THE EFFECTIVENESS OF TOTAL PHYSICAL RESPONSE (TPR) IN TEACHING VOCABULARY VIEWED FROM STUDENTS' INTELLIGENCE QUOTIENT (IQ)
(An Experimental Research in the Fifth Year Students of SD Negeri Kleco 1 Surakarta in the 2011/2012 Academic Year)

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Submitted to Graduate School of Sebelas Maret University as Partial Fulfillment for Getting Graduate Degree in English Education

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SURAKARTA
2012

ABSTRACT

Anita Dewi Ekawati, S891002005. *The Effectiveness of Total Physical Response (TPR) in Teaching Vocabulary Viewed from Students' Intelligence Quotient (IQ) (An Experimental Research in the Fifth Year Students of SD Negeri Kleco 1 Surakarta in the 2011/2012 Academic Year)*. Thesis. Surakarta: English Education Department Graduate School, Sebelas Maret University of Surakarta. 2012. First consultant: Dr. Ngadiso, M.Pd and second consultant: Dr. Sujoko, M.A.

This research is aimed at finding out whether: (1) TPR is more effective than the audio-lingual method in teaching vocabulary to the fifth year students of SD Negeri Kleco 1 Surakarta in the 2011/2012 academic year; (2) students having high IQ have better vocabulary mastery than those having low IQ in the fifth year students of SD Negeri Kleco 1 Surakarta in the 2011/2012 academic year; and (3) there is an interaction between teaching methods and IQ in teaching vocabulary to the fifth year students of SD Negeri Kleco 1 Surakarta in the 2011/2012 academic year.

The research was carried out at SD Negeri Kleco 1 Surakarta in the 2011/2012 academic year. The population was the fifth year students of SD Negeri Kleco 1 Surakarta in the 2011/2012 academic year. There are two classes; (1) 40 students from VA; and (2) 40 students from VB. In this research, the researcher uses total sampling. All of those students became the object of the experiment. Each class was divided into two groups (the students having high and low IQ). The research instruments consist of the students' IQ document and a vocabulary test. The vocabulary test was valid and reliable after it was tried out in SD Negeri Bulukantil No.150 Surakarta (the vocabulary test was tried out in SD Negeri Bulukantil No.150 Surakarta because there are only two classes in SD Negeri Kleco 1 Surakarta and both of them have become the object of the experiment). The data were the result of vocabulary test and analyzed by multifactor analysis of variance 2 x 2 (ANOVA). Then, it was analyzed by using Tukey test.

The findings of the research show that (1) TPR is more effective than audio-lingual method for teaching vocabulary to the students in the fifth grade of SD Negeri Kleco 1 Surakarta in academic year 2011/2012; (2) The students who have high IQ have better vocabulary achievement than those who have low IQ of the students in the fifth grade of SD Negeri Kleco 1 Surakarta in academic year 2011/2012; and (3) There is an interaction between teaching methods and students' IQ in teaching vocabulary to the students in the fifth grade of SD Negeri Kleco 1 Surakarta in academic year 2011/2012.

Based on the research findings, it can be concluded that: (1) TPR is a very effective method for teaching vocabulary in the fifth grade of SD Negeri Kleco 1 Surakarta in academic year 2011/2012, and (2) The effectiveness of the method is influenced by the level of the students' IQ. Hopefully, the result of the research will be something important for teachers in order to choose and determine the suitable teaching method used in their class.

Key words: Total Physical Response (TPR), audio-lingual method, and IQ

APPROVAL

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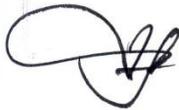
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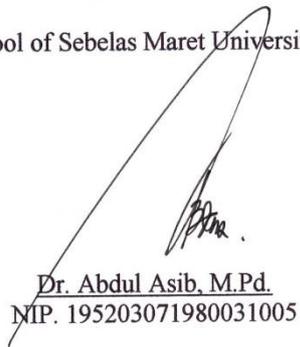
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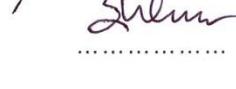
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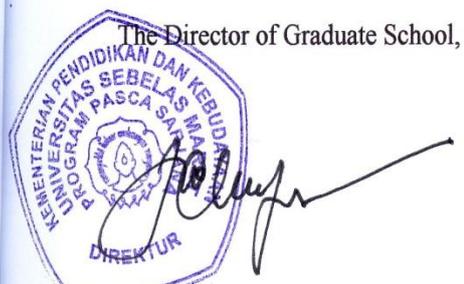
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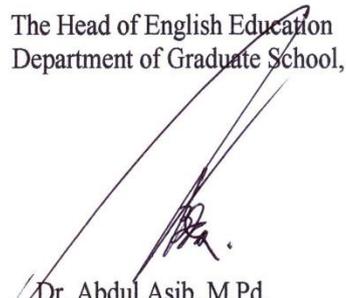
PRONOUNCEMENT

This is to certify that I myself write this thesis, entitled *"The Effectiveness of Total Physical Response (TPR) in Teaching Vocabulary Viewed from Students' Intelligence Quotient (IQ) (An Experimental Research in the Fifth Year Students of SD Negeri Kleco 1 Surakarta in the 2011/2012 Academic Year)"*. It is not a plagiarism or made by others. Anything related to others' work is written in quotation, the source of which is listed on the bibliography.

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Surakarta, February, 29th 2012

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M0TTO

'Ilm (knowledge) without 'aql (intelligence) is like having shoes
with no feet.
And 'aql without 'ilm is like having feet with no shoes.
(Ali Ibn Abi Thalib RA)

ACKNOWLEDGMENT

Surakarta, February, 29th 2012

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CHAPTER I

INTRODUCTION

A. Background of the Study

In Indonesia, English is considered important since Minister of Education has decided that English is the first foreign language to be taught (Suara Pembaruan, 2007: 10). Therefore, English is put in the Curriculum 2006 as the compulsory subject for junior and senior high school. Besides, English is one of the subjects introduced in some kindergarten and elementary school in order to prepare learners for the higher levels of education so that they acquire enough words to communicate well in foreign language. The students have to learn four major skills, i.e. listening, speaking, reading and writing. To support those four skills, the language components: vocabulary, grammar, spelling, and pronunciation, are also taught.

In this kind of situation, the teachers play the most important role in order to help the students in understanding English components, especially vocabulary. Vocabulary is essential for succesful learning in second or foreign language because without extensive vocabulary, the structures and function will be useless and some difficulties in communicating will be faced (Zhihong, 2000: 18). Moreover, Laufer quoting Vermeer's illustrations (Laufer in Schmitt and McCarthy, 1997: 140) states:

> "Knowing words is the key to understanding and being understood. The bulk of learning a new language consists of learning new words.

Grammatical knowledge does not make for great proficiency in a language."

It means that vocabulary is neccessary to be taught because word(s) is/are the basic resources to produce language, both spoken and written.

Some of the teacher teaches vocabulary traditionally, in which translation or list of words of vocabulary are provided to the students to memorize. Consequently, young learners find that learning vocabulary through the translation is less useful and cannot provoke students to feel interested in learning the lessons. English teachers are supposed to have ability to create variation in classroom activities in order to prevent the students' boredom and learning's demotivation. Therefore, it is the teachers' task to create a good atmosphere by teaching using variety of methods in order to avoid students' boredom and to trigger their motivation. The audio-lingual method and Total Physical Response (TPR) are two kinds of method that teachers can apply in the classroom.

The audio-lingual method began during the Second World War and it adopts behaviorism theory that Skinner and Pavlov made whereas TPR was stated in the sixties and seventies. Rodgers (2001: 2) points out the roles of teachers and students in the audio-lingual method and TPR. In the audio-lingual method, teachers act as a language modeler and drill leader while students act as a pattern practice and accuracy enthusiasm. In TPR, teachers have a role as commander and action monitor, whereas students' role is as order taker and performer. Mansilla (2008: 1) points out some similarities and differences between the two. The similarities are for example, the

teachers is a model to be followed and imitated by the students and in both methods listening and speaking language are emphasized over written one. In the audio-lingual method, students imitate tape recorder, video, or the teachers' pronunciation of the new vocabulary presented. In TPR, the students are supposed to do what teachers ask to illustrate the meaning. In the audio-lingual method, students listen to teachers, tape recorder, or video first, and then repeat the words. In TPR, students listen to teachers or watch the video and produce oral language naturally without instruction from the teachers to do so. Both methods adopt the way human learns the mother tongue. Moreover, the differences are TPR is a longer process to practice oral language than the audio-lingual method but TPR focuses on students' feeling and reduces the stress by learning using movement. Ur (1996: 288) states:

> "Three very important sources of interest for children in the classroom are pictures, stories, and games; the first being obviously mainly a visual stimulus, the second both visual and aural, and the third using both visual and aural channels as well as activating language production and sometimes physical movement".

It means that it is necessary to add visual and aural aids in classroom activity because it can motivate as well as enhance students' involvement in the activities. Hence, teaching vocabulary using the Total Physical Response is chosen as a method to teach in experimental class. The fifth grade of elementary school students are the samples to conduct this research because as stated by Santrock (2002: 305), success in learning a second language is better in childhood than in adolescence. Furthermore, SD Negeri 1 Kleco

Surakarta is chosen because this state school got A score in 2010 accreditation. It means that based on the Act of the Republic of Indonesia No. 20, year 2003 on National Education system, SD Negeri 1 Kleco Surakarta fulfils the criteria of properness programs with the good score.

To help the students to achieve the goal in learning English, it is better for the teachers to know the intelligence quotient (IQ) of their students as well as to choose the appropriate teaching methods. Lahey (2009: 310) says that intelligence test scores are important to predict success because persons with higher intelligence scores are qualified for advanced education, take less time to train, and do complex job better. Moreover, De Cecco and Crawford (1977: 512) say that IQ is the best predictor of school achievement, even though more than half of the variation remains unexplained. Besides, the function of IQ for the teachers is that it enables teachers to reduce the amount of error in their academic prophecies (De Cecco and Crawford, 1977: 511). Moreover, Jensen in Schmitt and McCarthy (1997: 134) argues that children of high intelligence acquire vocabulary faster than children of low intelligence.

In this study, the experimental method is used to do the research entitled: "The Effectiveness of Total Physical Response (TPR) in Teaching Vocabulary Viewed from Students' Intelligence Quotient (IQ) (An Experimental Research in the Fifth Year Students of SD Negeri Kleco 1 Surakarta in the 2011/2012 Academic Year)".

B. Problem Identification

Based on the description in the background of the study, the researcher can identify the problems of this research. There are several problems as follows:

1. Have teachers already made use of teaching media optimally in teaching and learning process?

2. Do teachers already apply innovative, creative, and enjoyable method in teaching vocabulary?

3. Does TPR give an optimal learning outcome in teaching vocabulary?

4. Does the audio-lingual method give an optimal learning outcome in teaching vocabulary?

5. Have teachers provided an appropriate treatment for students with different levels of intelligence?

6. Do levels of IQ influence the students' achievement in vocabulary acquisition?

C. Problem Limitation

Problems which may influence the students' vocabulary mastery are quite complex and wide as mentioned earlier in the problem identification. So, not all of the problems identified above can be observed wholly. Moreover, the researcher limits the research only to know the significant difference of the students' mastery of vocabulary between those who are taught by using TPR and those who are taught by using the audio-lingual

method viewed from their Intelligence Quotient (IQ).

D. Problem Formulation

The research problems are formulated as follows:

1. Is TPR more effective than the audio-lingual method in teaching vocabulary to the fifth year students of SD Negeri Kleco 1 Surakarta in the 2011/2012 academic year?

2. Do the students having high IQ have better vocabulary mastery than those having low IQ in the fifth year students of SD Negeri Kleco 1 Surakarta in the 2011/2012 academic year?

3. Is there an interaction between teaching methods and IQ in teaching vocabulary to the fifth year students of SD Negeri Kleco 1 Surakarta in the 2011/2012 academic year?

E. The Objectives of the Research

This experimental research is carried out at elementary school to meet the following objectives:

1. To find whether TPR is more effective than the audio-lingual method in teaching vocabulary to the fifth year students of SD Negeri Kleco 1 Surakarta in the 2011/2012 academic year.

2. To know whether the students having high IQ have better vocabulary mastery than those having low IQ in the fifth year students of SD Negeri Kleco 1 Surakarta in the 2011/2012 academic year.

3. To find out whether there is an interaction between teaching methods and IQ in teaching vocabulary to the fifth year students of SD Negeri Kleco 1 Surakarta in the 2011/2012 academic year.

F. The Benefits of the Research

The finding of this research is to give valuable contribution to the researcher, other researchers, English teachers, students, and the school itself.

1. To the researcher

The benefits of this research to the researcher are to develop the researcher's knowledge on the development of TPR and the audio-lingual method implementations of teaching methods and to know the significant differences in the students' achievement after getting different treatment. The researcher can use the result as one of references in teaching English vocabulary.

2. To other researchers

This research gives the references to other researchers for conducting the next researches.

3. To the English teachers

This research enriches the teachers' knowledge on the use of both methods mentioned above in the classroom, so that the teachers can create a good atmosphere by adding variety in teaching instrument in order to avoid students' boredom and trigger their motivation

4. To the students

This research can justify the suitable learning strategy for them. The students can easily understand and achieve the goal in learning vocabulary by using TPR and the audio-lingual method.

5. To the school

If the method that can help the students to understand the subject easily and to achieve the goal in learning is applied to the school, that school will gain reputation as a good school. As a result, the society will trust and believe that school more.

CHAPTER II

THEORIES UNDERLYING THE STUDY

A. Theoretical Description

1. Vocabulary

a. Definition

Vocabulary is stock of words used by an individual or existing in a language (Aitchison, 1987: 2). The term vocabulary according to Hatch and Brown (1995: 1) refers to a list or set of words for a particular language or a list or set of words that individual speakers of a language might use. Ur (1996: 60) roughly defines vocabulary as the words we teach in the foreign language and that not all the words can be translated one by one, such *post office* and *mother-in-law* which consist of two and three words but have a single meaning. Traditionally, vocabulary has been seen as individual words, which could be used with a great deal of freedom, only constrained by grammatical considerations (Moon in Schmitt and McCarthy, 1997: 105). Another expert, Ellis (Ellis in Schmitt and McCarthy, 1997: 229) says that vocabulary is not necessarily learned word by individual word, but is often learned initially in 'lexical phrases' several words long. Lexical phrases means sequences of words which mind learns as wholes and attaches a single meaning to. Based on the definition above, vocabulary can be defined as a group of words that can be used to communicate and interact with others.

b. Types of Vocabulary

Seegers (1995: 311-312) claims that there are four types of vocabulary, namely hearing vocabulary, speaking vocabulary, reading vocabulary, and writing vocabulary. Hearing vocabulary is the process when the students hear words. It is natural that a child learns to understand the meaning of certain words and phrases before s/he can speak the words. In addition, it is a well-known fact that primary grade children understand many words that they hear even though they may not be able to read those words. Speaking vocabulary includes the words that someone uses or has used in speaking. People use words in speaking based on the words that they know well. It is by using speaking vocabulary that people can communicate their thoughts to others. Reading vocabulary is the words that someone reads in the reading material. It has always been considered basic, and it has popularly been assumed that the development of it will ensure the development of all types of vocabulary. People assumed that the ability to read words can develop the reading skills. Writing vocabulary is the words that students write. It includes the words that someone writes or can write if the occasion arises.

According to Haycraft in Hatch and Brown (1995: 370) there are two kinds of vocabulary: receptive and productive vocabulary (passive and active are alternative terms). Receptive vocabulary refers to the words that the students will recognize when they meet them, but these students will probably not be able to produce, while productive vocabulary refers to

vocabulary that students have been taught and learned, which they are expected to be able to use. Furthermore, Celce-Murcia and Olshtain (2000: 77) state:

> "With reference to the four skills, the fewest vocabulary items are needed for speaking, while more words are needed for writing and for listening comprehension, with the largest number of words needed for reading. However, while listening and reading require receptive understanding of vocabulary, speaking and writing require productive use of vocabulary".

Based on those statements, it can be assumed that learners of any language are supposed to acquire an adequate number of words and to know how to use them accurately in order to communicate well.

c. Aspects of Vocabulary

According to Ur (1996: 60-62) there are some aspects that should be mastered by the students in learning vocabulary. They are aspect of forms (pronunciation and spelling), grammar, meaning relationship, and word formation.

 1) Forms (pronunciation and spelling)

In teaching and learning process, teachers are supposed to teach about pronunciation and spelling. The teachers can teach pronunciation by pronouncing the word and asking students to repeat it. After students know how to pronounce them, teachers can ask students to write the words while teachers dictate them repeatedly.

2) Grammar

Nation (2008: 61) says that in using words there are two grammatical functions; receptive and productive. Receptive includes the patterns in which the word occurs while productive means the patterns to produce the word. So, when teaching new verb, teachers are supposed to teach about regular and irregular (*get-got*) and note the transitive as well as intransitive. Moreover, when teaching noun, teachers are supposed to present the plural form, for example the irregular (*goose-geese*), or no plural at all (*population, police,* and *ice cream*). Teachers are supposed to present verbs such as *prefer* and *look* together with the verb form that follows them (*prefer something to something, look-ing*), or adjectives or verbs together with their following prepositions (*invisible to, fill in, make up*).

3) Collocation

There are two kinds of collocation, namely grammatical/syntactic collocations and semantic/lexical collocations. Grammatical/syntactic collocations are a noun, verb, or adjective followed by a preposition; for instances: *sponsored by, hang on, peculiar to*. In contrast, semantic/lexical collocations consist of noun + verb (*book cover*), verb + noun (*save document*), and adjective + noun (*spare time*). All of the collocations have certain meanings.

4) Aspects of meaning (1): denotation, connotation, appropriateness

Well-known is the denotation for the words *famous* and *notorious*. Nevertheless, *notorious* has a negative connotation. It means somebody who is well-known because of some bad attitudes.

A more delicate aspect of meaning that students need to learn is whether a certain word is suitable to use in a certain situation. Therefore, it is important for students to recognize that a certain word is very general, or relatively rare, or 'taboo' in polite dialogue, or tends to be used in writing but not in speech, or is more appropriate for formal than informal communication, or belongs to a certain dialect. For instance, the *elderly* is the "soft" word for *older person*.

5) Aspects of meaning (2): meaning relationship

How the meaning of one item relates to the others. There are varieties of such relationships:

a) Synonyms: The meanings of items are same or nearly the same; for example, *very bright, very clever, very good* may serve as synonyms of *brilliant*.

b) Antonyms: the opposite meaning of items; *new* is the antonym of *old*.

c) Hyponyms: items that provide specific examples of a general notion; *banana, watermelon, avocado* are hyponyms of *fruit*.

d) Co-hyponyms or co-ordinates: other items that are in the same category of object: *crocodile, peacock, snake, monkey* are co-ordinates.

e) Superordinates: common concepts for explicit items; *color* is the superordinate of *purple, brown, grey, orange, black*.

f) Translation: words or expressions in the native language which are (more or less) comparable in meaning to the second language.

All these can be useful in teaching to elucidate the meaning of a new word, for practicing, or for making the test material.

6) Word formation

Vocabulary items come from the same base or root. It can be separated into their components. Teachers are supposed to teach the common prefixes and suffixes to help students guess the meanings of words like *subtitle, unaware, unbelievable,* and *unforgettable*. Teachers are also supposed to teach common words whose affixes have no relation with their core meaning (for example, *suburb* and *portable*). New combinations using prefixes are not unusual, and the students would be expected to collect meaning from an understanding of their components (*ultraviolet, superstar*).

Another way to create vocabulary items are by combining two words (two nouns, or a gerund and a noun, or a noun and a verb) to compose one item: a single compound word, or two separate, sometimes hyphenated words (*disable, fire-fighter, falling down*).

Schmitt (2000: 22-64) explains the aspects of vocabulary as follows:

1) Meaning and organization:

a) Word meaning

The study about meaning relationships and meaning in general is called semantics. Words are categorized based on meaning relationship which is called sense relation. Below is the illustration table:

Table 1. The Illustration of Sense Relation

Sense Relation	Word	Attribute	Examples
Synonymy	Synonym	Similarity	Huge-gigantic Rich-wealthy
Ungraded antonymy	Ungraded antonym	Exclusive oppositeness	Alive-dead Pass-fail
Graded antonymy	Graded antonym	Oppositeness on a continuum	Big-little Hot-cold
Hyponymy	Hyponym		
	Superordinate (hyperonym)	More general category	Vehicle-car Fruit-apple
	Coordinate	Same level of generality	Car-truck Apple-orange
	Subordinate	More specific category	Car-ford Apple-Crab apple
meronymy	meronym	Whole-part	Bicycle-wheels, handle, seat

b) Register

Register divides words into denotation and connotation. The denotative meaning of the word *skinny* is *very thin*. On the other hand, connotative describes the word *skinny* as *so thin as to be unhealthy or unattractive*. Therefore, the word *skinny* is used to illustrate starving children.

c) Word associations

Three of the most important categories of word association are clang associations, syntagmatic associations, and paradigmatic associations. Clang associations mean word with the similar form, but is not related semantically, such as *reflect-effect*. Syntagmatic associations refer to

responses that have a sequential relationship to the stimulus word, and usually, but not always, have differing word classes. For examples adjective-noun pairs in *gay-abandon* or verb-noun pairs in *abandon-ship* and *abandon hope*. Paradigmatic associations are more semantic in nature. Sometimes paradigmatic pairs are roughly synonymous (*blossom-flower*) and sometimes they exhibit other kinds of sense relation (*black-white*, *table-furniture*).

2) Word form and grammatical knowledge:

a) The written form of a word

The orthographical (written-form) is a key component to both vocabulary knowledge and language processing in general. Feigenbaum in Schimitt (2000: 48) claims that there are 251 orthographical representations for the 44 sounds of English. Upward (Upward in Schimitt, 2000: 48) believes that there are three classes as a major problem: (1) silent letters (*b* as in *debt*), (2) unstressed vowel sounds after stressed syllables (*e* in *chapel*; *o* in *atom*), and (3) doubled consonants (*committee*).

b) The spoken form of a word

To pronounce the word clearly the students are supposed to know several clues. First, they need to know the individual phonemes that make up a word. Second, they need to know how these phonemes sound when tied together in the sequence particular to that word. Third, they

need to know how the word is divided up into syllables, at least in English. For example the unstressed syllables by reducing the vowel in *a* schwa (ə) in the word *bottom* or by losing its sound altogether in the word *pleasant*.

c) Grammatical knowledge

The most obvious aspects of lexis/grammar are word class and morphology. Word class (alternative part of speech) describes the category of grammatical behavior of word. Morphology deals with affixes and how they are attached to the base forms of words.

Based on the aspects of vocabulary mastery mentioned above, it can be concluded that the indicators are: students know the meaning of word, students are able to pronounce the words, students are able to spell the words either spoken or written, and students are able to use words in the sentences appropriately.

d. Indicators of Vocabulary

1) Meaning

Aitchison sets reference for teachers in teaching meaning. Aitchison in Schmitt (2000: 123) summarizes that the process of meaning acquisition in L1 children falls into three basic stages: (a) labeling

(attaching a label [word] to a concept), (b) categorization (grouping a number of objects under a particular label), and (c) network building (building connections between related words). Moreover, Thornbury (2002: 15) says that knowing the meaning of a word does not mean just knowing its dictionary meaning (or meanings), but also means knowing the words commonly associated with it (its collocations) as well as its connotations, including its register and its cultural accretions. So, it means that besides teaching meaning teachers are also supposed to teach about culture.

2) Pronunciation

Laufer (Laufer in Schimitt and McCarthy, 1997: 142) says that L2 students find the phonological difficulties related to phonemes, combinations of phonemes, and supra-segmental features. Students may get difficulty to pronounce near similar sounding words, such as *day – they*, *bed – bad*, *eight – egg*, *tree – three*.

3) Spelling

Thornbury (2002: 155) claims that English spelling is regular, as many as eight out of every ten words are spelt according to a regular pattern and that only three percent of words are so unpredictable that they have to be learned by rote. The three percent includes: *one*, *two*, *were*, *would*, *said*, etc.

4) Word use

The indicator of using words means that the students are able to apply the words into simple sentences correctly.

e. The Role of Memory in Vocabulary

Human brain is a house of memory. Four stages in the process of memorization are registering, retaining, recalling, and recognizing. Human is supposed to fix the ideas whenever they need them, and they are also supposed to recognize and recall the retaining information (Patel and Jain, 2008: 44-46).

Stages of Process of Memorization

```
┌──────────────┐          ┌──────────────┐
│   Register   │ ───────► │   Retaining  │
└──────────────┘          └──────────────┘
                                  │
                                  ▼
┌──────────────┐          ┌──────────────┐
│ Recognition  │ ───────► │   Recalling  │
└──────────────┘          └──────────────┘
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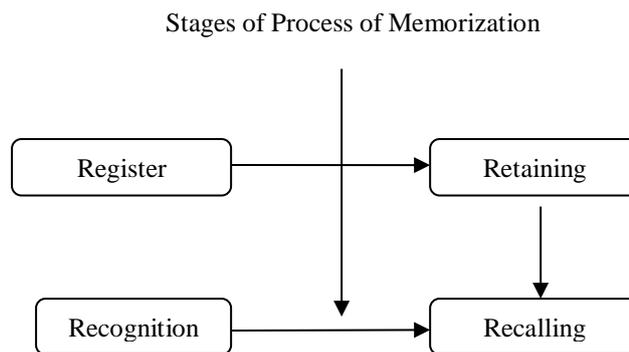
Figure 1. Stages of Process of Memorization (Patel and Jain, 2008: 44-46)

According to Schmitt (2000: 131-132), memory comes in two basic types, short-term memory (also known as working memory) and long-term memory. Short-term memory is used to store or keep information while it is being processed, whereas long-term memory retains information for use in anything in the future. Short-term memory is fast and adaptive but has a small storage capacity while long-term memory has an almost unlimited

storage capacity but is relatively slow. The object of vocabulary learning is to transfer the lexical information from the short-term memory to the more permanent long-term memory.

Thornbury (2002: 23-26), classifies memory into:

1) The short-term store (STS)

It is in the brain's capacity to hold a limited number of items of information for periods of time up to a few seconds, for example to remember phone number or to repeat a word that you have heard.

2) Working memory

It includes many cognitive tasks such as reasoning, learning, and understanding. The information that is being manipulated can come from external sources via the senses or it can be 'downloaded' from long-term memory. Material remains in working memory for about twenty seconds.

3) Long-term memory

It has enormous capacity, and its contents are durable over time. Research into memory suggests that, in order to ensure that material moves into permanent long-term memory, a number of principles need to be observed. Some of the research findings that are relevant to the subject learning are repetition and imaging. Repetition through rote learning is one of the ways to teach vocabulary. Imaging, on the other hand, means visualizing words to make them easy to memorize.

Based on Thornbury's theory, it is clear that in order to retain the vocabulary longer, the students need to keep those vocabularies in long-term

memory. In order to do so, repetition and imaging are some examples that teacher can use.

f. Teaching Vocabulary for Elementary Students

Harmer (1991: 38) states that young children, especially those up to ages of nine or ten, learn language differently from older children. They have some specific characteristics. In this age, young children respond to meaning even if they do not understand individual words, they often learn indirectly rather than directly, and they take in information from all sides. They generally display an enthusiasm for learning and a curiosity about the world around them, but they have limited attention span; unless activities are extremely engaging, they can be easily bored and lost their interest after ten minutes or so.Thus, according to Scott and Ytreberg (1994: 5-7) English teachers need to apply the following basic principles to maintain the students' interests when they teach.

1) Words are not enough

Teachers are supposed to avoid relying only on the spoken word. Most activities for the younger learners are supposed to include movement and involve the senses. Teachers need to bring various teaching aids into the classroom, and to make full use of the school and surroundings in order to create a good atmosphere in teaching learning process. It is better to demonstrate what the teachers want the students to do.

2) Play with the language

Teachers can compose rhymes, sing songs, and tell stories in the classroom activities. Playing with the language in this way is very common in first language progress and is a very ordinary stage in the first stage of foreign language learning too. If the students enjoy the activities, they will unconsciously learn the language.

3) Language as language

The spoken word is often followed by using facial expression, movement, etc., to send the meaning. Teachers should make full use of these clues to help the students grasp the meaning. In the reading passage and writing, students can find the language with fewer other clues to send the meaning. Students can read books and write in the school and do it as take home task. However, both reading and writing are extremely essential for the child's growing awareness of language and for their own development in the language, although both are very tiring and take time and endurance to learn.

4) Variety in the classroom

Variety in the classroom is important to attract the students' concentration and attention. Teachers are supposed to avoid monotonous teaching method, activity, pace, etc., in order to prevent students' boredom in classroom activity.

5) Routines

Teachers are supposed to have systems, routines, good arrangement, and preparation for teaching. Teacher can use familiar situational, familiar activities, repeat stories, rhymes, etc.

6) Cooperative not competition

Teachers are supposed to avoid rewards and prizes. There are other effective ways to attract students' attention, for instance by using group work. Most children like to work in group to do the task, but teachers are supposed to be aware that some pupils work best alone.

7) Grammar

Enjoyable activities can draw out students' aptitude to grasp the meaning of language. Students at the age of ten or eleven may be very responsive and comprehensible about the foreign language, but they are not fluent enough to talk it.

8) Assessment

Teachers are supposed to make a students' diary and write down their progress while they study in the class and remind them about the homework. It is also useful to communicate with their parents how their children do in their classroom activities.

Moreover, teachers often use particular ways in defining meaning of a word to encourage students and strengthen students' vocabulary acquisition. According to Gairns and Redman (1986: 75-85), the meaning of words can be communicated or taught in many different ways. There are some possibilities in teaching vocabulary: visual aids,

mime, action and gesture, concept through situation, the use of synonymy and definition, translation, questioning others, and the use of the dictionary. First, visual aids which include flash cards, photograph, pictures, wall chart, realia (using real object, e.g. bring into the class items of food to teach food words), and also teachers' own drawing on the board. Second, the teachers can use mime, action, and gesture to explain the meaning of words and grammar. These are used to supplement other ways of conveying meaning. Students probably enjoy it when their teacher gives an explanation by mime, action, and gesture. They will be motivated to do such action and able to memorize the word easily. Mime, action, and gesture will bring the students into real action. Third, the teachers use concept through situation. This technique is most helpful when items become more abstract. Teachers often use more than one situations or contexts to ensure that learners have grasped the context, for instance, to teach the word *disappointed*, teachers give situation such as: if you want a *hand phone* for your birthday but you get only a *head phone*, you will be disappointed. Fourth is use of synonymy and definition. When the students find difficult words in a passage that they read, they can be taught to find the meaning of new items in the same sentences. For example: Kate wears a new *outfit*, it is a simple *clothes*. Thus, the students learn the use of synonymy. *Outfit* is the synonym of *clothes*. Fifth, the teachers can use translation as a quick and easy way to present the meaning of words. Translation has

the advantage of being quick, simple, and easily understood. Translation can solve a problem quickly, and the use of the mother tongue is helpful for both teachers and students. Sixth is questioning others. Students share many activities with their friends. Students in primary school are happier when they are told to work in groups because they like to share their learning process. Questioning others enables students to interact with others and in turns, it will improve their language learning. Seventh is by using dictionary as one of the direct strategies to teach vocabulary. Dictionary can help students to know not only the meaning of the word but also the way to pronounce that word.

However, in learning vocabulary the students also face some problems. Thornbury (2002: 27-28) states that there are factors that make a word difficult for the students to learn, those are:

1) Pronunciation

Research claims that words that are difficult to pronunce are more difficult to learn. Typically they are those that contain sounds that are unfamiliar to some groups of learners; such as *knowledge* and *listening*.

2) Spelling

Words that contain silent letters are particularly problematic either in spelling or in pronouncing: *writing, know, hours,* etc.

3) Length and complexity

Long words seem to be no more difficult to learn than short words. However, high frequency and polysyllabic words tend to be short in English. The students often meet them.In addition, polysyllabic words such as in word families like *consistent, consistency* and *consistently* can add to their difficulties.

4) Grammar

The grammar associated with the word is problematic, if this differs from that of its L1 equivalent. For instance the words *explain* has the same pattern with Spanish *explicar*. Some of the words can be followed with infinitive (*to cry*) and an –ing form (*crying*) but some cannot followed either with infinitive and an –ing form (*love, hate, hope*, etc). The grammar of phrasal verbs is particularly troublesome: some phrasal verbs are separable (*pick* somebody *up*) but others are not (*pick of* something).

5) Meaning

When two words have a lot of meanings, it can be confusing to use. For examples, *make* and *do* are a case in point: *you make a supper* and *make me happy*, but you *do the homework* and *do a task*. It is difficult for students to grasp the multiple meaning from one word.

6) Range, connotation and idiomaticity

Words that can be used in a wide range of contexts will generally be perceived as easier than their synonyms with a narrower range. Thus, *take* is a very wide-ranging verb, compared to *remove, move, accept,*

hold, or *catch*. Moreover, the connotations of some words may cause problems. *Pig* has negative connotation in Arabic, but its equivalent may simply mean *a kind of animal*. Finally, words or expressions that are idiomatic (like *apple of one's eye, babe in arms, bore down on*) are more difficult than words whose meaning is transparent (*run, diligent*). It is their idiomaticity, as well as their syntactic complexity, that makes phrasal verbs so difficult.

2. The Nature of Elementary Students

Santrock (2008: 28-29) in his theory on the period of development claims that elementary school years, or often called as middle and late childhood, are extended from about 6 to 11 years of age. In this period, children master the fundamental skills of reading, writing, and math. Achievement becomes a more central theme and self-control increase. Moreover, he says that in these period children interact more with wider social world beyond their family. Santrock's theory is related to Piaget's cognitive development theory. Piaget's theory (Piaget in Kail, 2010: 175) states that children from 7 to 11 years old are in the concrete operational stage. In this stage, children first use mental operations to solve problems and to reason. Mental operations are strategies and rules that make thinking more systematic and more powerful. Some mental operations apply to numbers, such as addition, subtraction, multiplication, and division. Other mental operations apply to categories of object, such as the understanding

that classes can be added (grandmothers + grandfathers = grandparents) and subtracted (grandparents – grandmothers = grandfathers). The weakness of this stage is that classification skills are present, but abstract problems go unsolved. In the theory of psychosocial development proposed by Ericson (Ericson in Santrock, 2002: 42), there are eight steps of development during a lifetime. One of the steps is the school age step which applies for children from 7 to 12 years old. In this step, children feel industry vs. inferiority. Children go through the transition from the world at home to those of school and peers. They are very enthusiastic. They learn about knowledge and intellectual intelligences. If children discover pleasure in intellectual activities, they are stimulated, productive, and successful; they will develop a sense of industry but if they are not successful or cannot discover pleasure in the process, they may develop a sense of inferiority.

Thus, it is important to help the children, so that they can be successful. This task mainly falls on the elementary school teachers. It is their task to steer the students away from boredom and to make them eager to learn in order to help the students to achieve the goal in learning.

B. Teaching Methods

1. Total Physical Response (TPR)

a. Definition

Asher, a professor of psychology at San Jose State University, claims that children respond physically before they begin to produce verbal

responses. Because of that, he develops a method in language teaching namely Total Physical Response (TPR) which combines speech and action. So, language teachers teach through physical activity (Richards and Rodgers, 2001: 73). In Pearson-Longman.com (2008: 1) it is written that in TPR students learn language by doing. The teachers use conscious intellectual way by using kinesthetic intelligence to help the students memorize new vocabulary. Furthermore, it also states that TPR contains several ways:

1) Physical response: students may not give their response through linguistic response but in physical response.

2) The 'silent period': it is the period when students understand language but are shy to speak out.

3) Learning to touch language: students learn language by touching things as a media.

4) Touching and reading: teachers read the story while students touch the pictures of the characters in the story. After that the next step is finger reading in which children listen to the teachers, cassette recorder, and follow the story using their finger. It is an important step for students to make a physical contact with words to learning to read.

5) Miming word; students communicate the language through mime.

b. The Strengths and Weaknesses

Handoyo Puji Widodo (2005: 239-240) states that there are some

advantages and disadvantages of TPR. The advantages of TPR include:

1) It is fun and enjoyable in teaching learning process.

2) It is easy to memorize the words.

3) It is good for students who have kinesthetic ability to be active in class.

4) It can be used either in large or small class.

5) The students are able to comprehend and apply the target language.

6) It does not need a lot of preparation or material.

7) It is very effective with teenagers and young learners.

8) It engages both right and left brain.

On the other hand, the disadvantages of TPR are:

1) It is only suitable for beginner levels.

2) It should be combined with other methods since it needs much energy, so that students do not feel tired of learning language.

3) It is ineffective to use for long period and to express abstract vocabulary or expressions.

c. The Steps in Using TPR for Teaching Vocabulary

Cain (2000: 38) states the lesson sequences of TPR are:

1) The teacher gives a command verbally and models it herself/himself.

2) S/he asks two helpers to model it with her/him, while the others watch.

3) S/he asks the whole class to follow her/his command.

4) S/he asks groups within the class to model the command.

Then after some sessions, when students express the desire to speak:

5) Members of the class give the teacher commands.

6) Students in pairs model and respond to each other.

7) Students perform solo for the class, once the teacher is sure they understand the language.

Kagan and Kagan (1998: 8.52) say that one of the strategies in teaching TPR is by using "Find Someone Who" movement strategies. The steps are:

1) Teacher prepares worksheet

Create a worksheet that has problems to be solved, for example about information to be learned about classmates (find someone who plays the drum in a band).

2) Students mix and pair

With worksheets in hand, students circulate through the room until they find a partner. Student A asks B one question on the worksheet. If B knows the answer, s/he shares it with A. Student A writes the answer in her/his own words. B checks the answer for correctness and signs near the answer for agreement. If B is the person described on the worksheet, s/he signs the worksheet.

3) Reverse roles

Students switch roles. Student B asks student A one question on the worksheet.

4) Students mix and pair again

Students may ask each other one question only, and then continue to mix and pair until they finish the "Find Someone Who" form. When they are done, they become "helpers" for students who are not yet done.

Thus, the teaching steps of TPR based on the aspects are:

1) Aspect of meaning

   a) Teacher explains about the rule of TPR. The students just listen to the explanation.

   b) Teacher gives a command and performs it by herself/himself.

   c) Teacher asks a student to be a volunteer.

   d) Teacher gives a command and acts it out with a student.

   e) Teacher gives a command and a student practice it.

   f) Teacher gives a command to the whole class.

   g) Students in pair give an instruction to one another.

2) Aspect of spelling

   a) Teacher performs a gesture in front of the class.

   b) If students can guess the meaning, they must raise their hand.

   c) The teacher chooses the student to write the answer on the board.

3) Aspect of pronunciation

   a) Teacher asks a student to choose three of her/his friends.

   b) The student gives an instruction to three of her/his friends.

   c) The teacher can check the pronunciation and meaning from the students.

4) Aspect of using word

a) Teacher asks the students to make words on the board into sentences (the words after teacher teaches spelling).

b) After that, teacher asks the students to practice the sentence and act it out.

2. The Audio-Lingual Method

a. Definition

Fries, of the University of Michigan proposes the audio-lingual method which is also called as Michigan method. In this method, Fries adopts principles from structural linguistics. This method drills students in the exploit of grammatical sentence patterns. It helps students to respond to the stimuli given by the teachers. Teachers give stimuli through shaping and reinforcement (Larsen-Freeman, 2002: 35).

Richards and Rodgers (2001: 66) point out that the whole audio-lingual paradigms are pattern practice, drilling, and memorization. Brooks in Richards and Rodgers (2001: 60-62) clarify the various kinds of drills as follows:

1) Repetition

The students replicate an utterance aloud after they heard it without looking at the text. The students say the sentence again and add a few words.

Teacher   : This is April the twenty-fourth.

Students   : *This is April the twenty-fourth.*

Teacher   : I made a friend with Juan.

Students   : *I made a friend with Juan when…*

2) Inflection

A word in a sentence emerges in different form when repeated.

Cassette   : I see a *mouse* under the table.

Students   : I see *mice* under the table.

Cassette   : He bought a new *gown*.

Students   : He bought new *gowns*.

3) Replacement

Replacement means replacing a word in an utterance.

Cassette   : *Juan* goes to school by bus.

Students   : *He* goes to school by bus

Cassette   : It is *Carla's* mobile.

Students   : It is *her* mobile.

4) Restatement

The students rephrase an utterance and address it to someone else.

Teacher   : Tell him to close the door.

Students   : *Close the door, please!*

Cassette   : Ask Robby where he was born.

Students   : *Where were you born Robby?*

5) Completion

Students should complete the utterance given.

Teacher : Do your .. . exam.

Students : Do your *own* exam.

6) Transposition

Students are supposed to add a word.

Teacher : I'm thirsty. (so).

Answer : *So am I.*

7) Expansion

Students should add word in a certain place in the sequence.

Cassette : I know Tommy. (well).

Answer : I know Tommy *well*.

8) Contraction

A single word stands for a phrase or clause.

Teacher : Take your homework *on my desk*.

Answer : Take your homework *there*.

9) Transformation

Students change an utterance to negative or interrogative. They can also change it in terms of tense, mood, voice, aspect, or modality.

Cassette : I know your laptop.

Students : I don't know your laptop.

Do you know my laptop?

If I had known my laptop…

10) Integration

Two sentences become one sentence.

Teacher   : I know the man.

He stole your purse.

Students   : I know the man who stole your purse.

11) Rejoinder

Students create a proper rejoinder to a given utterance. Some rejoinders are:

a) Politeness

Student A   : *May I sit here?*

Student B   : Certainly.

b) Answer the question

Student C   : How many siblings do you have?

Student D   : *I have three siblings.*

c) Agreement

Students E   : This is a delicious meal.

Student F   : *It's yummy.*

12) Restoration

Teachers give a sequence of words. It does not have meaning yet. Students are supposed to use those words with a minimum changes and addition to make a good sentence.

Question   : 1. Father/reading/newspaper

2. Girls/make/pie

Answer   : 1. *My Father is reading a newspaper.*

2. *The girls made a pie.*

b. The Strengths and Weaknesses

Qing-Xue and Jin-Fang (2007: 71) explain the strengths and the weaknesses of this method. The strengths are:

1) The audio-lingual method could be an access for a large group of ordinary students, and not only for people with great intellectual achievements.

2) The audio-lingual method is not teaching abstract reasoning. It stands for syntactical progression.

On the other hand, the weaknesses are:

1) The theoretic organization was attacked as being unsound both in language and learning theory of TG grammar by Chomsky.

2) It also ignores the communicative competence in teaching practice. It is rather difficult for the students to face a real communication outside the classroom.

c. The Steps in Using the Audio-Lingual Method for Teaching Vocabulary

Based on Endang Fauziati (2002: 33-34), there are several procedures in teaching vocabulary using audio-lingual method. They are:

1) The students pay attention to the teacher or on tape recorder as a model dialogue. They imitate each line of the dialogue individually and then

repeat it together with their friends. The teacher corrects the mistakes in pronunciation, intonation, fluency, and grammar directly and immediately. The students must memorize the dialogue. In this step, the students do not open their book.

2) The dialogue is settling into the students' curiosity or situation by changing certain key words or phrases. Then, the students perform it.

3) The teacher chooses the key structures from the dialogue and uses for pattern drills of different kinds. First the students practice together and then individually.

4) The students can consult to their textbook, and follow-up reading, writing, or vocabulary activities based on the dialogue may be introduced. At the beginning level, writing is purely imitative and consists of little more than copying out sentences that have been practiced.

5) The teacher can take the students in language laboratory to the follow-up activities using further dialogue and drill.

Hence, the teaching steps in audio-lingual method based on the aspects are:

1) Aspect of meaning

a) The teacher reads the list of words and students repeat it. Besides the list of the words, there are pictures to define meaning.

b) Students close their list of words. Teacher gives clues as a description of the thing related to the topic.

c) Students must raise their hand to answer and the teacher selects them.

2) Aspect of spelling and pronouncing

    a) The teacher asks a student to be a volunteer.

    b) The teacher dictates a word.

    c) The students jot down the answer on the board.

    d) The teacher checks the answer with other students; it is true or false.

    e) If it is true, student get a chance to choose another students to do the same and dictates for their friend.

    f) The teacher can ensure the spelling when the students write down the answers on the board and pronunciation when the students give a dictation to one another.

3) Aspect of using word

Teacher gives a word and asks to students to make it into a full sentence.

C. Intelligence Quotient (IQ)

1. Definition

Intelligence is typically defined in terms of a person's ability to adapt to the environment and to learn from experience (Sternberg and Detterman in Sternberg, 2005: 189). Based on Gardner in Kumbar (2006: 3) intelligence is a single capacity possessed by every individual to a greater or lesser extent. Warner in Treverton et. al. (2006: 2) defines intelligence as information for decision makers. Santrock (2002: 291) claims that intelligence is a problem-solving skills and the ability to adapt

to and learn from everyday experiences. Kagan and Kagan (1998: 3.20) say that the term intelligence means a sensitivity to and skill with certain kinds of stimuli.

Kail (2010: 247-254) claims that there are three approaches of intelligence, namely:

a. Psychometric

It means that intelligence is a hierarchy of general and specific skills.

b. Gardner's theory of multiple intelligences.

There are nine distinctive intelligences, namely:

1) Linguistic: knowing the meanings the words, having the ability to use words to understand new ideas, and using language to convey ideas to others.

2) Logical-mathematical: understanding relations that exist among objects, actions, and ideas, as well as the logical or mathematical operations that can be performed on them.

3) Spatial: perceiving objects accurately and imagining in the "mind's eye" the appearance of an object before and after it has transformed.

4) Musical: comprehending and producing sounds varying in pitch, rhythm, and emotional tone.

5) Bodily-kinesthetic: using one's body in highly differentiated ways, as dancers, craftspeople, and athletes do.

6) Interpersonal: identifying different feelings, moods, motivations, and intentions of others.

7) Intrapersonal: understanding one's emotions and knowing one's strengths and weaknesses.

8) Naturalistic: recognizing and distinguishing among members of a group (species) and describing relations between such groups.

9) Existential: considering "ultimate" issues, such as the purpose of life and the nature of death.

c. Stenberg's theory of successful intelligence

Successful intelligence is defined as the use of analytic, creative, and practical abilities to pursue personal goals.

1) Analytic ability

It involves the ability to analyze, judge, evaluate, compare, and contrast. Children with high analytical ability do well in direct instruction classes, in which the teacher teaches and gives students objective test. They often are considered to be smart students who get good grades.

2) Creative ability

It consists of the ability to create, design, invent, originate, and imagine. Children who are high in creative intelligence are often not in the top rank of the class. They often give unique answers for which they might get reprimanded or marked down.

3) Practical ability

It focuses on the ability to use, apply, implement, and put into practice. Like children in high creative intelligence, children in high practical intelligence often do not relate well to the demands of school. Nevertheless, they do well outside the classroom. They may have excellent social skills and good common sense.

Some children are equally high in all three areas; others do well in only one or two of areas.

Englina Bonang (1979: 58) claims that IQ is different from intelligence because IQ is used to describe scores on test of intelligence. Another definition of IQ comes from Serebriakoff and Langer (1994: 33). They say IQ *adalah hasil-hasil yang diperoleh dari bandingan skor yang diperoleh seseorang dengan skor rata-rata kelompoknya*. Parke and Locke (1999: 414) claims IQ as an index of the way a person performs on a standardized intelligence test relative to the way others his or her age perform. IQ uses norms to measure the intelligence.

2. **The Norms of IQ**

There are two kinds of norms to measure IQ:

a. Developmental Norms

It is developed by Alferd Binet in 1904. In 1916, 1937, and 1960 L.M. Terman from Stanford University and Maud E. Merril made the three major revisions which are formally known as the

Stanford Revisions of the Binet-Simon Intelligence Scale. In the developmental norms, the concept of IQ is a person's mental age divided by chronological age (CA), multiplied by 100 or IQ = MA/CA X 100. The table below shows the categorization of the scores:

Table 2. The Categorization of IQ in the Developmental Norms

IQ	Classification
Below 70	Definite feeble-mindedness
71 – 80	Borderline deficiency
81 – 90	Dullness
91 – 100	Normal/average intelligence
101 – 139	Superior intelligence
140 – above	Genius or near genius

This procedure is no longer used because it has some weaknesses.

b. Within-group Norms

It was developed by David Wechsler. He creates several kinds of test, there are the Wechsler Preschool and Primary Scale of Intelligence-Revised (WPPSI-R) to test children 4 to 6,5 years of age; the Wechsler Intelligence Scale for children (WISC) for children and adolescents of 6-16 years of age; and the Wechsler Adult Intelligence Scale (WAIS). Within-group norms use deviation IQ to give the score. It classifies humans on the basis of IQ. The following table shows the classification:

Table 3. The Classification of IQ in the Within-group Norms

IQ	Classification
65 – below	Mental defective
66 – 79	Borderline
80 – 90	Dull normal
91 – 110	Average
111 – 119	Bright normal
120 – 127	Superior
128 – above	Very superior

3. Types of IQ

The IQ concept was developed by William Stern. It focuses on a child's general intelligence and specific verbal and performance intelligences. He developed the concept based on the ideas from Charles Spearman and L.L Thurstone. Spearman said that people have both general intelligence (g), and specific types of intelligence (s), whereas Thurstone claims that people have high g factors and low g factors. The items of test which are low in g are less complex than items high in g. There are the lists of test for older children; Test items which have high g factors involve:

1. Definitions of abstract words

2. Arithmetical reasoning

3. Differences among abstract words

4. Essential differences

5. Proverbs

6. Sentence building

7. Verbal absurdities

8. Vocabulary

On the other hand, Test items which have low g factors such as:

1. Enclosed box problem

2. Memory for stories

3. Paper cutting (visual imagery)

4. Plan of search

5. Problem of fact

6. Repeating digits (forward order)

7. Repeating digits (reverse order)

8. Reproducing a beaded chain from memory

Parke and Locke (1999: 424) write about The Wechsler Intelligence Scale for Children (WISC):

Table 4. The Wechsler Intelligence Scale for Children (WISC)

Subtest/Description	Some Examples	Skills Thought to Tap
Verbal Scale 1. General Information: Questions that ask for information most children will have	1. Where does the sun rise? 2. How many weeks are there in a year?	Factual knowledge; long-term memory; intellectual interest
2. General Comprehension: Questions that ask child to explain why certain actions or practices are desirable	1. Why should we not waste fuel? 2. What should you do if you lose friend's toy?	Judgment; social judgment
3. Arithmetic: Child is asked to perform arithmetic operations ranging from simple counting to more involved mental computation and reasoning		Mathematic skills; problem solving; concentration
4. Similarities: Child is asked to tell how paired words are alike	1. How are a shoe and a slipper alike? 2. How are a boat and a car alike?	Concept formation; categorization

5. Vocabulary: Child is asked to define a list of increasingly difficult words		Concept formation; long-term memory; vocabulary
6. Digit Span: Examiner says several series of numbers, each longer than the preceding one, and child must repeat them in either the same or reverse order		Attention; short-term memory
Performance Scale 1. Picture Completion: Child must tell which part is missing in each of 12 pictures of common objects	1. A car with a wheel missing 2. A rabbit with an ear missing	Visual organization, concentration
2. Picture Arrangement: Child must arrange sets of cartoon-type pictures so that they tell a story		Visual organization; reasoning; knowledge of scripts
3. Block Design: Child must reproduce pictured red and white designs using a set of wooden blocks whose sides are red, white, or half red and half white		Visual-motor coordination; concept formation; pattern recognition; spatial ability
4. Object assembly: Child must assemble jigsaw-like parts into whole object	1. A chair 2. A foot	Visual-motor coordination
5. Coding: Child must match a series of symbols with numbers on the basis of a code: □/2, </5, etc		Visual-motor coordination; concentration; motor speed
6. Mazes: Child must trace correct route from a starting point to home in a series of mazes		Spatial ability; memory; concentration

Based on the explanation above, it can be concluded that intelligence is the ability of someone to solve the problem. People have different kind of ability, such as analytic ability, creative ability, and practical ability. Furthermore, IQ is used to classify human intelligence based on the norms after they do the test. Verbal scale and performance scale are the aspects of

test for children. Verbal scale involves: general information, general comprehension, arithmetic, similarities, vocabulary, and digit span. Furthermore, performance scale includes: picture completion, picture arrangement, block design, object assembly, coding, and mazes.

D. Relevant Research

Nining Pujiningsih (2010) conducted a classroom action research entitled **"Improving Students' English Vocabulary by Using Total Physical Response"**. The subjects of this research are the sixth grade students of MI NU Manafiul Ulum Kudus in the academic year of 2009/2010. It was conducted for about seven months.

The aims of this research are to develop, to improve, and to identify the strengths of the TPR in students' English vocabulary. The results prove that the TPR could enhance the indicator of vocabulary; such as the students know the meaning of word, the students are able to pronounce, spell, and use the words in sentence. The most significant enhancement was in the meaning and spelling. The benefits of the TPR are that it can develop the motivation and confidence of the students in learning vocabulary. The TPR can also change the students to become active learners through learning by doing. Nevertheless, the weaknesses of the TPR are the students got difficulty in using words in sentence and sometimes they were confused to wrap the four aspects of vocabulary at the same time.

Another study about TPR comes from Niken Nugrahaningsih (2007). She carried out the study entitled **"The Use of Total Physical Response (TPR) Method in English Preposition Teaching (to the fifth grade students of the academic year 2006/2007 SDN Tajuk I Getasan Kab. Semarang)"**. She used a quasi experiment using pre-test and post-test. The results of pre-test and post-test mean scores were 68.03 and 89.96 the difference between two means was 21.93. The result of applying one sample t-test was 7.9631. It is higher than the table value (2.013). It means that there is a significant difference in grade of English mastery by the students after they have been taught by using TPR method.

Hsu and Lin (2011) in their journal entitled **"The Effect of Total Physical Response on English Functional Vocabulary Learning for Resource Classroom Students in the Elementary School"** concluded that: first, the immediate effects of TPR on listening comprehension were found in this study; second, students learned the expressing abilities of English functional vocabulary immediately through TPR; third, the maintaining effects of TPR on listening comprehension and expressing abilities were found in this study; fourth, it's recommended that blends and words with letter "r" and sentences that are complex or similar should not be taught at first for the students; fifth, students' motivation and interests in learning English were enhanced through TPR.

Several researchers also did researches on Total Physical Response. One research was done by Wolfe and Jones (1982), who wrote about

"Integrating Total Physical Response Strategy in a Level I Spanish Class". The results showed that there are significant statistical and educational differences on the unit tests provided by the publisher. TPR class expressed greater satisfaction with their Spanish course and their Spanish teacher. They sum up that it is feasible to teach a beginning class using a combination of implicit (TPR) and explicit (audio-lingual/cognitive-code) methodologies.

Neupane (2008) wrote a paper entitled **"Act, Don't Explain: Total Physical Response at Work"**, which aims were to find out the effectiveness of Total Physical Response (TPR) method in teaching imperatives to the beginners of English language learning. The research results revealed that TPR was very effective in teaching imperatives at primary level. It was proved equally effective to teach both the listening and speaking skills.

Another researcher, Cantoni (1999), did a research entitled "**Using TPR-Storytelling to Develop Fluency and Literacy in Native American Languages**". She discussed TPR Storytelling (TPR-S) as a promising approach to teach a Native American language. TPR-S is an expansion of James Asher's TPR immersion approach to teaching second languages. TPR-S emphasized a positive, collaborative, and supportive classroom climate in which Native children can develop increasingly complex skills in speaking, reading, and writing their tribal language.

Other research on Total Physical Response was executed by Kariuki

and Bush (2008) who examined the effects of Total Physical Response by Storytelling and the traditional teaching method on a foreign language in a selected high school in **"The Effects of Total Physical Response by Storytelling and the Traditional Teaching Styles of a Foreign Language in a Selected High School".** The result showed Total Physical Response by Storytelling appears to be a powerful tool to use in the teaching of a foreign language.

Lastly, Omari (2001) writes **"A Comparison of Foreign Language Teaching Methods: Total Physical Response versus Song/Chants with Kindergarteners"**. Several teaching methods aid young children in learning foreign languages, all of which include continuous repetition and review of learned information. The two methods used in this study were Total Physical Response (TPR) and songs/chants. The study compared differences in vocabulary recognition of students taught Spanish using the two methods. Comparison of the test scores found no significant differences between teaching methods. Three appendixes include a letter of approval from the participating schools, parent approval forms, and an example of Spanish vocabulary test items.

E. Rationale

1. **The Differences of Implementing Total Physical Response (TPR) Method and Audio-Lingual Method on Teaching Vocabulary**

In TPR, students unconsciously learn through movement to grasp the meaning of the words. For the fifth grade students, they already know the letters and words in English so it is not difficult for them to spell the words in English. Teachers can perform a gesture and students guess the meaning by writing down the answer on the board. In teaching pronunciation, teachers can check it when the students give command to each other. Teachers can teach using word and make sentence by asking students to make a word such as imperative words and perform it.

On the other hand, in the audio-lingual method, teacher can teach the meaning of words by asking students to pay attention to the teacher or tape recorder to repeat and catch the meaning. For the fifth grade students, it is not difficult for them to spell words in English so teacher can dictate the students. In teaching pronunciation using the audio-lingual method teachers can check their pronunciation after they imitate the teachers' pronunciation or when students give a dictation to one another. In the audio-lingual method teachers can give a word by spoken or written and ask students to make it into sentence to know the students' ability to make a word into sentence.

It is then assumed that TPR method will produce a better vocabulary acquisition than the audio-lingual method because TPR develop students into active learners. It can prevent boredom in the teaching and learning activity because children like to learn through movement.

2. **The Influence of Intelligence Quotient (IQ) on Vocabulary Mastery**

The students having high IQ tend to have good partaking in classroom activities. They also tend to have creativity to elaborate the words. They like the challenge from the teacher to solve the problem. It will help them to get the achievement in learning, especially in vocabulary mastery.

Nevertheless, the students having low IQ tend to have less participation in teaching and learning process. They are also passive when the teacher attracts them. They need clear explanations and examples in the lesson. It makes them rather difficult to achieve the goal in learning, especially in vocabulary.

From the statement above, it can be assumed that the students having high IQ have better vocabulary mastery than those having low IQ.

3. **An Interaction between Teaching Methods and Intelligence Quotient (IQ) in Teaching Vocabulary**

The students having high IQ tend to have more ability in verbal, creative, and practical skills. Moreover, the application of TPR will influence the acquisition of vocabulary mastery for the students having high IQ. In TPR, the students are active learners. Furthermore, TPR can improve the students' vocabulary verbally, draw their creativity, and improve their practical skills. TPR brings a good atmosphere to the

classroom activity. Because of that, the students having high IQ will be able to optimize their abilities when TPR is used in the teaching learning process.

On the other hand, the students having low IQ tend to have no curiosity in teaching and learning process. They keep silent even though they do not understand the lesson. The audio-lingual method will drill the students to understand the lesson. Therefore, the students having low IQ will be suitable when the audio-lingual method is used in their classroom activity.

Based on the explanation, it can be assumed that TPR is more suitable for the students' having high IQ and the audio-lingual method is suitable for the students having low IQ. Thus, it can be predicted that there is an interaction between teaching methods and the level of IQ in teaching vocabulary.

F. Hypotheses

Based on the theoretical description and rationale above, the hypotheses can be formulated as follows:

1. TPR is more effective than audio-lingual teaching method to teach vocabulary to the fifth year students of SD Negeri Kleco 1 Surakarta in the 2011/2012 academic year.

2. Students with high IQ have better vocabulary mastery than students with low IQ in the fifth year students of SD Negeri Kleco 1 Surakarta in the 2011/2012 academic year.

3. There is interaction between teaching methods and students' IQ in teaching vocabulary to the fifth year students of SD Negeri Kleco 1 Surakarta in the 2011/2012 academic year.

CHAPTER III

RESEARCH METHODOLOGY

A. Place and Time of the Research

The research is conducted in the fifth year students of SD Negeri Kleco 1 Surakarta. It is located at Jl. Slamet Riyadi No. 554 Kerten, Laweyan Surakarta. In 2010 accreditation, this primary state school got A. There are two classes at each level in academic year 2011/2012. Two teachers have the responsibility to teach English in this school. The research was conducted from October to December 2011, every Thursday from 07.00 to 11.00 a.m.

B. Research Method

The design of this research is quasi experimental study with a quantitative approach. According to Kumar (1999: 10), the purpose of quantitative study is to qualify the variation in a phenomenon, situation, and problem; the information is collected using predominantly quantitative variables; and the analysis is conducted to ascertain the amount of the variation. Marczyk (2005: 85) claims that quasi experimental means study that do not use random assignment.

The experimental and quantitative study is used to observe the interaction between teaching methods and vocabulary achievement viewed from intelligence quotient. The technique used in conducting the experiment is by comparing the experimental group which is taught using total physical response method and the control group taught using the audio-lingual method. Each group is categorized into two different levels of intelligence quotients: the high and the low levels.

C. Subject of the Research

1. Population

    Tuckman (1999: 144) defines population as the total group that a researcher sets out to research. The population of the research is the fifth year students of SD Negeri Kleco 1 Surakarta in the 2011/2012 academic year.

2. Sample

    The sample means the group of individuals selected from that number to participate in the research (Tuckman, 1999: 144). This research uses the fifth year which is divided into two classes A and B as the samples of the research. There are 40 students in each class. Class B as the experimental class and class A as the control class.

3. Sampling Technique

    In this research, the researcher uses total sampling. Based on Husain Usman and R. Purnomo Setiady Akbar (1995: 181) the definition of

total sampling is *penelitian yang menggunakan seluruh anggota populasinya*. It means that all of the students in the fifth year are taken as sample. The researcher uses random by lottery to determine sample of two classes into experimental class and control class.

D. Technique of Collecting Data

Based on Brown (2001: 384), a test, in plain words, is a method of measuring a person's ability or knowledge in a given domain. Therefore, there are two kinds of instruments which are used, the vocabulary test and the students' IQ document. The researcher uses her own vocabulary test to collect the data from the sample to know students' vocabulary mastery. The researcher uses try-out and post test. IQ test is obtained from the first semester which is conducted by the psychological institution chosen by the school.

The vocabulary test is in multiple choices and oral test. The score is 1 or 0. The measurement of validity and reliability of the test is done before treatment. The formula used to measure the validity of the vocabulary test is as follows:

$$S_t = \sqrt{\frac{\sum x^2}{n}}$$

$$r_o = \frac{\overline{X_i} - \overline{X_t}}{S_t} \sqrt{\frac{p_i}{q_i}}$$

r_n = the validity

$\overline{X_n}$ = the average of each item

$\overline{X_t}$ = the average of the total correct answers

S_t = standard deviation

p_i = the total of the correct answers divided by the number of respondents

q_i = the total of the incorrect answers divided by the number of respondents

$\sum x^2$ = the total of the square of each deviation score

If r_o is higher than r_t, the item is valid.

<div align="right">(Ngadiso, 2006: 1)</div>

Besides, KR 20 (Kuder-Richardson) is used to quantify the reliability of the vocabulary test.

$$r_{kk} = \left(\frac{k}{k-1} \right)\left(1 - \frac{\sum pq}{S_t^2} \right)$$

If r_o is higher than r_t, the test is reliable.

r_{kk} = the reliability

k = the total item

$\sum_{pq}$ = the sum of the multiplication of the proportion of the correct answers and

the incorrect answers

S_t^2 = standard deviation of the square root of the total of the squared of each

deviation score divided by the number of respondents

(Ngadiso, 2006: 1)

E. Technique of Analyzing the Data

The research uses 2 by 2 multifactor analysis of variance. The research design is as follows:

Table 5. 2 by 2 Multifactor Analysis of Variance

Teaching Methods (A) IQ (B)	The Total Physical Response (TPR) (A₁)	The Audio-lingual Method (A₂)	Mean
High (B₁)	A₁B₁	A₂B₁	B₁
Low (B₂)	A₁B₂	A₂B₂	B₂
Mean	A₁	A₂	

The design of the research consists of 4 cells.

Note:

Independent variable : teaching methods (TPR and ALM).

Dependent variable   : vocabulary mastery.

Moderator variable   : students' IQ.

Experimental group   : the class taught by TPR.

Control group   : the class taught by ALM.

The meaning of the table:

A_1B_1 : The mean score of vocabulary test of students who have high IQ and taught by using TPR method.

A_2B_1 : The mean score of vocabulary test of students who have high IQ and taught by using the audio-lingual method.

A_1B_2 : The mean score of vocabulary test of students who have low IQ and taught by using TPR method.

A_2B_2 : The mean score of vocabulary test of students who have low IQ and taught by using the audio-lingual method.

A_1 : The mean score of vocabulary test of experimental class which is taught by using TPR method.

A_2 : The mean score of vocabulary test of control class which is taught by using audio-lingual method.

B_1 : The mean score of vocabulary test of students who have high IQ.

B_2 : The mean score of vocabulary test of students who have low IQ.

The data are analyzed using the following steps:

1. The total sum of squares:

$$\sum x_t^2 = \sum X_t^2 - \frac{\left(\sum X_t\right)^2}{N}$$

2. The sum of squares between groups:

$$\sum x_b^2 = \frac{\left(\sum X_1\right)^2}{n_1} + \frac{\left(\sum X_2\right)^2}{n_2} + \frac{\left(\sum X_3\right)^2}{n_3} + \frac{\left(\sum X_4\right)^2}{n_4} - \frac{\left(\sum X_t\right)^2}{N}$$

3. The sum of squares within groups:

$$\sum x_w^2 = \sum x_t^2 - \sum x_b^2$$

4. The between-columns sum of squares:

$$\sum x_{bc}^2 = \frac{\left(\sum X_{c1}\right)^2}{n_{c1}} + \frac{\left(\sum X_{c2}\right)^2}{n_{c2}} - \frac{\left(\sum X_t\right)^2}{N}$$

5. The between-rows sum of squares:

$$\sum x_{br}^2 = \frac{\left(\sum X_{r1}\right)^2}{n_{r1}} + \frac{\left(\sum X_{r2}\right)^2}{n_{r2}} - \frac{\left(\sum X_t\right)^2}{N}$$

6. The sum of squares interaction:

$$\sum x_{\text{int}} = \sum x_b^2 - \left(\sum x_{bc}^2 + \sum x_{br}^2\right)$$

7. The number of degrees of freedom associated with each source of variation:

df for between-columns sum of squares   : C -1

df for between-rows sum of squares   : R – 1

df for interaction   : (C-1) (R-1)

df for between-groups sum of square   : G – 1

df for within-groups sum of square   : $\sum(n-1)$

df for total sum of squares   : N - 1

Note:

C   : the number of columns

R   : the number of rows

G   : the number of groups

n   : the number of subjects in one group

N   : the number of subjects in all groups

After analyzing the data by ANOVA (Analysis of Variances), the researcher uses mean. It is used to know which teaching method is more effective or better to teach vocabulary and which group is better.

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

$\bar{X}$ = mean score

$\sum X$ = total score

n = the number of respondents

Tukey's test or HSD (Honestly Significant Difference) is undertaken when the result of ANOVA test shows that the null hypotheses are rejected. It means each variable has influences. The finding of q is found by dividing the difference between the means by the square root of the ratio of the within group variation and sample size (Purwanto, 2011: 220-224).

The formula:

1. Between columns q (between the students who are taught by TPR and audio-lingual method)

$$\frac{\bar{X}_{c_1} - \bar{X}_{c_2}}{\sqrt{error\ variance/n}}$$

2. Between rows q (between the students who have high IQ and the students who have low IQ)

$$\frac{\bar{X}\,r_1 - \bar{X}\,r_2}{\sqrt{error\ variance/n}}$$

3. Between columns (HI) q (between the students who have high IQ are taught by TPR and audio-lingual method)

$$\frac{\bar{X}_{c_1 r_1} - \bar{X}_{c_2 r_2}}{\sqrt{error\ variance/n}}$$

4. Between columns (LI) q (between the students who have low IQ are taught by TPR and audio-lingual method)

$$\frac{\bar{X}_{c_1 r_2} - \bar{X}_{c_1 r_2}}{\sqrt{error\ variance/n}} \quad \text{or} \quad \frac{\bar{X}_{c_2 r_2} - \bar{X}_{c_1 r_2}}{\sqrt{error\ variance/n}}$$

F. Statistical Hypothesis

The researcher formulates the statistical hypothesis that consists of null hypothesis (H_0) and alternative hypothesis ($H\alpha$). The statistical hypotheses are as follows:

1. The difference in vocabulary mastery between the students who are taught by TPR and the students who are taught by audio-lingual method.

$H_{01} : \mu A_1 = \mu A_2$

$H\alpha_1 : \mu A_1 > \mu A_2$

H_{01} :   There is no significant difference in vocabulary mastery between the students who are taught by TPR and the students who are taught by audio-lingual method.

$H\alpha_1$:   The students who are taught by TPR have better vocabulary mastery than the students who are taught by audio-lingual method.

2. The difference in vocabulary mastery between the students who have high IQ and the students who have low IQ.

$H_{02} : \mu B_1 = \mu B_2$

$H\alpha_2 : \mu B_1 > \mu B_2$

H_{02} :   There is no significant difference in vocabulary mastery between the students who have high IQ and the students who have low IQ.

$H\alpha_2$:   The students who have high IQ have better vocabulary mastery than the students who have low IQ.

3. The interaction between teaching methods and students' IQ in teaching vocabulary.

$H_{03} : \mu A = \mu B$

$H\alpha_3 : \mu A \neq \mu B$

H_{03} :   There is no interaction between teaching methods and students' IQ in teaching vocabulary. It means that the effect of IQ level on vocabulary mastery do not depend on teaching methods.

Hα₃ :   There is an interaction between teaching methods and students' IQ in teaching vocabulary. It means that the effect of IQ level on vocabulary mastery depend on teaching methods.

Note:

μ = average of the entire data (total mean)

A   = teaching methods

B   = students' IQ

A_1 = the students who are taught by TPR

A_2 = the students who are taught by audio-lingual method

B_1 = the students who have high IQ

B_2 = the students who have low IQ

(Budiyono, 2009: 143-144)

CHAPTER IV

THE RESULT OF THE STUDY

This chapter presents the result of the study. It consists of four parts: the description of the data, normality and homogeneity test, hypothesis test, and the discussion of the result of the study

A. Description of the Data

There are two classes of the fifth grade students of SD Negeri Kleco 1 Surakarta used for the research; they are class VA and VB. For the sake of the research, students of the class VB were taught by using Total Physical Response (TPR) and the students of the class VA were taught by using audio-lingual method. Each class consists of 40 students. There is a border separating the students. The border is their level of IQ.

The data described here are the result of the vocabulary achievement. The description includes mean, mode, median, standard deviation, and frequency distribution and followed by histogram and polygon. Based on the group analyzed, the descriptions of the data are divided into eight groups as follows:

1. The data of the vocabulary test of the students who are taught by TPR (A_1).

2. The data of the vocabulary test of the students who are taught by audio-lingual method (A_2).

3. The data of the vocabulary test of the students who have high IQ (B_1).

4. The data of the vocabulary test of the students who have low IQ (B_2).

5. The data of the vocabulary test of the students who have high IQ and taught by TPR (A_1B_1).

6. The data of the vocabulary test of the students who have high IQ and taught by audio-lingual method (A_2B_1).

7. The data of the vocabulary test of the students who have low IQ and taught by TPR (A_1B_2).

8. The data of the vocabulary test of the students who have low IQ and taught by audio-lingual method (A_2B_2).

To describe the data, the researcher works on the highest score, the lowest score, the range, the class, and the interval to know the frequency distribution. The data of each group are presented as follows:

1. The data of the vocabulary test of the students who are taught by TPR (A_1).

Descriptive analysis of the data A_1 shows that the score is 48 up to 88. The mean is 70.775, the standard deviation is 11.19, the mode is 79.875, and the median is 73.4. The frequency distribution of the data A_1 is in the table 6. The highest score is 88 while the lowest score is 48. From these, the range is 40, the class is 6, and the interval of these score is 7. Histogram and polygon are presented in figure 2.

Table 6. The Frequency Distribution of the Data A₁

Class Limits	Class Boundaries	Midpoint	Tally	Frequency	Percentage
48 - 54	47.5 – 54.5	51	III	3	7.5%
55 - 61	54.5 – 61.5	58	IIIII II	7	17.5%
62 - 68	61.5 – 68.5	65	IIIII III	8	20%
69 - 75	68.5 – 75.5	72	IIIII	5	12.5%
76 - 82	75.5 – 82.5	79	IIIII IIIII	10	25%
83 - 89	82.5 – 89.5	86	IIIII II	7	17.5%
				40	100%
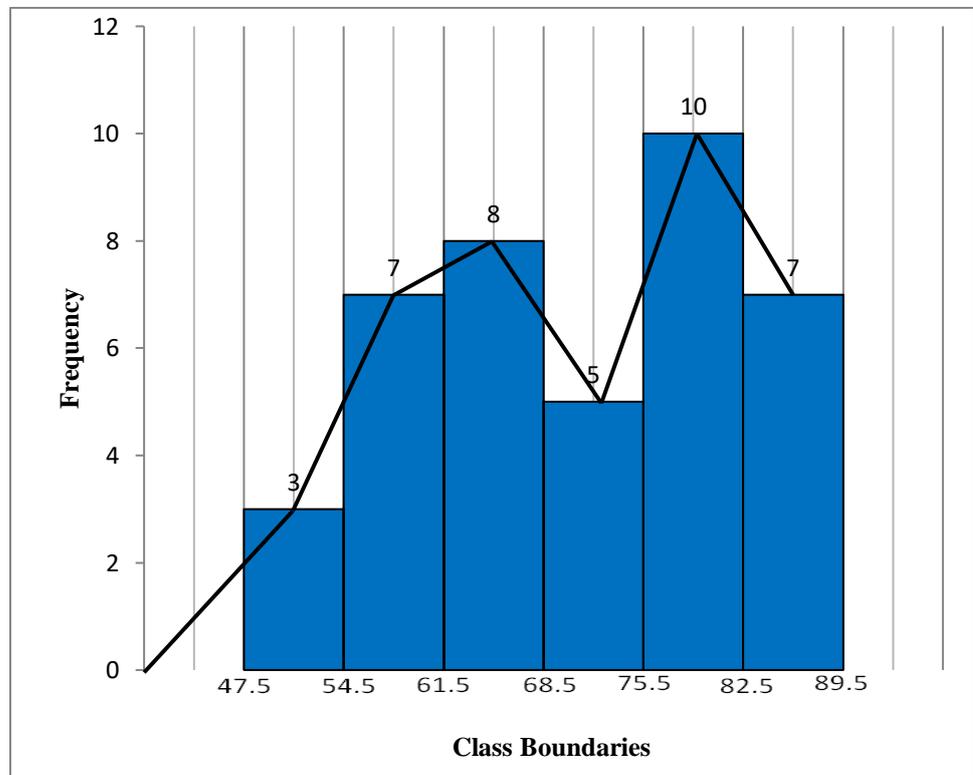
Figure 2. The Histogram and Polygon of the Data A₁

2. The data of the vocabulary test of the students who are taught by audio-lingual method (A₂).

Descriptive analysis of the data A₂ shows that the score is 52 up to 80. The mean is 67.75, the standard deviation is 7.49, the mode is 72.93,

and the median is 69.96. The frequency distribution of the data of A_2 is

in the table 7. The highest score is 80 while the lowest score is 52. From

these, the range is 28, the class was 6, and the interval of these score was

5. Histogram and polygon are presented in figure 3.

Table 7. The Frequency Distribution of the Data A_2

Class Limits	Class Boundaries	Midpoint	Tally	Frequency	Percentage
52 - 56	51.5 – 56.5	54	IIII	4	10%
57 - 61	56.5 – 61.5	59	ЖII I	6	15%
62 - 66	61.5 – 66.5	64	ЖII	5	12.5%
67 - 71	66.5 – 71.5	69	ЖII IIII	9	22.5%
72 - 76	71.5 – 76.5	74	ЖII ЖII III	13	32.5%
77 - 81	76.5 – 81.5	79	III	3	7.5%
				40	100%
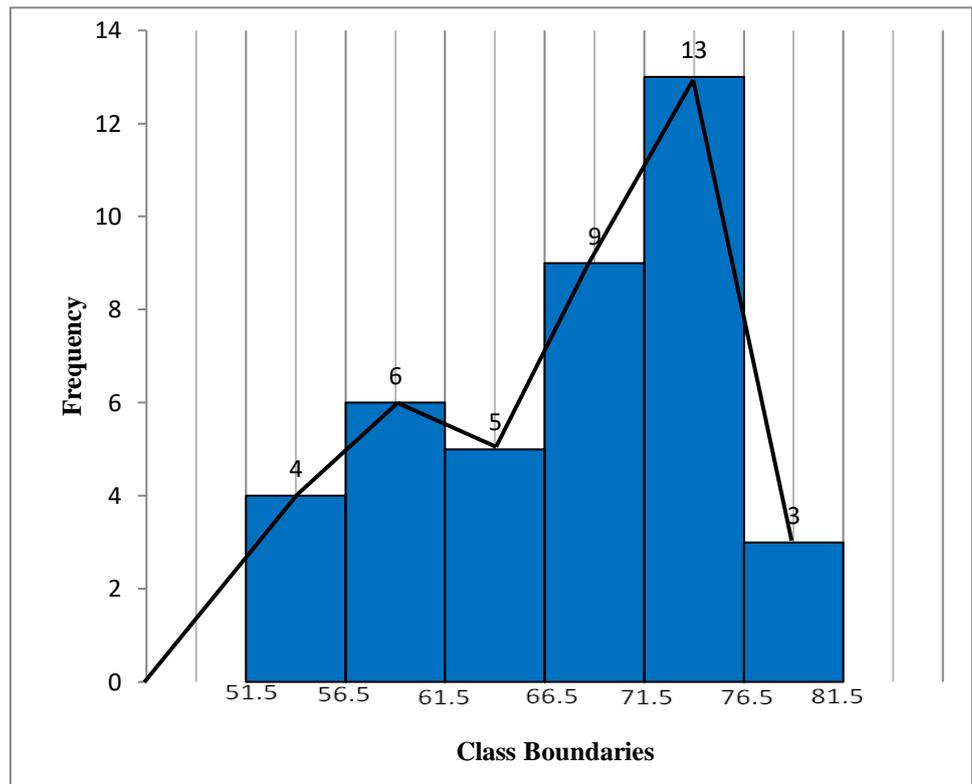
Figure 3. The Histogram and Polygon of the Data A_2

3. The data of the vocabulary test of the students who have high IQ (B_1).

Descriptive analysis of the data B_1 shows that the score is 52 up to 88. The mean is 71.95, the standard deviation is 10.11, the mode is 77.07, and the median is 74. The frequency distribution of the data B_1 is in the table 8. The highest score is 88 while the lowest score is 52. From these, the range is 36, the class is 7, and the interval of these score is 6. Histogram and polygon are presented in figure 4.

Table 8. The Frequency Distribution of the data B_1

Class Limits	Class Boundaries	Midpoint	Tally	Frequency	Percentage
51 - 56	50.5 – 56.5	53.5	IIII	4	10%
57 - 62	56.5 – 62.5	59.5	III	3	8%

| 63 - 68	62.5 – 68.5	65.5	┼┼┼┼ III	8	20%
69 - 74	68.5 – 74.5	71.5	┼┼┼┼ I	6	15%
75 - 80	74.5 – 80.5	77.5	┼┼┼┼ ┼┼┼┼ II	12	30%
81 - 86	80.5 – 86.5	83.5	IIII	4	10%
87 - 92	86.5 – 92.5	89.5	III	3	8%
				40	100%
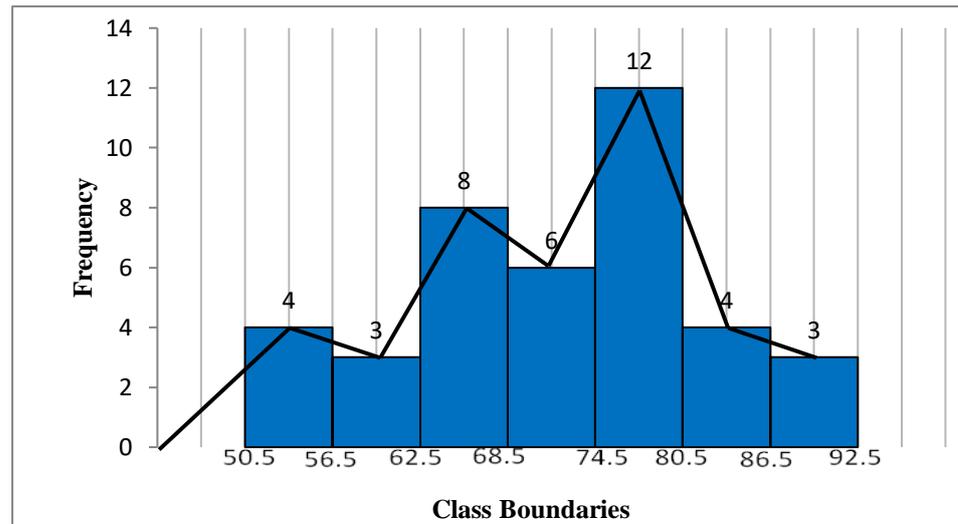
Figure 4. The Histogram and Polygon of the Data B_1

4. The data of the vocabulary test of the students who have low IQ (B_2).

Descriptive analysis of the data B_2 shows that the score is 48 up to 80. The mean is 66.7, the standard deviation is 7.71, the mode is 63.5, and the median is 65.93. The frequency distribution of the data B_2 is in the table 9. The highest score is 80 while the lowest score is 48. From these, the range is 32, the class is 6, and the interval of these score is 6. Histogram and polygon are presented in figure 5.

Table 9. The Frequency Distribution of the Data B_2

Class Limits	Class Boundaries	Midpoint	Tally	Frequency	Percentage
48 - 53	47.5 – 53.5	50.5	III	3	10%

54 - 59	53.5 – 59.5	56.5	II	2	6.7%
60 - 65	59.5 – 65.5	62.5	ẖĦ ẖĦ IIII	14	46.7%
66 - 71	66.5 – 71.5	68.5	ẖĦ III	8	26.7%
72 - 77	71.5 – 77.5	74.5	ẖĦ ẖĦ I	11	36.7%
78 - 83	77.5 – 83.5	80.5	II	2	6.7%
				40	100%
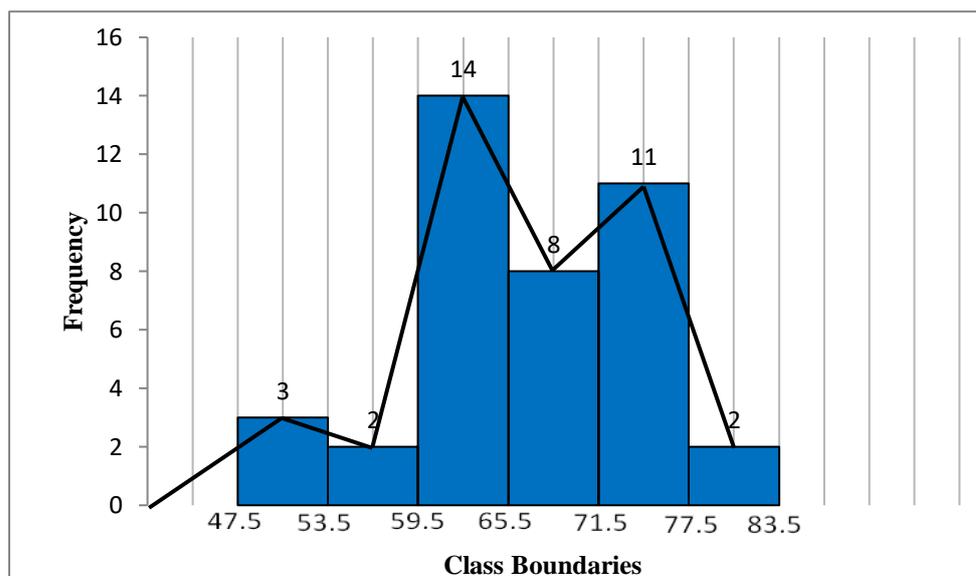
Figure 5. The Histogram and polygon of data of B_2

5. The data of the vocabulary test of the students who have high IQ and taught by TPR (A_1B_1).

Descriptive analysis of the data A_1B_1 shows that the score is 72 up to 88. The mean is 79.7, the standard deviation is 5.1, the mode is 79.78, and the median is 79.78. The frequency distribution of the data A_1B_1 is in the table 10. The highest score is 88 while the lowest score is 72. From these, the range is 16, the class is 5, and the interval of these score is 4. Histogram and polygon are presented in figure 6.

Table 10. The Frequency Distribution of the Data A_1B_1

Class Limits	Class Boundaries	Midpoint	Tally	Frequency	Percentage
70 - 73	69.5 – 73.5	71.5	III	3	15%
74 - 77	73.5 – 77.5	75.5	III	3	15%
78 - 81	77.5 – 81.5	79.5	IIIII II	7	35%
82 - 85	81.5 – 85.5	83.5	IIII	4	20%
86 - 89	85.5 – 89.5	87.5	III	3	15%
				20	100%
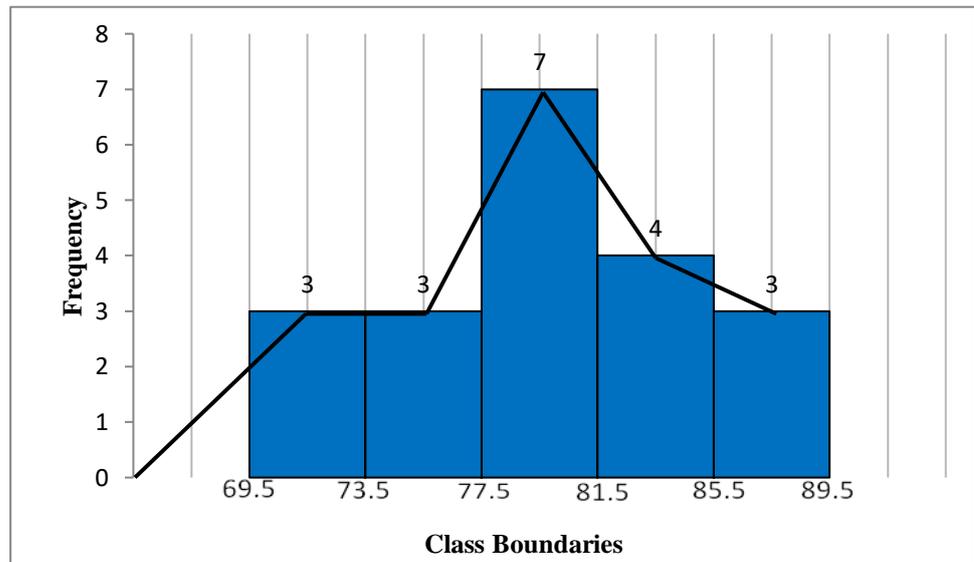

Figure 5. The Histogram and Polygon of Data A_1B_1

6. The data of the vocabulary test of the students who have high IQ and taught by audio-lingual method (A_2B_1).

    Descriptive analysis of the data A_2B_1 shows that the score is 52 up to 80. The mean is 64.3, the standard deviation is 7.44, the mode is 65.5, and the median is 64.75. The frequency distribution of the data A_2B_1 is in the table 11. The highest score is 80 while the lowest score is 52. From these, the range is 28, the class is 5, and the interval of these score is 6. Histogram and polygon are presented in figure 7.

Table 11. Frequency Distribution data of A_2B_1

| Class Limits	Class Boundaries	Midpoint	Tally	Frequency	Percentage
51 - 56	50.5 – 56.5	53.5	IIII	4	20%
57 - 62	56.5 – 62.5	59.5	III	3	15%
63 - 68	62.5 – 68.5	65.5	HHT III	8	40%
69 - 74	68.5 – 74.5	71.5	III	3	15%
75 - 80	74.5 – 80.5	77.5	II	2	10%
				20	100%
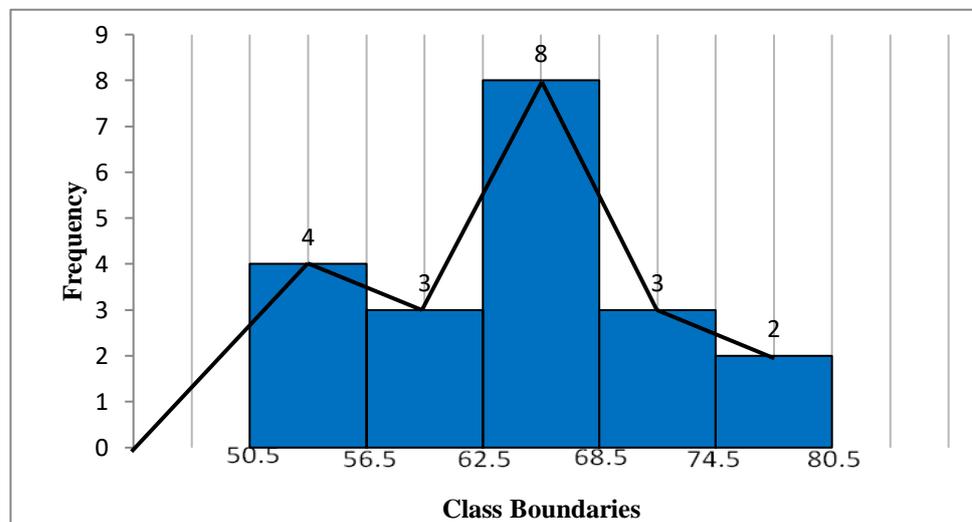
Figure 7. The Histogram and Polygon of the Data A_2B_1

7. The data of the vocabulary test of the students who have low IQ and taught by TPR (A_1B_2).

Descriptive analysis of the data A_1B_2 shows that the score is 48 up to 72. The mean is 60, the standard deviation is 7.16, the mode is 68.75, and the median is 64.16. The frequency distribution of the data of A_1B_2 is in the table 12. The highest score is 72 while the lowest score is 48. From these, the range is 24, the class is 5, and the interval of these score is 5. Histogram and polygon are presented in figure 8.

Table 12. The Frequency Distribution of the data A_1B_2

| Class Limits	Class Boundaries	Midpoint	Tally	Frequency	Percentage
48 - 52	47.5 – 52.5	48	III	3	15%
53 - 57	52.5 – 57.5	53	II	2	10%
58 - 62	57.5 – 62.5	58	ЖII	5	25%
63 - 67	62.5 – 67.5	63	IIII	4	20%
68 - 72	67.5 – 72.5	68	ЖII I	6	30%
				20	100%
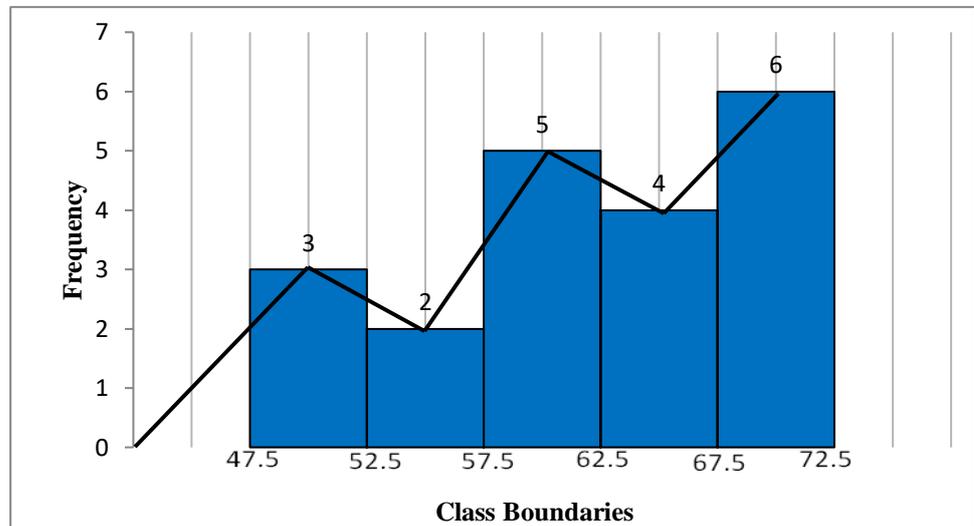
Figure 8. The Histogram and Polygon of the data A_1B_2

8. The data of the vocabulary test of the students who have low IQ and taught by audio-lingual method (A_2B_2).

Descriptive analysis of the data A_2B_2 shows that the score is 60 up to 80. The mean is 71.9, the standard deviation is 6.41, the mode is 76.5, and the median is 73.1. The frequency distribution of the data A_2B_2 is in the table 13. The highest score is 80 while the lowest score is 60. From these, the range is 20, the class is 6, and the interval of these score is 4. Histogram and polygon are presented in figure 9.

Table 13. The Frequency Distribution of the Data A₂B₂

Class Limits	Class Boundaries	Midpoint	Tally	Frequency	Percentage
60 - 63	59.5 – 63.5	61.5	III	3	15%
64 - 67	63.5 – 67.5	65.5	II	2	10%
68 - 71	67.5 – 71.5	69.5	IIII	4	20%
72 - 75	71.5 – 75.5	73.5	IIII	4	20%
76 - 79	75.5 – 79.5	77.5	JHII	5	25%
80 - 83	79.5 – 83.5	81.5	II	2	10%
				20	**100%**
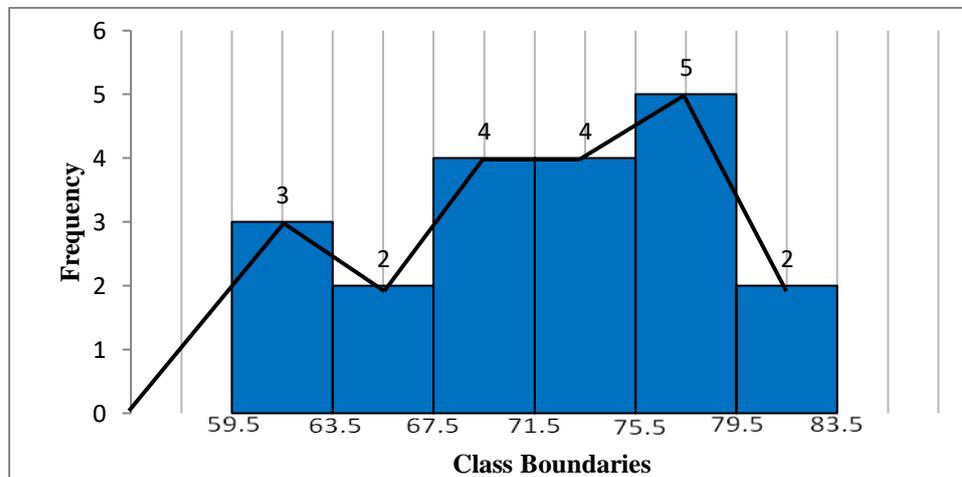
Figure 9. The Histogram and Polygon of the Data A₂B₂

B. Normality and Homogeneity

The tests that have to be done before analyzing the data are normality and homogeneity. The normality test is to check whether the data are normal distribution or not and the homogeneity is applied to find out whether the data are homogenous or not. This test is important because homogeneity of the data shows that the population is well-formed.

1. Normality Test

Normality test was employed on the data of dependent variable. The technique used in normality test is *Liliefors*. If L obtained (L_o) is lower than

L table (L_t) at the level of significance α = 0.05, the sample is normal distribution. The formula used are:

$$s = \sqrt{\frac{\sum x^2 - \frac{(\sum x)^2}{n}}{n-1}}$$

$$z_i = \frac{X_i - \overline{X}}{s}$$

a. Cell (A_1)

Cell (A_1) consists of 40 students who are taught by TPR (n = 40). The highest value of L_o is 0.084 and L_t at the level of significance α = 0.05 is 0.1400. Because L_o is lower than L_t (0.084 < 0.1400), it can be concluded that the sample is in normal distribution.

b. Cell (A_2)

Cell (A_2) consists of 40 students who are taught by audio-lingual method (n = 40). The highest value of L_o is 0.0985 and L_t at the level of significance α = 0.05 is 0.1400. Because L_o is lower than L_t (0.0985 < 0.1400), it can be concluded that the sample is in normal distribution.

c. Cell (B_1)

Cell (B_1) consists of 40 students who have high IQ (n = 40). The highest value of L_o is 0.0712 and L_t at the level of significance α = 0.05 is 0.1400. Because L_o is lower than L_t (0.0712 < 0.1400), it can be concluded that the sample is in normal distribution.

d. Cell (B_2)

Cell (B_2) consists of 40 students who have low IQ (n = 40). The highest value of L_o is 0.0984 and L_t at the level of significance α = 0.05 is

0.1400. Because L_o is lower than L_t (0.0984 < 0.1400), it can be concluded that the sample is in normal distribution.

e. Cell (A_1B_1)

Cell (A_1B_1) consists of 20 students who have high IQ and taught by TPR (n = 20). The highest value of L_o is 0.166 and L_t at the level of significance α = 0.05 is 0.190. Because L_o is lower than L_t (0.166 < 0.190), it can be concluded that the sample is in normal distribution.

f. Cell (A_2B_1)

Cell (A_2B_1) consists of 20 students who have high IQ and taught by audio-lingual method (n = 20). The highest value of L_o is 0.0983 and L_t at the level of significance α = 0.05 is 0.190. Because L_o is lower than L_t (0.0983 < 0.190), it can be concluded that the sample is in normal distribution.

g. Cell (A_1B_2)

Cell (A_1B_2) consists of 20 students who have low IQ and taught by TPR (n = 20). The highest value of L_o is 0.091 and L_t at the level of significance α = 0.05 is 0.190. Because L_o is lower than L_t (0.091 < 0.190), it can be concluded that the sample is in normal distribution.

h. Cell (A_2B_2)

Cell (A_2B_2) consists of 20 students who have low IQ and taught by audio-lingual method (n = 20). The highest value of L_o is 0.0974 and L_t at the level of significance α = 0.05 is 0.190. Because L_o is lower than L_t

(0.0974 < 0.190), it can be concluded that the sample is in normal distribution.

Table 14. The Normality Test

No	Data	The Number of the Sample	Lo	Lt	α	Distribution of Population
1	A1	40	0.084	0.1400	0.05	Normal
2	A2	40	0.0985	0.1400	0.05	Normal
3	B1	40	0.0712	0.1400	0.05	Normal
4	B2	40	0.0984	0.1400	0.05	Normal
5	A1B1	20	0.166	0.190	0.05	Normal
6	A2B1	20	0.0983	0.190	0.05	Normal
7	A1B2	20	0.091	0.190	0.05	Normal
8	A2B2	20	0.0974	0.190	0.05	Normal

2. Homogeneity Test

The homogeneity test is done to find out whether the data are homogeneous or not. To test the homogeneity of the data, chi-square (χ_0^2) is used. If χ_0^2 is lower than χ_t^2 at the level of significance α = 0.05, the data are homogeneous.

Table 15. The Homogeneity Test

Group	df	1/df	S_i^2	log S_i^2	(df) log S_i^2
1	19	0.0526316	26.06	1.41602704	26.90451367
2	19	0.0526316	58.73	1.76891059	33.60930128
3	19	0.0526316	49.51	1.69474371	32.20013045
4	19	0.0526316	41.09	1.6137862	30.66193787
	76	0.210526			123.3758833

$$\chi_0^2 = (\ln 10)\left\{B - \sum(n_1 - 1)\log s_i^2\right\}$$

$$= (2.3026)\ \{(124.792)\text{-}(123.375883)\}$$

$$= 3.25$$

$$\chi_{t\ (0.05)}^2 = 7.81$$

Because χ_0^2 (3.25) is lower than $\chi_{t\ (0.05)}^2$ (7.81), it can be concluded that the

data are homogeneous.

C. Hypothesis Testing

      Hypothesis test can be done after the result of normality and

homogeneity tests are fulfilled. The test is done by using multifactor

analysis of variance 2 x 2. H_o is rejected if $F_o > F_t$ meaning that there is a

significant difference and an interaction. If H_o is rejected, the analysis is

continued to know the difference between the two (group A and group B)

and cells using Tukey test. Moreover, to know which group is better, the

mean scores are compared. The multifactor analysis of variance 2 x 2 and

the Tukey test are described below:

1. Summary of a 2 by 2 Multifactor Analysis of Variance

Table 16. 2 by 2 Multifactor Analysis of Variance

Source of Variance	SS	df	MS	F_0	$F_{t(0.05)}$

Between columns (Method)	204.8	1	204.8	4.67	3.938
Between rows (IQ)	871.2	1	871.2	19.86	
Columns by rows (Interaction)	2880	1	2880	65.67	
Between groups	3956	3	1318.667		
Within groups	3332.8	76	43.85		
Total	7288.8	79			

a. Because F_o between columns (4.67) is higher than F_t at the level of significance $\alpha = 0.05$ (3.938), the difference between columns is significant. It can be concluded that teaching methods differ significantly from one another in their effect on the subjects in the experiment. The students' mean score of C_1 (70.9) is higher than the students' mean score of C_2 (67.7), so the students who are taught by using TPR are better in vocabulary achievement than those who are taught by using Audio-Lingual Method. Thus, TPR is more effective than audio-lingual method to teach vocabulary.

b. Because F_o between rows (19.86) is higher than F_t at the level of significance $\alpha = 0.05$ (3.938), the difference between rows is significant. It can be concluded that the difference between the vocabulary achievements of the students who have high IQ and those who have low IQ is significant. The students' mean score of R_1 (72.6) is higher than the students' mean score of R_2 (66), so the students who have high IQ have better in vocabulary achievement than those who have low IQ.

c. Because F_o interaction (65.67) is higher than F_t at the level of significance $\alpha = 0.05$ (3.938), the interaction between columns and rows are significant. It can be concluded that there is interaction effect between

two variables, the teaching methods and the degree of IQ on the students' vocabulary mastery. It means that the effect of teaching methods used on the achievement depends on the subjects' degree of IQ.

2. Tukey Test

After analyzing the variance, it needs to be followed by doing a Tukey test (between columns and rows). The function of this test is to test the difference of the mean of each group.

Table 17. The Tuckey Test

Between Group	n	q_o	$q_{t(0.05)}$	Significantly	Meaning
$A_1 - A_2$	40	3.05	2.86	Significant	$A_1 > A_2$
$B_1 - B_2$	40	6.3	2.86	Significant	$B_1 > B_2$
$A_1B_1 - A_2B_1$	20	10.26	2.95	Significant	$A_1B_1 > A_2B_1$
$A_2B_2 - A_1B_2$	20	5.94	2.95	Significant	$A_2B_2 > A_1B_2$

a. q_o between columns (A_1 and A_2) is 3.05. The value of q_t for $\alpha = 0.05$ and n = 40 is 2.86. Because q_o (3.05) is higher than q_t (2.86), TPR differs significantly from audio-lingual method for teaching vocabulary. The mean score of the students who are taught by using TPR (70.9) is higher than that those who are taught by audio-lingual method (67.7). It can be concluded that TPR is more effective than audio-lingual method for teaching vocabulary. Based on the result of ANOVA ($f_o > f_t$) and the result of Tuckey test ($q_o > q_t$). Therefore, H_o is rejected and $H\alpha$ is accepted.

b. q_o between rows (B_1 and B_2) is 6.3. The value of q_t for $\alpha = 0.05$ and n = 40 is 2.86. Because q_o (6.3) is higher than q_t (2.86), the students who have

high IQ are significantly different from those who have low IQ. The mean score of the students who have high IQ (72.6) is higher than that those have low IQ (66). It can be concluded that the students who have high level of IQ have better vocabulary achievement than those who have low level of IQ. Based on the result of ANOVA ($f_o > f_t$) and the result of Tuckey test ($q_o > q_t$). Therefore, H_o is rejected and Hα is accepted.

c. q_o between two cells (A_1B_1 and A_2B_1) is 10.26. The value of q_t for α = 0.05 and n = 20 is 2.95. Because q_o (10.26) is higher than q_t (2.95), TPR differs significantly from audio-lingual method for teaching vocabulary for students who have high IQ. The mean score of students who have high IQ who are taught by using TPR (80.2) is higher than that of those who are taught by using audio-lingual method (65). It can be concluded that TPR is more effective than audio-lingual method for teaching vocabulary for students who have high IQ. Based on the result of ANOVA ($f_o > f_t$) and the result of Tuckey test ($q_o > q_t$). Therefore, H_o is rejected and Hα is accepted.

d. q_o between two cells ($A_2B_2 - A_1B_2$) is 5.94. The value of q_t for α = 0.05 and n = 20 is 2.95. Because q_o (5.94) is higher than q_t (2.95), audio-lingual method differs significantly from TPR to teach vocabulary for students who have high IQ. The mean score of students who have low IQ who are taught by using audio-lingual method (70.4) is higher than that of those who are taught by TPR (61.6). it can be concluded that audio-lingual method is more effective than TPR for teaching vocabulary for

students who have low IQ. Based on the result of ANOVA ($f_o > f_t$) and the result of Tuckey test ($q_o > q_t$). Therefore, H$_o$ is rejected and Hα is accepted.

e. Based on the result of analysis on part c and d above; that TPR is more effective than audio-lingual method for teaching vocabulary for students who have high IQ and audio-lingual method is more effective than TPR for teaching vocabulary for students who have low IQ, it can be concluded that there is an interaction between the teaching methods and the students' IQ for teaching vocabulary. Based on the result of ANOVA ($f_o > f_t$) and the result of Tuckey test ($q_o > q_t$). Therefore, H$_o$ is rejected and Hα is accepted.

D. Discussion

1. TPR is more effective than audio-lingual method for teaching vocabulary

Teachers are supposed to use variety methods in teaching process in order to know the suitable method to teach the students. An appropriate method will influence the students' achievement in learning and they can achieve their goal easily. TPR is a method in which the students learn by movement.

The total physical response method (TPR) is based on the fact that a foreign language should be learnt in a similar way as children learn their mother tongue: firstly they only listen to it and do what they are asked for.

Therefore, the main skill in TPR is listening with concentration on listening comprehension. Mother tongue is rarely used in lessons. All explanations are done through voice, body language, gestures, and actions. Students can listen to a recording while looking at additional materials that help to understand the meaning from context. TPR is based on the premise that the human brain has a biological program from acquiring any natural language in the world including the sign language of the deaf. The process is visible when we observe how infants internalize their first language (Asher, 2000: 8).

The main aim is to decrease stress in using new vocabulary, make lessons more enjoyable, and encourage students to feel more confident and successful. This method is convenient for beginners of all ages but generally it is rather supportive and requires cooperation with other methods. According to Larsen-Freeman (2000: 113), TPR was developed in order to reduce the stress people feel when studying foreign languages and thereby encourage students to persist in their study beyond a beginning level of proficiency.

Meanwhile, learning through audio-lingual method (ALM) means forming habits. The method is based on teaching drills of sentence patterns and their pronunciation. The main aim is to create communicative ability of learners in a short time and make responses habitual and mostly automatic. The only language used during lessons is the target language. Special importance is given to pronunciation and memorizing of phrases plays the

key role.

Teacher has the central and leading role, his/her work is very demanding due to the need of accuracy, activity, and control. Except for automatic responses, there is a great effort to produce mistake-free utterances. Language is displayed through conversations, divided into lines that are drilled repetitively. Vocabulary is strictly limited and learned only in context. Hockett in Kumaravadivelu (2006: 101-102) states that the teacher's major task is to drill the basic patterns. Learners "require drill, drill, and more drill, and only enough vocabulary to make such drills possible". During the process of drilling, the learners should be carefully guided through a series of carefully designed exercises, thereby eliminating the possibility for making errors. As the learners are helped to perform the drills, they are supposed to inductively learn the grammatical structure being practiced.

Based on the explanation above, it can be concluded that the total physical response is more effective than the audio-lingual method for teaching vocabulary.

2. The students having high IQ have better vocabulary achievement than those having low IQ

The importance of vocabulary in language acquisition goes uncontested. It is evident that vocabulary is indispensable for successful communication in any language.

Researchers have also shown that vocabulary and intelligence are highly correlated. Anderson and Freebody in Marzano (2004: 32) say the strong relationship between vocabulary and general intelligence is one of the most robust findings in the history of intelligence testing.

The students with high IQ will have better access to the brain in processing and storing information needed regarding with their vocabulary. The ability to process and store information is a component of what cognitive psychologists refer to as fluid intelligence as described by Cattell in Marzano (2004: 5), fluid intelligence is innate. One of its defining features is the ability to process information and store it in permanent memory. High fluid intelligence is associated with enhanced ability to process and store information. Low fluid intelligence is associated with diminished ability to process and store information.

The student with high intelligence will retain most the vocabulary experiences as a new knowledge and store them in their memory meanwhile for those of that having low intelligence will not. By doing so, the high IQ students and their vocabulary mastery will grow all the times when they are faced with a new one.

An increased vocabulary is one of the best general indicators of intelligence. The vocabulary difference between low- and high-achieving students is estimated to be approximately 5000 words. This difference typically has more to do with the students' regular exposure to new words than their innate or fluid intelligence. Therefore, building your language

knowledge with vocabulary activities can lead to increased intelligence and a higher IQ score, as well as improved academic success (Nagy and Herman, 1984: 9).

Meanwhile, the students with low IQ will not participate totally in the learning process given by the teacher. They show lack of interest and little attention. They prefer to become the audience or listener in the learning process because it takes time for time to capture and store the new words. They also need more time on how or when to use those new words in their activity because it is quite difficult for them to understand the new material or word which is needed in the vocabulary achievement. Some have trouble relating to or communicating with their peers because of disparities in vocabulary size (especially in the early years), personality, interests, and motivation. Lahey (2009: 295) says that a child with low intelligence will often seem less competent than an average younger child with the same mental age.

It can be concluded that there is a correlation between intelligence and vocabulary achievement; the students having high intelligence have better vocabulary achievement than those having low intelligence.

3. There is an interaction between teaching methods and students' IQ

Teaching methods which are used by the teacher in teaching learning process helps the students to achieve their goal. Meanwhile, IQ is an important factor to predict score in the subjects. Kail (2010: 259) says scores on IQ tests predict grades in school and occupational success.

TPR is associated with the idea that we all learn in different media. The memory we use when learning to tie shoelaces or to ride a bicycle is kinesthetic memory or 'muscle memory'. This, of course is, just one of the different 'intelligences' we use when learning a foreign language.

By TPR, students are not taught by their teachers' translation or repeating. The students are taught to be more active to know the meaning from their own movement. Richard and Rodgers (1986: 87) states that TPR is a language teaching method built around the coordination of speech and action; it attempts to teach language through physical (motor) activity. It is also related to the theory of Multiple Intelligences that was introduced by Howard Gardner, as stated previously in chapter 2. One of the nine intelligences that are included in his theory is bodily- kinesthetic intelligence, which involves the use of fine and motor skills to solve problems and to perform a sequence of movements.

As TPR involves getting children to move a lot, it enhances their motivation. In terms of the teaching of language, teachers basically depend on commands when following TPR.

The high IQ students will have better understanding about the learning material which is proposed in the TPR, they will be able to work cooperatively with other students, and they will always be very active in doing the instruction given by the teacher. They tend to have more initiative and be confident in doing something without waiting further command from the teacher. They tend to fix their mistakes and will avoid them to happen

again. Christison in Richard and Rodgers (2001: 120) states that the more awareness the students have of their own intelligences and how they work, the more they will know how to use that intelligence to access the necessary information and knowledge from a lesson.

Based on the explanation above, it can be concluded that the total physical response is more effective for students having high intelligence for teaching vocabulary.

Meanwhile, the audio-lingual method cannot motivate the students, because the main focus of this method is the teacher. It is a teacher-centered lesson in which the teacher or the audio material is the model. Margolis in Abu-Melhim (2009: 43) points out that the audio-lingual approach results in "a lack of student motivation" arising in large part from "pattern drills" that has a tendency to become boring.

Drills, as part of the audio-lingual method, have been applied to the teaching of English. In this case, teaching English as a foreign language makes teachers and students try to use English as a means of communication.

Students having low intelligence tend to wait for some instruction from the teacher on what to do in the class. They also tend to have no curiosity in teaching and learning process and keep silent even though they do not understand the lesson. The audio-lingual method seems able to satisfy the students having low intelligence. In the audio-lingual class, the students focus is following orders from their teacher or the material such as

tape and video by doing some drills. It can be concluded that the audio-lingual method is more effective to teach vocabulary for the students having low intelligence. This conclusion is in line with Kulhavy's (1992: 342) who states:

> "This also suggests that the academic performance of low-IQ children can be enhanced when instruction is conducted (1) in a domain for which they have substantial knowledge or (2) in a manner whereby the child's knowledge is built step by step so that he or she develops a substantial knowledge base with which to compensate for the lower IQ".

Based on the explanation above, it can be concluded that there is an interaction between teaching methods and the students' intelligence for teaching vocabulary.

CHAPTER V

CONCLUSION, IMPLICATION, AND SUGGESTION

A. Conclusion

The findings of the research are:

4. TPR is more effective than audio-lingual method for teaching vocabulary to the students in the fifth grade of SD Negeri Kleco 1 Surakarta in academic year 2011/2012.

5. The students who have high IQ have better vocabulary achievement than those who have low IQ of the students in the fifth grade of SD Negeri Kleco 1 Surakarta in academic year 2011/2012.

6. There is an interaction between teaching methods and students' IQ in teaching vocabulary to the students in the fifth grade of SD Negeri Kleco 1 Surakarta in academic year 2011/2012.

Based on the research findings, it can be concluded that: (1) TPR is a very effective method for teaching vocabulary in the fifth grade of SD Negeri Kleco 1 Surakarta in academic year 2011/2012; and (2) The effectiveness of the method is influenced by the level of the students' IQ.

B. Implication

The result of the research proves that TPR is more effective than audio-lingual method to teach vocabulary. It means that TPR should be

applied better than audio-lingual method in the teaching and learning process. TPR brings a good atmosphere in the classroom activity. In TPR, the role of teacher is as a model and commander. The teacher teaches vocabulary by saying and practicing the vocabulary with her/his gesture or body movement. First, the students only watch and hear their teacher. Second, the teacher asks the students to follow their gesture or body movement and say the words. Third, the teacher asks the students to practice the vocabulary unaccompanied by the teacher to know whether the students can catch the meaning of the vocabulary. After that, the teacher gives unconscious individual vocabulary test by asking the students to give commands to each other. The teacher monitors the activity. In TPR, the students grasp the meaning indirectly through movement. The students probably enjoy it. It attracts the students' attention and helps them to memorize the words easily.

Since the result of the research also proves that there is an interaction between teaching methods and students' IQ, teachers should know the level of students' IQ before applying a teaching method. The students who have high IQ and are taught by TPR have higher score than the students who have high IQ and are taught by audio-lingual method. On the other hand, the students who have low IQ and are taught by TPR have lower score than the students who have low IQ and are taught by audio-lingual method. The teacher should use both methods appropriately since there are students with high and low IQ in each class.

C. Suggestion

1. For the teacher

   a. The results of this research prove that TPR is one of the effective methods to use in teaching vocabulary. Using TPR in teaching English vocabulary is recommended for English teachers, especially in the elementary school level to attract the students' interest and motivation in learning English.

   b. IQ, as one of the students' psychological condition, should be considered before choosing an appropriate method to use.

2. For the students

   a. The students are supposed to be more active in the teaching and learning process in order to improve their vocabulary.

   b. TPR makes good atmosphere in the teaching and learning process. The students are supposed to practice their vocabulary without being shy to use their gesture.

3. For other researcher

   a. This research can become an alternative reference for other researchers.

   b. They are also able to do another research using IQ as the psychological condition with other teaching methods.

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