{n1} + \frac{b^2}{n2}}}$$

$$= \frac{1.58}{0.87}$$

$$= 1.82$$

Value of t_{table} at dk = $n_1 + n_2 = 88$ and $\alpha = 0.05$ is not defined in list so it is obtained by interpolation : $t_{table} = 1.990$

Critical area at : $t < -t_{½\alpha}$ and $t > t_{½}$

$t < -t_{(0.025)\,(88)}$ and $t > t_{(0.025)\,(88)}$

$t < -1.990$ and $t > 1.990$

Criterion of hypothesis test ;

Rejected of Ho if $-t_{½} > t > t_{½}$. Because of $t_{count} > t_{table}$ e.g. $1.82 > 1.990$ or t_{count} in area of refusing Ho, so it can be concluded refusing Ho and accepting Ha. It means there is effectiveness of laboratory work method to increase students' achievement in low group compared with conventional method in teaching of Academic English.

B. Data of the post-test for high group in experimental and control class.

$S_1 = 5.21$ $S = 27.35$ $\bar{X}_1 = 48.31$ $n_1 = 45$

$S_2 = 6.08$ $S = 41.90$ $\bar{X}_2 = 34.82$ $n_2 = 45$

Data in both of samples is homogenity and n1=n2, hence for testing hypothesis using formula as follows :

$$t_{count} = \frac{}{\sqrt{\frac{a^2}{n1} + \frac{b^2}{n2}}}$$

$$t_{count} = \frac{}{\sqrt{\frac{a^2}{n1} + \frac{b^2}{n2}}}$$

$$= \frac{13.49}{1.54}$$

$$= 8.76$$

Value of t_{table} at dk = $n_1 + n_2 = 88$ and $\alpha = 0.05$ is not defined in list so it is obtained by interpolation : $t_{table} = 1.990$

Critical area at : $t < -t_{½\alpha}$ and $t > t_{½\alpha}$

$t < -t_{(0.025)(88)}$ and $t > t_{(0.025)(88)}$

$t < -1.990$ and $t > 1.990$

Criterion of hypothesis test ;

Rejected of Ho if $-t_{½\alpha} > t > t_{½\alpha}$. Because of $t_{count} < t_{table}$ e.g. 13.28 <1.990 or t_{count} in area of refusing Ho, so it can be concluded refusing Ho and accepting Ha. It means there is effectiveness of laboratory work method to increase students' achievement in high group compared with conventional method in teaching of Academic English.

BAB V

CONCLUSION AND SUGGESTION

5.1. Conclusion

1. There is effectiveness or influence of laboratory work method to increase students' achievement in teaching Academic English esspecially in listening and laboratory work.
2. Laboratory work method is efective to increase the students' achievement. It can be seen from the averaging value of post-test by using laboratory work is higher than conventional method either in the post-test. The students' achievement in the post-test by using laboratory work method for high class (52.82±4.83) is higher than control class (40.33±3.61) with t_{count} 13.28 > t_{table} 1.990 and for low class (48.31±5.21) is higer than control class (34.82±6.08) with t_{count} 8.76 > t_{table} 1.990. it shows that there is significant difference of students' achievement.

5.2. Suggestion

1. For English teachers and lectures should use laboratory work method which will be able to increase the students' achievement, that will make learning is meaningful and make students get longer remembrance.
2. For school and university holder, in order to provide and increase the facility of campus, especially materials and equipment for English laboratory.

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Listening and Laboratory Work Instrument Test

Name : .....

No.reg : .....

Group : MA.3 / EA.1

==========

Section A

Directions : In this section, you will hear 6 short statements. The statements will be spoken just once. They will not be written out for you, and you must listen carefully in order to understand what the speaker says.

When you hear a statement, you will have a period of 15 to 20 seconds to read the four sentences in your test book and decide which one is closest in meaning to the statement you have heard. Then, on your answer sheet, find the number of the problem and mark your answer by drawing **with** a pencil a short bar across the corresponding letter in the brackets.

Listen to the following example:

You will hear:

"He is no longer living in Beijing."

You will read:

[A] He's been living in Beijing for a long time.

[B] He used to live in Beijing.

[C] He's gone to Beijing for a short visit.

Sentence [B] "He used to live in Beijing" is closest in meaning to the statement "He is no longer living in Beijing." Therefore you should choose answer [B].

Soal no 1 – 10 menguji kemampuan Anda memahami pernyataan pendek dalam bahasa Inggris. Masing-masing pernyataan akan dibacakan sekali saja. Pernyataan yang Anda dengar tidak akan ditulis dalam tes. Anda tidak diperkenankan membuat catatan apapun dalam buku tes.

LANGKAH – LANGKAHNYA:

- Lihatlah secara sepintas pernyataan yang ada pada pilihan A, B, C, dan D.
- Arahkan pikiran Anda pada topik pembicaraan yang akan disampaikan pada pernyataan pendek.
- Pahami makna/maksud yang tersirat pada pernyataan pendek tersebut.
- Pilihlah jawaban yang memiliki makna yang sama/mirip dengan pernyataan tersebut.

Pada contoh di atas kita mendengarkan sebuah pernyataan pendek yakni **"He is no longer living in Beijing** (Dia tidak lagi tinggal di Beijing). Pada pilihannya terdapat **hanya satu pernyataan yang memiliki makna yang sama dengan pernyataan pada soal** yakni **[B] He used to live in Beijing** (yang artinya, dulu dia tinggal di Beijing dan sekarang tidak).

Kunci untuk memilih jawaban yang tepat pada Listening bagian pertama adalah **memilih sinonim/memilih pernyataan yang memiliki makna yang sama/mirip dengan pernyataan pada soal**.

1.[A] Tom is riding a bike.
[B] The bike is upside down.
[C] Tom is repairing the bike.

2.[A] Professor Graff doesn't usually write on the blackboard.
[B] Students are rarely bored in Professor Grafts class.
[C] The professor uses graphs when she lectures.

3.[A] They are with them.
[B] It is with them.
[C] They are with her.
4.[A] I passed the test because I studied hard.
[B] I won't do well on the test if I don't study.
[C] I failed the test because I didn't study enough.
5.[A] How long is the school term?
[B] Why did you turn over the stool?
[C] I wish I know how to get to the dormitory.
6.[A] The boat owner must be rich.
[B] This man must be the owner.
[C] Those men are both rich.

Section B

Organic farming has become one of the fastest growing trends in agriculture recently. Over the past ten years, sales of organic products have increased a staggering 20 percent, with retail sales per year of more than 9 billion dollars. Farmers have realised that organic farming is an incredibly cost-effective method because it can potentially be used to control costs, as well as to appeal to higher-priced markets.

Apart from these monetary benefits, organic farming also naturally results in positive ecological outcomes for the environment. Organic farming relies on practices that do not harm the environment, and for this reason, chemicals and synthetic medicines are prohibited. All kinds of agricultural products can be produced organically, including grains, meat, eggs, and milk.

In order for agricultural products to be certified as organic, they must be grown and processed according to regulations established by the Department of Agriculture. Certification involves two stages: the submission of a system plan and an inspection of processing facilities. The certification process is a stringent one and must be undertaken every year.

Inspite of these rigorous requirements, some people remain concerned about the safety of organic food. However, research has shown that organic produce contains lower levels of both chemicals and bacteria than food which is produced using conventional farming methods.

Last but not least, organic farms are better for wildlife that those run conventionally. Scientists have discovered that organic farms contain more species of plants, birds, and insects due to the fact that the absence of chemicals from pesticides and fertilisers makes these areas richer habitats for animal.

Questions!

1) What have farmers realised about organic farming?
   [A]. It is more costly than conventional farming.
   [B]. It is more cost-effective than conventional farming. [CORRECT]
   [C]. It results in lower profits than conventional farming.
2) In what way does organic farming benefit the environment?
   [A]. It does not use chemicals. [CORRECT]
   [B]. It uses only synthetic materials.
   [C]. It can be used to control produce.
3) What comment did the speaker make about the certification process?
   [A]. Most farmers can pass it easily.
   [B]. It involves a great deal of processing.
   [C]. It involves quite strict standards. [CORRECT]
4) Which concern do some people have about organic food?
   [A]. cost
   [B]. safety [CORRECT]
   [C]. production methods
5) How does organic farming improve wildlife?
   [A]. It results in a greater variety of species. [CORRECT]
   [B]. It reduces the amount of insects.
   [C]. It increases livestock.

Section C

What to Expect

- This is a multiple-choice test of 9 questions. It lasts about 15 minutes.
- The test is played on CD. Sound is broadcast from speakers all around the room.
- You will be given three possible answers for each question. Choose the best answer. Only one answer is correct.
- There are several kinds of problems: questions, short conversations, and two short talks and one radio interview.

Tips **: If you are not sure about an answer, guess.**

Example Questions

Type 1 You will hear a question. There are three answers printed in your test booklet. You may pick only one. Choose the the best answer.
You hear: When's she going on vacation?
You read: [A]. last week
[b]. To England
[C]. tomorrow
The correct answer is "c. tomorrow."

Type 2 You will hear a very short conversation. Choose the answer which is true based on the conversation.
You hear: That movie was pretty bad.
You read: [A]. It was good.
[B]. It wasn't good.
[C]. It wasn't beautiful
The correct answer is "b. It wasn't good."

Type 3 You will hear two short talks and one radio interview. After each talk and the radio interview are over, you will be asked questions about them. You will have a place to take notes and you may refer to your notes to answer the questions.

Questions ;Here is a short sample listening test. Answers are at the end. Do not look at the answers until you have finished all the questions. Remember, there is a big difference between reading the questions and listening to them on the CD. It may be helpful to have someone read the questions and lecture to you. The actual listening test is recorded by native speakers of English, speaking at a normal rate. A 10 to12 second pause will follow each problem. During this pause, read the answers and select one.

Source : www.petersons.com

There are 12 problems in this sample test. For problems 1–3, choose the best answer to the question.

1. Have you been to see the new movie yet?
   [A]. Yes, I'm going tomorrow.
   [B]. No, it wasn't very good.
   [**C**]. Yes, I went yesterday.
2. I'm taking some clothes to the cleaners. Is there anything I can drop off for you?
   [**A**]. No thanks, all my stuff's clean.
   [B]. Be careful not to break it.
   [C]. Please get me some, too.
3. How are things going so far?
   [A]. They've already gone.
   [**B**]. We've accomplished a lot.
   [C]. It's not too far.

For problems 4-6, choose the answer that means about the same thing as the statement you hear.

4. Frank never would've gone to the lecture if he'd known how boring it was.
   [A]. He didn't want to go.
   [**B**]. He didn't like it.
   [C]. He never went.
5. We first thought we'd buy several paintings, but we settled for only one when we found out how expensive they were.
   [**A**]. We bought one.
   [B]. We bought several.
   [C]. We didn't buy any.
6. This'll be a fine essay with a little bit of polishing.
   [A]. It's perfect now.
   [B]. It needs a lot more work.
   [**C**]. It's quite good already.

Now you will hear a short talk. You may write notes during the lecture. You will be asked questions after the lecture.

There'll be a two-week exhibit of the paintings of the little-known master, Laura Bernhart, at the Claire Osmond Galleries starting on the fifteenth of the month and running through the thirtieth. Bernhart's known for her innovative designs in abstract expressionism. Since Bernhart lived a rather solitary life and died while only in her twenties, few people are aware of her works. This showing at the Osmond Galleries will provide many with an introduction to her works. Though a true original, she declared a spiritual heritage from Salvador Dali, the famous Spanish painter.

7. Where is the exhibit?
   [A].The Art Museum

[B].the Dali Galleries
[**C**]. the Osmond Galleries

8. What is Bernhart known for?
   [A]. her copies of Dali's paintings
   [**B**]. the originality of her designs
   [C]. her exhibitions
9. What will going to the exhibit allow most people to do?
   [A]. to see Salvador Dali's paintings
   [**B**]. to see Bernhart's works for the first time
   [C]. to learn about Spanish art

Source : www.petersons.com