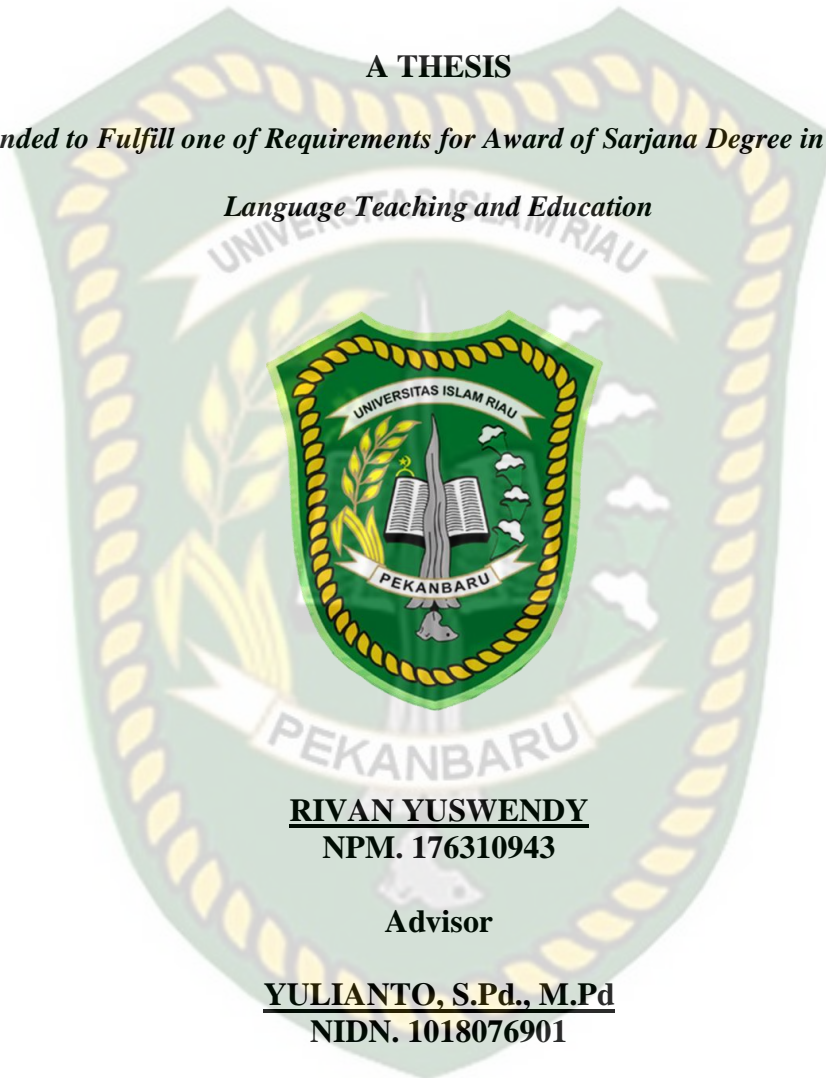


**AN ANALYSIS OF STUDENTS' DECLARATIVE AND PROCEDURAL
KNOWLEDGE IN ENGLISH TENSES AT THE THIRD SEMESTER OF
ENGLISH LANGUAGE EDUCATION OF FKIP UIR**

A THESIS

*Intended to Fulfill one of Requirements for Award of Sarjana Degree in English
Language Teaching and Education*



RIVAN YUSWENDY
NPM. 176310943

Advisor

YULIANTO, S.Pd., M.Pd
NIDN. 1018076901

ENGLISH LANGUAGE EDUCATION

FACULTY OF TEACHER TRAINING AND EDUCATION

UNIVERSITAS ISLAM RIAU

PEKANBARU

2021

ACKNOWLEDGEMENT

Bismillahirrahmanirrahim,

All praises to Allah, the Almighty, the Lord of the World, the one who gives the writer healthy, mercy, and easiness to finish this final thesis entitled “An Analysis of Students’ Declarative and Procedural Knowledge in English Tenses at The Third Semester of English Language Education of FKIP UIR”. Sholawat and greeting are also delivered to the prophet Muhammad SAW who has brought us from the darkness to brightness.

This thesis intended to fulfill one of the requirements of Sarjana Degree in English Language Education Faculty of Teacher Training and Education of Universitas Islam Riau. In completing this thesis, the writer received valuable contributions, advices, supports, motivation, guidance and love from many people. In this occasion, the writer wants to express knows this final thesis can be finished because of people around the writer that always give supports, meaning lovely words, motivation and love. Therefore, the writer would like to express his appreciation and sincere thanks to:

1. Mr. Yulianto, S.Pd., M.Pd as my advisor who gave me guidance, suggestions, criticized and full attention, so the writer can finished this research.
2. Mr. Muhammad Ilyas S.Pd., M.Pd as the head of English Study Program and Ma’am Sri Wahyuni S.Pd., M.Pd as the secretary of English Study Program, for the kindness and attention in finishing this thesis.

3. All lecturers that the writer cannot mention one by one, who taught and gave me knowledge during study in this college, the writer wants to say thank you very much.
4. The greatest gratitude to my parents, Yuswildi S.Pd. and Wenny Lydia S.Pd., who gave me their love, praying, supports, suggestion, advice and their time. So the writer can finished this thesis because of their love and advice.
5. My sisters, Sherin Syifa Yuswendya and Alya Syifa Yuswendya, who gave me support and their love.
6. My friends that the writer cannot mention one by one, who gave me help, support, and guidance during making this thesis.
7. Channel YouTube Physic Learning Center who gave me guidance and explanation clearly to do test validity and test reliability using SPSS.
8. Seniors and juniors in English Study Program, who gave me help, support, and guidance in finishing this research.
9. Cornelia Syafa Vanisa and Lulu Azkiya Salsabila as my idol, who gave me support and motivation.

Pekanbaru, 8th November 2021

The Writer

Rivan Yuswendy
NPM. 176310943

ABSTRACT

Rivan Yuswendy. 2021. An Analysis of Students' Declarative and Procedural Knowledge in English Tenses at The Third Semester of English Language Education of FKIP UIR

In learning English grammar, especially tenses, it is needed declarative knowledge and procedural knowledge. Declarative knowledge is the understanding about the theory and the pattern of tenses. Procedural knowledge is the knowledge about how to use tenses. This research explores the students' declarative and procedural knowledge in using English tenses. The objective of this research is to know the students' declarative and procedural knowledge in using 12 English tenses.

The research design of this research is descriptive quantitative. The instrument of this research is a test. The test consists of 25 questions. There are 12 questions about declarative knowledge and there are 13 questions about procedural knowledge. The data of this research is taken from the test.

Based on the findings of this research, the researcher found the students' declarative and procedural knowledge in English tenses was good. The researcher got the level of the students' knowledge from the average scores of the students. The average of the students' scores were 67,48 and it was placed into good category. Then, the researcher divided the data into declarative scores and procedural scores to know the level of each knowledge. For declarative knowledge, the average of the scores was 69,62 and it was placed into good category. For procedural knowledge, the average of the scores was 65,51 and it was placed into good category. Both of declarative knowledge and procedural knowledge were good and the average scores of each knowledge were placed in the scale 60-70.

Keyword: Knowledge, Declarative Knowledge, Procedural Knowledge.

ABSTRAK

Rivan Yuswendy. 2021. An Analysis of Students' Declarative and Procedural Knowledge in English Tenses at The Third Semester of English Language Education of FKIP UIR

Dalam mempelajari grammar Bahasa Inggris, khususnya tenses, dibutuhkan pengetahuan deklaratif dan pengetahuan prosedural. Pengetahuan deklaratif adalah pemahaman tentang teori dan pola tenses. Pengetahuan prosedural adalah pengetahuan tentang bagaimana cara menggunakan tenses. Penelitian ini menyelidiki pengetahuan deklaratif dan prosedural mahasiswa dalam menggunakan tenses. Tujuan dari penelitian ini adalah untuk mengetahui pengetahuan deklaratif dan prosedural mahasiswa dalam menggunakan 12 tenses.

Desain penelitian ini adalah deskriptif kuantitatif. Instrumen yang digunakan pada penelitian ini adalah tes. Tes tersebut terdiri dari 25 pertanyaan. Terdapat 12 pertanyaan tentang pengetahuan deklaratif. Terdapat 13 pertanyaan tentang pengetahuan prosedural. Data pada penelitian ini diambil dari test tersebut.

Berdasarkan temuan pada penelitian ini, peneliti menemukan pengetahuan deklaratif dan prosedural mahasiswa dalam menggunakan tenses berada pada tingkatan baik. Peneliti mendapatkan tingkatan tersebut dari rata – rata nilai mahasiswa. Rata – rata nilai mahasiswa adalah 67,48 dan itu termasuk kategori yang baik. Kemudian peneliti membagi data menjadi nilai deklaratif dan nilai prosedural. Untuk pengetahuan deklaratif, nilai rata – rata adalah 69,62 dan itu termasuk kedalam kategori yang baik. Untuk pengetahuan prosedural, nilai rata – rata adalah 65,51 dan itu termasuk kedalam kategori yang baik. Baik pengetahuan deklaratif maupun pengetahuan prosedural, keduanya berada pada kategori yang baik dan nilai rata – rata berada pada rentang 60-70.

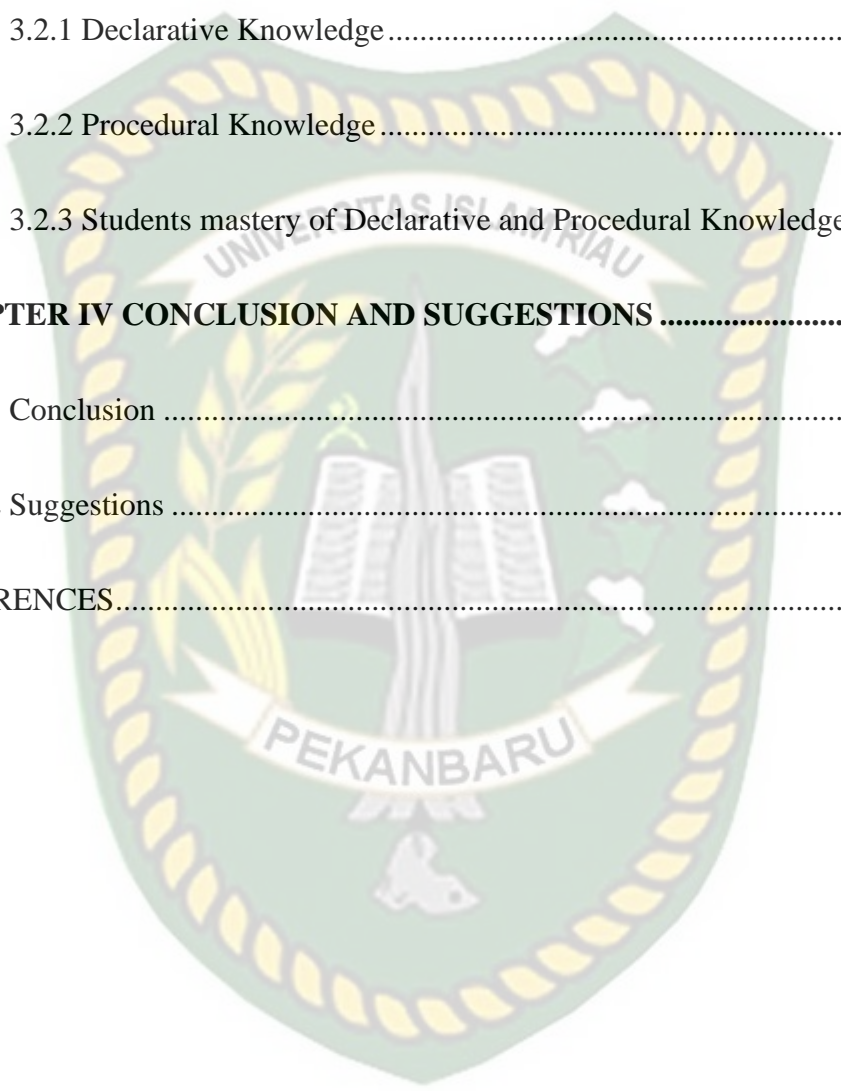
Kata kunci: Pengetahuan, Pengetahuan Deklaratif, Pengetahuan Prosedural.

TABLE OF CONTENTS

| | |
|----------------------------------------|----------|
| THESIS APPROVAL | i |
| THESIS | ii |
| THESIS GUIDANCE AGENDA | iii |
| LETTER OF NOTICE | iv |
| DECLARATION | v |
| ACKNOWLEDGMENT | vi |
| ABSTRACT | viii |
| TABLE OF CONTENTS | ix |
| LIST OF APPENDICES | xiii |
| LIST OF TABLES | xiv |
| CHAPTER I INTRODUCTION..... | 1 |
| 1.1 Background of Problem | 1 |
| 1.2 Statement of the Problems | 3 |
| 1.3 Limitation of the Research | 3 |
| 1.4 Formulation of the Problems..... | 3 |
| 1.5 Objective of the Problems | 4 |
| 1.6 Significance of the Research | 4 |
| 1.7 Definition of the Key Term..... | 4 |
| 1.8 Research Methodology..... | 5 |
| 1.8.1 Research Design..... | 5 |
| 1.8.2 Research Setting..... | 5 |

| | |
|-------------------------------------------------------------------------|-----------|
| 1.8.3 Population and Sample..... | 5 |
| 1.8.4 Instrument of the Research..... | 6 |
| 1.9 Data Collection Technique..... | 7 |
| 1.10 Data Analysis Technique | 7 |
| 1.11 Validity and Reliability Test | 8 |
| 1.11.1 Test Validity..... | 8 |
| 1.11.2 Test Reliability..... | 10 |
| CHAPTER II REVIEWS OF RELATED LITERATURE..... | 11 |
| 2.1 Relevance Theories | 11 |
| 2.1.1 The Nature of Grammar..... | 11 |
| 2.1.2 The Concept of Tenses..... | 12 |
| 2.1.3 Definition of Knowledge | 12 |
| 2.1.4 Declarative and Procedural Knowledge..... | 13 |
| 2.1.4.1 Declarative Knowledge..... | 14 |
| 2.1.4.2 Procedural Knowledge..... | 14 |
| 2.1.5 Assessing Declarative and Procedural Knowledge of Tenses | 15 |
| 2.2 Relevant Studies..... | 15 |
| 2.3 Conceptual Framework | 17 |
| 2.4 Assumption | 18 |
| CHAPTER III FINDINGS AND DISCUSSION..... | 19 |
| 3.1 The Presentation of Research Data | 19 |
| 3.1.1 The Result of Students' Declarative and Procedural Knowledge..... | 19 |
| 3.1.2 The Result of Students' Declarative Knowledge..... | 21 |

| | |
|----------------------------------------------------------------------|-----------|
| 3.1.3 The Result of Students' Procedural Knowledge | 23 |
| 3.2 Discussion | 24 |
| 3.2.1 Declarative Knowledge | 25 |
| 3.2.2 Procedural Knowledge | 25 |
| 3.2.3 Students mastery of Declarative and Procedural Knowledge | 26 |
| CHAPTER IV CONCLUSION AND SUGGESTIONS | 27 |
| 4.1 Conclusion | 27 |
| 4.2 Suggestions | 27 |
| REFERENCES..... | 33 |



LIST OF APPENDICES

| | |
|--------------------------------------|----|
| The Test..... | 34 |
| Output SPSS of Test Validity | 43 |
| Output SPSS of Test Reliability..... | 56 |
| Documentation | 57 |



Dokumen ini adalah Arsip Miik :
Perpustakaan Universitas Islam Riau

LIST OF TABLES

| | |
|----------------------------------------------------------------------------|----|
| Table Indicators..... | 6 |
| Table Category of Students Level Mastery..... | 8 |
| Table R Product Moment..... | 8 |
| Table Test Validity..... | 9 |
| Table Categorized Reliability..... | 10 |
| Table Students' Mastery Score of Declarative and Procedural Knowledge..... | 19 |
| Table Students' score of Declarative Knowledge..... | 21 |
| Table Declarative Knowledge Test Result..... | 22 |
| Table Students' Score of Procedural Knowledge..... | 23 |
| Table Procedural Knowledge Test Result..... | 24 |
| Table Classification..... | 26 |

CHAPTER I

INTRODUCTION

1.1 Background of Problem

English has grammar. English grammar is the rules that we use to make proper sentences. Effendi et al (2017) stated that grammar is how language units are formed into sentences by combining words and phrases. Uibu and Liiver (2015) said that grammar is a series of regulation that research the structures and the forms of sentences. From those statements, it can be concluded that grammar is the rules to form sentences by combining words and phrases in order the sentences more meaningful.

Grammar is one of the important aspects in a language. Therefore, the students should learn grammar carefully. There are many parts of grammar, for example part of speech, clauses, phrases, sentences, and tenses.

Tenses are part of grammar. Tenses are the rules or patterns when making a sentence based on the time. According to Jabbari (2013) tenses indicate to the grammatical expression of the time condition. Gledhill (2009) stated that in traditional grammar, tenses are considered as grammatical category. Alsaif (2017) said that tenses are verbal inflection, where diverse meanings from people's minds by changing the structure of the verb. There are three basic forms of tenses, they are present tense, past tense, and future tense.

To master tenses, the students must have declarative and procedural knowledge about tenses. Declarative knowledge is the knowledge in the memory

that consists of skills, strategies, and resources to do a task. Procedural knowledge is the knowledge about “how” in learning something (Kaur, 2020). According to Ntim and M.Phill (2013) declarative knowledge is a set of schemes that have truth value. Meanwhile, procedural knowledge is a response of stimulus that acquired by “doing”. Chen and Caldwell-Harris (2019) stated that declarative knowledge is a knowledge about objects and events, meanwhile procedural knowledge is a knowledge about how to do the action of the knowledge. In summary, declarative knowledge means the knowledge about theory and facts, and procedural knowledge is the knowledge about how to use the declarative knowledge.

Basically, in teaching grammar, teacher should tell the students about declarative and procedural knowledge. But, in FKIP UIR, the teacher did not tell the students about declarative and procedural knowledge. By knowing declarative and procedural knowledge, the students will know that to master tenses, they must have both of declarative and procedural knowledge.

So, if the students want to master tenses, they have to have declarative and procedural knowledge. From the statement, the researcher decide to carry out the research about students’ knowledge about tenses entitled **“AN ANALYSIS OF STUDENTS’ DECLARATIVE AND PROCEDURAL KNOWLEDGE IN ENGLISH TENSES AT THE THIRD SEMESTER OF ENGLISH LANGUAGE EDUCATION OF FKIP UIR”**

1.2 Statement of the Problems

The knowledge of declarative and procedural in learning tenses is needed by students in order the students will be able to use tenses.

Actually, there are 16 kinds of tenses. They consist of three main verb of tenses that are present, past, and future tense and past future tense that is known as conditional sentence. Each main verb of tenses have four form, they are simple form, continuous form, perfect form, and perfect continuous form.

1.3 Limitation of the Research

Based on the statement of the problems, the researcher limits the scope of the research. This research will discuss about students' ability in using 12 tenses. They are Simple Present Tense, Present Continuous Tense, Present Perfect Tense, Present Perfect Continuous Tense, Simple Past Tense, Past Continuous Tense, Past Perfect Tense, Past Perfect Continuous Tense, Simple Future Tense, Future Continuous Tense, Future Perfect Tense, and Future Perfect Continuous Tense. The researcher choose the 12 tenses because the past future tense or conditional sentence is rarely used.

1.4 Formulation of the Problems

The researcher formulates the research questions based on the limitation of the research. The question is what are the students' declarative and procedural knowledge in English tenses at the third semester of English language education of FKIP UIR?

1.5 Objective of the Problems

This research aims to find out the answers of the formulation of the problems above. The objective of the problem is to know the students' declarative and procedural knowledge in English tenses at the third semester of English language education of FKIP UIR.

1.6 Significance of the Research

This research is expected to give information to the students or the readers that in learning tenses, there are two knowledge that should be mastered. They are declarative and procedural knowledge.

1.7 Definition of the Key Term

In this research, there are several terms. To make sure that the readers understand the research, the researcher gives some definitions. They are :

1. Knowledge is the understanding or range information that acquired by a person through learning or experience about a subject. Knowledge about tenses means a person's knowledge in knowing the theory and fact of tenses.
2. Declarative knowledge in English tenses is the knowledge about theory of tenses. The knowledge comprises the definition of tenses, the formula of tenses, and the function of tenses.
3. Procedural knowledge in English tenses is the knowledge about how to apply tenses based on the use of tenses.

1.8 Research Methodology

1.8.1 Research Design

This research is quantitative research. Quantitative research is a research that collects and analyzes numerical data. In quantitative research, the researcher collects and analyzes the numerical data by using statistical method (Apuke, 2017). In summary, quantitative research is a research that related to numbers and counting to get data from the sample of a population. Quantitative research aims to test hypothesis, look at cause and effect, and make prediction. The research design is descriptive quantitative. In descriptive quantitative, the subjects are measured once.

1.8.2 Research Setting

This research was conducted by using online platform due to pandemic COVID-19. The researcher used Google Form as media to conduct the test. This research was held on October 2021.

1.8.3 Population and Sample

The population of this research was 3rd semester students at Islamic University of Riau. The 3rd semester students consisted of 2 classes. Class A consisted of 32 students and Class B consisted of 31 students. The total of 3rd semester students were 63 students. The researcher took B class as the sample of this research. The researcher took the sample by using cluster sampling technique.

1.8.4 Instrument of the Research

The instrument of this research was a test. The students were given a test related to tenses. Objective test is a test that consists of questions followed by two to five options, and there is one correct answer (key answer) and the others options as the distractors. There are several types of objective test. They are multiple choice, true-false, matching, and cloze procedure (fill in the blank). In this research, the objective test that will be used is multiple choice. In multiple choice, there are several options and the test takers should choose one the correct answer. Estiati (2016) stated that multiple choice consists of information part (stem) and possible answer (options). The options consist one correct answer and the others options are the distractors.

There are two indicators that are measured. First, the students' understanding about the definition, the formula, and the function of tenses. Second, the students' ability in using tenses. The indicators and the distribution of the questions in the test can be seen below :

Table 1.1 The Indicators of The Test

| Indicators | Tenses | Number of test item |
|-----------------------|----------------------------------|----------------------------|
| Declarative Knowledge | Simple Present Tense | 1 |
| | Present Continuous Tense | 3 |
| | Present Perfect Tense | 5 |
| | Present Perfect Continuous Tense | 6 |
| | Simple Past Tense | 10 |
| | Past Continuous Tense | 12 |
| | Past Perfect Tense | 11 |
| | Past Perfect Continuous Tense | 20 |
| | Simple Future Tense | 17 |

| Indicators | Tenses | Number of test item |
|-----------------------|----------------------------------|---------------------|
| Declarative Knowledge | Future Continuous Tense | 21 |
| | Future Perfect Tense | 23 |
| | Future Perfect Continuous Tense | 22 |
| Procedural Knowledge | Simple Present Tense | 2 |
| | Present Continuous Tense | 4 |
| | Present Perfect Tense | 7 |
| | Present Perfect Continuous Tense | 8 |
| | Simple Past Tense | 9, 25 |
| | Past Continuous Tense | 14 |
| | Past Perfect Tense | 15 |
| | Past Perfect Continuous Tense | 13 |
| | Simple Future Tense | 18 |
| | Future Continuous Tense | 16 |
| | Future Perfect Tense | 19 |
| | Future Perfect Continuous Tense | 24 |

1.9 Data Collection Technique

Technique of collecting data in this research used quantitative data. The quantitative data in this research was a test. To collect the data, the researcher used Google Form. The researcher made the test in Google Form and send the link to the participants.

1.10 Data Analysis Technique

To analyze the data, the researcher used formula to count the data. The formula was used by Ika Rahmadani Lubis (2017) in her research. The formula is :

$$\text{Score} = \frac{R}{N} \times 100$$

R = total of correct answer

N = total of questions

After the data are collected, researcher used a table to measure the level of students' ability. The table was used by Rouf (2015) in his research. The table is below :

Table 1.2 Category of Students' Level Mastery

| Scores | Letter Grade | Level of Achievement |
|----------|--------------|----------------------|
| 81 – 100 | A | Excellent |
| 61 – 80 | B | Good |
| 41 – 60 | C | Fair |
| 21 – 40 | D | Less |
| 0 – 20 | E | Poor |

1.11 Validity and Reliability Test

1.11.1 Test Validity

According to Gay (2012) validity is the level of an instrument that is the instrument measures what it is supposed to measures. He also said there are four types of validity. They are content validity, criterion-related validity, construct validity, and consequential validity.

Table 1.3 R Product Moment

| N | The Level of Significance | |
|----|---------------------------|-------|
| | 5% | 1% |
| 3 | 0,997 | 0,999 |
| 4 | 0,950 | 0,990 |
| 5 | 0,878 | 0,959 |
| 6 | 0,811 | 0,917 |
| 7 | 0,754 | 0,874 |
| 8 | 0,707 | 0,834 |
| 9 | 0,666 | 0,798 |
| 10 | 0,632 | 0,765 |

| N | The Level of Significance | |
|----|---------------------------|-------|
| | 5% | 1% |
| 11 | 0,602 | 0,735 |
| 12 | 0,576 | 0,708 |
| 13 | 0,553 | 0,684 |
| 14 | 0,532 | 0,661 |
| 15 | 0,514 | 0,641 |
| 16 | 0,497 | 0,623 |
| 17 | 0,482 | 0,606 |
| 18 | 0,468 | 0,590 |
| 19 | 0,456 | 0,575 |
| 20 | 0,444 | 0,561 |
| 21 | 0,433 | 0,549 |
| 22 | 0,423 | 0,537 |
| 23 | 0,413 | 0,526 |
| 24 | 0,404 | 0,515 |
| 25 | 0,396 | 0,505 |

The test is valid if the R value > R table. When the researcher committed validity and reliability test, the researcher took 24 respondents. Based on the Product Moment Table, the R table that is used was 0,404.

Table 1.3 Test Validity

| NO | Item | R Value | R Table | Status |
|----|-------------|---------|---------|--------|
| 1 | Question 1 | 0,617 | 0,404 | Valid |
| 2 | Question 2 | 0,734 | 0,404 | Valid |
| 3 | Question 3 | 0,574 | 0,404 | Valid |
| 4 | Question 4 | 0,728 | 0,404 | Valid |
| 5 | Question 5 | 0,590 | 0,404 | Valid |
| 6 | Question 6 | 0,467 | 0,404 | Valid |
| 7 | Question 7 | 0,531 | 0,404 | Valid |
| 8 | Question 8 | 0,447 | 0,404 | Valid |
| 9 | Question 9 | 0,511 | 0,404 | Valid |
| 10 | Question 10 | 0,659 | 0,404 | Valid |
| 11 | Question 11 | 0,712 | 0,404 | Valid |
| 12 | Question 12 | 0,709 | 0,404 | Valid |
| 13 | Question 13 | 0,647 | 0,404 | Valid |

| NO | Item | R Value | R Table | Status |
|----|-------------|---------|---------|--------|
| 14 | Question 14 | 0,733 | 0,404 | Valid |
| 15 | Question 15 | 0,539 | 0,404 | Valid |
| 16 | Question 16 | 0,682 | 0,404 | Valid |
| 17 | Question 17 | 0,549 | 0,404 | Valid |
| 18 | Question 18 | 0,822 | 0,404 | Valid |
| 19 | Question 19 | 0,615 | 0,404 | Valid |
| 20 | Question 20 | 0,790 | 0,404 | Valid |
| 21 | Question 21 | 0,746 | 0,404 | Valid |
| 22 | Question 22 | 0,437 | 0,404 | Valid |
| 23 | Question 23 | 0,416 | 0,404 | Valid |
| 24 | Question 24 | 0,744 | 0,404 | Valid |
| 25 | Question 25 | 0,520 | 0,404 | Valid |

1.11.2 Test Reliability

Gay (2012) said that reliability is the level of an instrument that the instrument can consistently measures. If the test is reliable, it means the test can give the same score if the test is given to test takers at another time or by a different person. The test validity and reliability are essential in a test. In making test validity and reliability, the researcher used SPSS 24.

Table 1.4 The Categorized Reliability

| No | Cronbach's Alpha | Category |
|----|------------------|------------------------------|
| 1 | >0.90 | Very highly reliable |
| 2 | 0.80-0.90 | Highly reliable |
| 3 | 0.70-0.79 | Reliable |
| 4 | 0.60-0.69 | Minimally reliable |
| 5 | <0.60 | Unacceptably low reliability |

The test is reliable if the Cronbach's Alpha $> 0,60$. From the test reliability, the Cronbach's Alpha was 0,916. It means the test was reliable. The test was categorized as very highly reliable.

CHAPTER II

REVIEWS OF RELATED LITERATURE

In this chapter, the researcher will explain the topic by giving theories related to the research.

2.1 Relevance Theories

2.1.1 The Nature of Grammar

Every language has grammar. What is grammar actually? If we look up the definition of grammar, there are many definitions of grammar from experts. According to Ekaningsih (2017) grammar is a combination of meaningful words structurally to make good sentence. Rasul and Suseno (2018) said grammar refers to a system of rules that arrange the words in a sentence. Mart (2013) stated that grammar is a set of rules to form sentences. From some definitions above, we can conclude that grammar is a set of rules that combines some words into sentence in order the sentence becomes meaningful.

Grammar is important. Saaristo (2015) stated grammar called as the heart of a language because the role of grammar in a language is very essential. If people want to learn a language, they should learn the grammar. Putri and Dewanti (2014) said grammar is one of language components that must be learned by the learners of a language. They also added, if the learners use grammar correctly, the meaning of their sentence or utterance will be delivered well.

There are many parts of grammar. According to Anjayani (2016) grammar includes many aspects in language. For instance, regular and irregular verb, singular and plural form, articles, prepositions, and tenses, etc. If the learners want to master grammar, they have to learn tenses.

2.1.2 The Concept of Tenses

Tenses are part of grammar. If we talk about tenses, we will not be separated from the word “time”. Michaelis (2021) said when describing the definition of tenses, there is one word that can represent tenses, that is the timeline. Timeline means representation of time that is unbounded and divided into three categories, those are the past, the present, and the future.

According to Panggabean (2016) tenses indicate the time of a situation that is being described. Hasanah (2017) said that tenses indicate actions in a certain time. Sudirman (2015) stated tenses are the grammatical expression of an action at the time.

Tenses are divided into three categories based on the time. They are present tense, past tense, and future tense. Each category has four forms. They are simple form, continuous form, perfect form, and perfect continuous form.

2.1.3 Definition of Knowledge

Basically, it is hard to define what knowledge is. Many people said that defining knowledge is not easy. Agarwal (2017) said that knowledge is *suigeneris*. It means knowledge cannot be defined properly by other words except itself. We often hear the word “knowledge”. But, do we really know the meaning of

knowledge? There are many definitions of knowledge. Knowledge can be defined as the ability of knowing something. When you have knowledge, it means that you know about something. For example, if you have knowledge about science, you know about science and its environment, and also you can think about science.

According to Agarwal (2017) knowledge is known as justified true belief because knowledge is a combination between awareness and understanding of specific aspects of reality. Meanwhile, Bolisani and Batrianu (2018) said that knowledge is the result of knowing as the most specific human processes. Knowledge is different from opinion. Knowledge is something that is true and can be proven. Meanwhile opinion is a someone's thought that its truth is not clear yet.

According to Mohajan (2016) knowledge is the sentience and recognition that is used to improve humankind's development. Knowledge is from human minds and increases when people learn and spread it. For example, if we learn English in the class, our knowledge about English will increase. We know more about English. Also the knowledge will spread because of teaching and learning process.

2.1.4 Declarative and Procedural Knowledge

There are some categories of knowledge. For instance : concrete and abstract knowledge, formal and informal knowledge, declarative and procedural knowledge, etc. In this research, the researcher will discuss about declarative and procedural knowledge.

2.1.4.1 Declarative Knowledge

According to Untu et al (2020) declarative knowledge is the knowledge about facts that is (described) in words as information that (retrieved) from memory. According to Jiamu (2001) declarative knowledge is the knowledge about facts, events, theories, and objects. Declarative knowledge is known as knowing something is the case. Rukminingsih et al (2020) said that declarative knowledge is knowledge about something. For example, in grammar case, declarative knowledge means the knowledge about grammar, where the students know the rule of grammar and can apply it in practice.

Declarative knowledge refers to the knowledge which is (verbalized) and (unfold) to read or hear statements that is implying understanding (properly) (related) (Torras and Bellot, 2016). Declarative knowledge, also known as open knowledge, is the knowledge that we are aware of and we can understand clearly (Yilmaz and Yalcin, 2012:50). Suroso (2010) said that declarative knowledge in grammar means the knowledge about grammar.

From the definitions above, it can be concluded that declarative knowledge in English tenses is the knowledge about understanding all aspects of tenses, such as the definition, the formulas, and the function of each tenses.

2.1.4.2 Procedural Knowledge

According to Jiamu (2001) procedural knowledge is the knowledge about how to do something. It needs motor skills, cognitive skills, and cognitive strategies. Rukminingsih et al (2020) also said that procedural knowledge is the

knowledge about how to do something. For instance, in grammar case, procedural knowledge is the knowledge how to apply the rule of grammar in communication.

The term of procedural knowledge refers to the know of how. Procedural knowledge enables people to apply the knowledge to a task directly (Torras and Bellot, 2016). Procedural knowledge is the knowledge that related to how to perform an action with clear procedures (Yilmaz and Yalcin, 2012). According to Suroso (2010) procedural knowledge in English grammar is the knowledge about how to use grammar.

From the definitions above, it can be concluded that procedural knowledge in English tenses means the knowledge about how to use tenses correctly, whether the function of each tenses and the formulas, both of in spoken and written and apply it properly in communication.

2.1.5 Assessing Declarative and Procedural Knowledge of Tenses

Declarative and procedural knowledge can be assessed by using multiple choice questions. According to Abu-Zaid (2013) declarative multiple choice questions are the questions that assess the ability of memorizing the declarative knowledge such as definitions, facts, concepts, etc. Meanwhile, procedural multiple choice questions are the questions that assess the ability to understand the concepts.

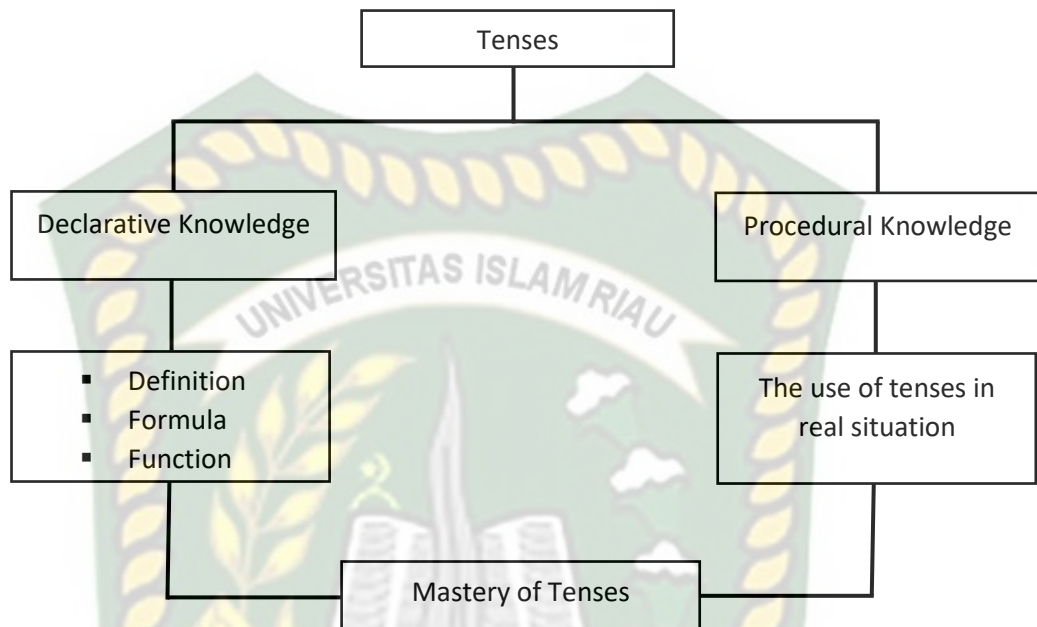
2.2 Relevant Studies

To support this research, the researcher look at the previous researches that related to this research. The first research has been conducted by Bambang Suroso with title “Declarative and Procedural Knowledge in Teaching Grammar”. Suroso

found that in teaching grammar, there are three stages that teacher should do. They are forming the declarative knowledge, maintaining the declarative knowledge, and proceduralization declarative.

The second research that has been conducted by Ahmadi et al (2016) entitled “An Exploration of ELF Learners’ Declarative Knowledge, Procedural Knowledge, and Monitoring”. They said in their research, metacognitive knowledge is the knowledge about cognitive process and how to organize the process to improve learning. When considering metacognitive knowledge, people need metacognition which is consists of three different types of metacognitive awareness. The metacognition are declarative knowledge, procedural knowledge, and conditional knowledge. The conditional knowledge means the decision to decide when to use declarative and procedural knowledge. So, declarative and procedural knowledge affects metacognitive knowledge.

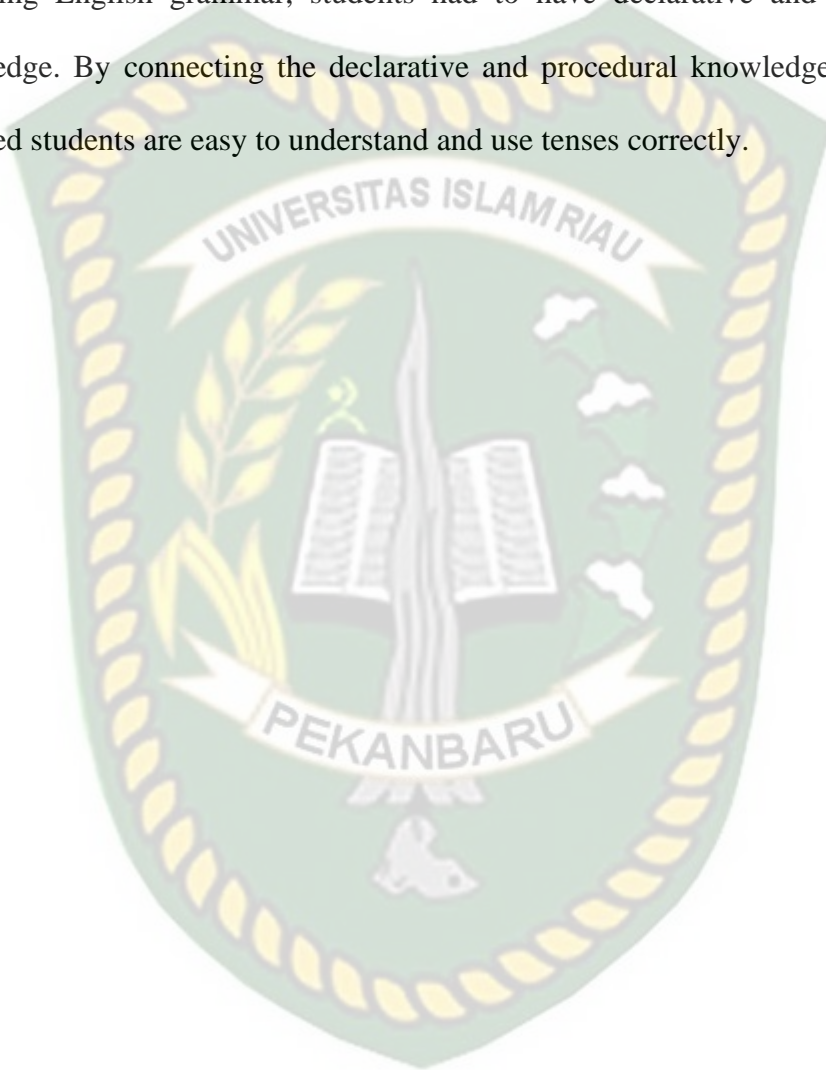
2.3 Conceptual Framework



Learning tenses cannot be separated from declarative and procedural knowledge. If the students want to master tenses, they must have both of declarative and procedural knowledge. Declarative knowledge is essential for students to know about the definition, the formula, and the function of tenses. Furthermore, procedural knowledge is essential for students to use the tenses in real situation. If the students only have either declarative or procedural knowledge, they cannot master the tenses. According to VanScoy (2019) both of declarative and procedural knowledge are crucial, declarative knowledge comes first and followed by procedural knowledge. Therefore, to master tenses, the students need to connect declarative and procedural knowledge.

2.4 Assumption

Tenses are part of grammar is important to master by English students. In mastering English grammar, students had to have declarative and procedural knowledge. By connecting the declarative and procedural knowledge, it can be assumed students are easy to understand and use tenses correctly.



CHAPTER III

FINDINGS AND DISCUSSION

3.1 The Presentation of Research Data

In this chapter, the researcher discusses about students' declarative and procedural knowledge in English tenses. This chapter was made to answer the research question that is what are the students' declarative and procedural knowledge in English tenses at the third semester of English language education of FKIP UIR? There are two indicators that are measured. They are declarative knowledge and procedural knowledge. The results of this research were presented in detail below :

3.1.1 The Result of Students' Declarative and Procedural Knowledge

To measure students' declarative and procedural knowledge, the researcher used a test. The test consists of 25 questions. There are 12 questions about declarative knowledge and 13 questions about procedural knowledge. The test was conducted on October 2021. The result of the test is in the following :

Table 3.1 The Students' Mastery Score of Declarative and Procedural Knowledge in English Tenses

| No | Name | Declarative Knowledge | Procedural Knowledge | Total Correct Answers | Score | Category |
|----|-----------|-----------------------|----------------------|-----------------------|-------|-----------|
| 1 | Student 1 | 9 | 9 | 18 | 72 | Good |
| 2 | Student 2 | 10 | 12 | 22 | 88 | Excellent |
| 3 | Student 3 | 10 | 11 | 21 | 84 | Excellent |
| 4 | Student 4 | 11 | 4 | 15 | 60 | Fair |
| 5 | Student 5 | 11 | 5 | 16 | 64 | Good |

| No | Name | Declarative Knowledge | Procedural Knowledge | Total Correct Answers | Score | Category |
|----------------|------------|-----------------------|----------------------|-----------------------|--------------|-------------|
| 6 | Student 6 | 4 | 6 | 10 | 40 | Less |
| 7 | Student 7 | 7 | 5 | 12 | 48 | Fair |
| 8 | Student 8 | 11 | 9 | 20 | 80 | Good |
| 9 | Student 9 | 6 | 8 | 14 | 56 | Fair |
| 10 | Student 10 | 3 | 7 | 10 | 40 | Less |
| 11 | Student 11 | 1 | 6 | 7 | 28 | Less |
| 12 | Student 12 | 11 | 9 | 20 | 80 | Good |
| 13 | Student 13 | 10 | 8 | 18 | 72 | Good |
| 14 | Student 14 | 4 | 10 | 14 | 56 | Fair |
| 15 | Student 15 | 11 | 10 | 21 | 84 | Excellent |
| 16 | Student 16 | 10 | 12 | 22 | 88 | Excellent |
| 17 | Student 17 | 10 | 11 | 21 | 84 | Excellent |
| 18 | Student 18 | 11 | 12 | 23 | 92 | Excellent |
| 19 | Student 19 | 12 | 11 | 23 | 92 | Excellent |
| 20 | Student 20 | 10 | 9 | 19 | 76 | Good |
| 21 | Student 21 | 10 | 11 | 21 | 84 | Excellent |
| 22 | Student 22 | 9 | 8 | 17 | 68 | Good |
| 23 | Student 23 | 3 | 6 | 9 | 36 | Less |
| 24 | Student 24 | 10 | 12 | 22 | 88 | Excellent |
| 25 | Student 25 | 5 | 4 | 9 | 36 | Less |
| 26 | Student 26 | 8 | 9 | 17 | 68 | Good |
| 27 | Student 27 | 9 | 10 | 19 | 76 | Good |
| 28 | Student 28 | 9 | 11 | 20 | 80 | Good |
| 29 | Student 29 | 10 | 8 | 18 | 72 | Good |
| 30 | Student 30 | 4 | 2 | 6 | 24 | Less |
| 31 | Student 31 | 10 | 9 | 19 | 76 | Good |
| Total | | 259 | 264 | 523 | 2092 | |
| Average | | | | | 67,48 | Good |

Based on the table 3.1, it can be seen the students' ability in using tenses. There were 9 students who get score more than 80, and there were 12 students who get score under 80, and there were 10 students who get score under 60. The highest score was 92 that there were two students who get the highest score. The lowest score was 24. The average of the students' scores is 67,48. Referring to the scale of score, the average of students' scores is categorized as Good.

3.1.2 The Result of Students' Declarative Knowledge

After the researcher got the results of the test, the researcher decided to separate the data into declarative knowledge scores and procedural knowledge scores. For declarative knowledge, there are 12 questions. The questions consist of each tenses that are measured in this research. The following table is the result of declarative knowledge scores :

Table 3.2 The Students' score of Declarative Knowledge

| No | Name | Total Correct Answers | Score | Category |
|----|------------|-----------------------|-------|-----------|
| 1 | Student 1 | 9 | 75 | Good |
| 2 | Student 2 | 10 | 83.33 | Excellent |
| 3 | Student 3 | 10 | 83.33 | Excellent |
| 4 | Student 4 | 11 | 91.67 | Excellent |
| 5 | Student 5 | 11 | 91.67 | Excellent |
| 6 | Student 6 | 4 | 33.33 | Less |
| 7 | Student 7 | 7 | 58.33 | Fair |
| 8 | Student 8 | 11 | 91.67 | Excellent |
| 9 | Student 9 | 6 | 50 | Fair |
| 10 | Student 10 | 3 | 25 | Less |
| 11 | Student 11 | 1 | 8.33 | Poor |
| 12 | Student 12 | 11 | 91.67 | Excellent |
| 13 | Student 13 | 10 | 83.33 | Excellent |
| 14 | Student 14 | 4 | 33.33 | Less |
| 15 | Student 15 | 11 | 91.67 | Excellent |
| 16 | Student 16 | 10 | 83.33 | Excellent |
| 17 | Student 17 | 10 | 83.33 | Excellent |
| 18 | Student 18 | 11 | 91.67 | Excellent |
| 19 | Student 19 | 12 | 100 | Excellent |
| 20 | Student 20 | 10 | 83.33 | Excellent |
| 21 | Student 21 | 10 | 83.33 | Excellent |
| 22 | Student 22 | 9 | 75 | Good |
| 23 | Student 23 | 3 | 25 | Less |
| 24 | Student 24 | 10 | 83.33 | Excellent |
| 25 | Student 25 | 5 | 41.67 | Fair |
| 26 | Student 26 | 8 | 66.67 | Good |
| 27 | Student 27 | 9 | 75 | Good |

| No | Name | Total Correct Answers | Score | Category |
|----------------|------------|-----------------------|----------------|-------------|
| 28 | Student 28 | 9 | 75 | Good |
| 29 | Student 29 | 10 | 83.33 | Excellent |
| 30 | Student 30 | 4 | 33.33 | Less |
| 31 | Student 31 | 10 | 83.33 | Excellent |
| Total | | | 2158.31 | |
| Average | | | 69.62 | Good |

From the table 3.2, it can be seen the scores of the students in declarative knowledge. There were 17 students who get score more than 80, there were 5 students who get score under 80, and there were 9 students who get score under 60. The highest score was 100 (one student) and the lowest score was 8,33 (one student). Based on the table 3.2, the average of the students' ability in declarative knowledge was 69,62. Referring to the scale, it is categorized as Good. The following table is the classification of declarative knowledge scores :

Table 3.3 Declarative Knowledge Test Result

| Score | Category | Numbers of Students |
|----------|-----------|---------------------|
| 81 – 100 | Excellent | 17 |
| 61 – 80 | Good | 5 |
| 41 – 60 | Fair | 3 |
| 21 – 40 | Less | 5 |
| 0 – 20 | Poor | 1 |

3.1.3 The Result of Students' Procedural Knowledge

For procedural knowledge, there are 13 questions. The following table is the result if only the procedural knowledge that is measured :

Table 3.4 The Students' Score of Procedural Knowledge

| No | Name | Total Correct Answers | Score | Category |
|----------------|------------|-----------------------|----------------|-------------|
| 1 | Student 1 | 9 | 69.23 | Good |
| 2 | Student 2 | 12 | 92.31 | Excellent |
| 3 | Student 3 | 11 | 84.62 | Excellent |
| 4 | Student 4 | 4 | 30.77 | Less |
| 5 | Student 5 | 5 | 38.46 | Less |
| 6 | Student 6 | 6 | 46.15 | Fair |
| 7 | Student 7 | 5 | 38.46 | Less |
| 8 | Student 8 | 9 | 69.23 | Good |
| 9 | Student 9 | 8 | 61.54 | Good |
| 10 | Student 10 | 7 | 53.85 | Fair |
| 11 | Student 11 | 6 | 46.15 | Fair |
| 12 | Student 12 | 9 | 69.23 | Good |
| 13 | Student 13 | 8 | 61.54 | Good |
| 14 | Student 14 | 10 | 76.92 | Good |
| 15 | Student 15 | 10 | 76.92 | Good |
| 16 | Student 16 | 12 | 92.31 | Excellent |
| 17 | Student 17 | 11 | 84.62 | Excellent |
| 18 | Student 18 | 12 | 92.31 | Excellent |
| 19 | Student 19 | 11 | 84.62 | Excellent |
| 20 | Student 20 | 9 | 69.23 | Good |
| 21 | Student 21 | 11 | 84.62 | Excellent |
| 22 | Student 22 | 8 | 61.54 | Good |
| 23 | Student 23 | 6 | 46.15 | Fair |
| 24 | Student 24 | 12 | 92.31 | Excellent |
| 25 | Student 25 | 4 | 30.77 | Less |
| 26 | Student 26 | 9 | 69.23 | Good |
| 27 | Student 27 | 10 | 76.92 | Good |
| 28 | Student 28 | 11 | 84.62 | Excellent |
| 29 | Student 29 | 8 | 61.54 | Good |
| 30 | Student 30 | 2 | 15.38 | Poor |
| 31 | Student 31 | 9 | 69.23 | Good |
| Total | | | 2030.78 | |
| Average | | | 65.51 | Good |

From the table 3.4, it can be seen the scores of the students in procedural knowledge. There were 9 students who get score more than 80, there were 13 students who get score under 80, and there were 9 students who get score under 60.

The highest score was 92,31 (four students) and the lowest score was 15,38 (one students). Based on the table 3.4, the average of the students' ability in procedural knowledge was 65,51. Referring to the scale, it is categorized as Good. The following table is the classification of procedural knowledge scores :

Table 3.5 Procedural Knowledge Test Result

| Score | Category | Numbers of Students |
|----------|-----------|---------------------|
| 81 – 100 | Excellent | 9 |
| 61 – 80 | Good | 13 |
| 41 – 60 | Fair | 4 |
| 21 – 40 | Less | 4 |
| 0 – 20 | Poor | 1 |

3.2 Discussion

From the test, the researcher found that there were some students who master declarative knowledge, but do not master procedural knowledge. For example, student 4 and student 5. They got score 91,67 at declarative knowledge which is categorized as Excellent, but they got score under 40 at procedural knowledge which is categorized as Less. The researcher assumes that the students who got Excellent at declarative knowledge but got Less at procedural knowledge, they only know about definition and the function, but they do not know how to use the tenses in the context.

Then, the researcher also found the students who have procedural knowledge that is better than declarative knowledge. For example, student 10, student 11, student 14. Student 10 and student 11 got score under 60 and were categorized as Fair at procedural knowledge, but they got score under 40 and were

categorized as Less and Poor. Then, student 14 got score 76,92 at procedural knowledge and it is categorized as Good. Meanwhile, student 14 got score under 40 at declarative knowledge and it is categorized as Less.

From the findings above, the researcher concludes that some students may know the definition, formula, and the function of tenses. But, when they come into the application of tenses, they do not know how to apply the declarative knowledge. The students might confused how to apply tenses based on the use. Therefore, the students got high score in the declarative knowledge, but they got low score in procedural knowledge.

3.2.1 Declarative Knowledge

From the result of the test, it was found that there were 17 students who get score more than 80, there were 5 students who get score under 80, and there were 9 students who get score under 60. The average of the students' ability in declarative knowledge was 69,62 and it falls into Good category.

3.2.2 Procedural Knowledge

From the result of the test, there were 9 students who get score more than 80, there were 13 students who get score under 80, and there were 9 students who get score under 60. The average of the students' ability in procedural knowledge was 65,51 and it falls into Good category.

3.2.3 Students mastery of Declarative and Procedural Knowledge

From the test that had been conducted, the researcher found that the students' declarative and procedural knowledge in English tenses at the third semester of English language education of FKIP UIR was categorized as Good. The category is from the average scores of the students that is 67,48. The classification of each category can be seen below :

Table 3.6 The Classification

| No | Category | Number of Student |
|----|-----------|-------------------|
| 1 | Excellent | 9 |
| 2 | Good | 12 |
| 3 | Fair | 4 |
| 4 | Less | 6 |
| 5 | Poor | 0 |
| | Total | 31 |

From the table 3.6, the students who master English tenses are 21 students (Excellent and Good category). Then, the students who do not master English tenses are 10 students (Fair and Less category). The amount of students who master English tenses are more than the students who do not master English tenses.

CHAPTER IV

CONCLUSION AND SUGGESTIONS

4.1 Conclusion

This research aims to know the students' declarative and procedural knowledge in using English tenses. Based on the data analysis, it can be concluded that the students' declarative and procedural knowledge in English tenses was good. Then, if the students have a good declarative knowledge, it does not mean the students also have a good procedural knowledge. Otherwise, if the students have a good procedural knowledge, it does not mean they also have a good declarative knowledge.

4.2 Suggestions

From the research that had been conducted, the researcher make some suggestions to the teacher and the students.

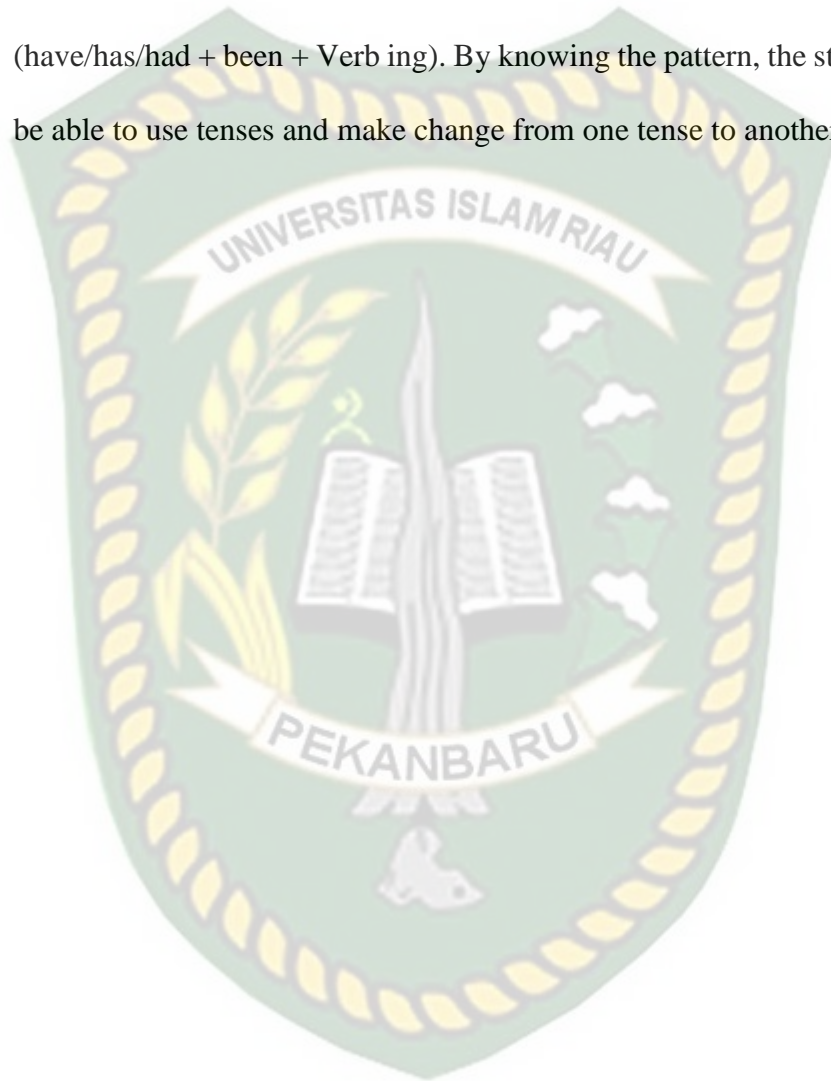
1. Suggestion for lecturer

The lecturer should explain the distribution of tenses based on the time. The lecturer should explain there are three main tenses (Present Tense, Past Tense, and Future Tense). Then, the lecturer should explain each tenses have four form (simple, continuous, perfect, and perfect continuous). So, the students will know there are 12 tenses that should be mastered.

2. Suggestions for students

The students need to know the definition and the function of each tenses. If the students have already known the definition and the function,

then the students have to know the pattern of each tenses. For example : In continuous form, the pattern is (be + Verb ing). In perfect form, the pattern is (have/has/had + Verb 3), and in perfect continuous form, the pattern is (have/has/had + been + Verb ing). By knowing the pattern, the students will be able to use tenses and make change from one tense to another tense.



REFERENCES

- Abu-Zaid, Ahmed and A. Khan, Tehreem. (2013). *Assessing declarative and procedural knowledge using multiple-choice questions*. Medical Education Online.
- Agarwal, Abhishek. (2017). *Knowing “knowledge” and “to know” : an overview of concepts*. International Journal of Research – Granthaalayah.
- Ahmadi, Ghazaleh Arab., Ghonsooly, Behzab., & Ghanizadeh, Afsaneh. (2016). *An exploration of EFL learners' declarative knowledge, procedural knowledge, and monitoring*. International Journal of Educational Investigations.
- Alsaif, Ebtisam Abdullah. (2017). *Tense and aspect in translation from Arabic into English: Azazeelby Youssef Ziedan as a Case Study*. AWEJ for translation & Literary Studies.
- Anjayani, Pindho. (2016). *Error analysis on the use of prepositions in students' writing (a case study of the eleventh grade students of SMA Negeri 9 Semarang in the academic year of 2014/2015)*. Journal of English Language Teaching.
- Apuke, Oberiri Destiny. (2017). *Quantitative research methods : A synopsis approach*. Arabian Journal of Business and Management Review (Kuwait Chapter).
- Berge, Timon Ten and Hezewijk, Rene Van. (1999). *Procedural and declarative knowledge an evolutionary perspective*. Theory & Psychology.

- Bolisani, E., and Bratianu, C. (2018). *The elusive definition of knowledge*. Springer International Publishing.
- Chen, Zhengrong and Caldwell-Harris, Catherine. (2019). *Investigating the declarative-procedural gap for the indirect speech construction in L2 learners*. Journal of Psycholinguistic Research.
- Effendi, Muh. Saeful., Rokhyati, Umi., Rachman, Ucti Al-Muchanifah., Rakhmawati, Aulia Dwi., & Pertiwi, Dati. (2017). *A study on grammar teaching at an English education department in an EFL context*. International Journal on Studies in English Language and Literature (IJSELL).
- Ekaningsih, Nur. (2017). *Enhancing students' english grammar ability with online website link*. Journal of English Education, Literature, and Culture.
- Gay, L.R. (2012). *Educational research : competencies for analysis and applications 10th edition*. Pearson Education.
- Gledhill, Christopher (2009). *Colligation and the cohesive function of present and past tense in the scientific research article*.
- Hasanah, Uswatun. (2017). *Error analysis on using simple present tense in writing descriptive text made by the tenth grade students of SMAN 1 pace in academic year 2015/2016*. Universitas Nusantara PGRI Kediri.
- Jabbari, Mohammad Jafar. (2013). *Time and tense in language*. International Journal of Linguistics.

- Jiamu, Chen. (2001). *The great importance of the distinction between declarative and procedural knowledge*. *Análise Psicológica*.
- Kaur, Naginder. (2020). *Metacognitive awareness in lexical learning among Malaysian students*. *International Journal of English Language and Literature Studies*.
- Lubis, Ika Rahmadani. (2017). *Improving students' vocabulary mastery by using fly swatter game in the first grade of MTS Persatuan Amal Bakti (PAB) 1 Helvetia*. State Islamic University of North Sumatera.
- Mart, Çağrı Tuğrul. (2013). *Teaching grammar in context: why and how?.* Theory and Practice in Language Studies.
- Michaelis, Laura A. (2021). *Tense in English*. John Wiley & Sons Ltd.
- Mohajan, Haradhan Kumar. (2016). *Knowledge is an essential element at present world*. *International Journal of Publication and Social Studies*. 1.
- Ntim, Stephen and M.Phill. (2013). *Testing the synergy between declarative and procedural knowledge in isomorphic problem solving: a study of 14-16 year olds in Ghana*. *Journal of Educational and Social Research*.
- Panggabean, S.B. (2016). *Five basic tenses*. VISION.
- Putri, Prabarini Sampurna and Dewanti, Anna. (2014). *An analysis of grammatical errors in writing narrative texts done by the second semester students at the diploma program English department in Airlangga University Surabaya*. Anglicist.

- Rasul, Tarmizi and Suseno, Imam. (2018). *The easiest grammar understanding to develop the students' speaking skill*. Journal of English Language Teaching.
- Rouf. (2015). *Improving students understanding on simple present tense through auction grammar game*. Universitas Islam Negri Walisongo.
- Rukminingsih., Rochmawati, Pryla., & Rukmi, Nala Sita. (2020). *Integrating declarative and procedural knowledge on grammar through e-portfolio assessment*. Jurnal Edukasi.
- Saaristo, Pekka. (2015). *Grammar is the heart of language: grammar and its role in language learning among Finnish University students*. University of Jyvaskyla.
- Sudirman, Ade. (2015). *The implementation of smart finger technique in improving students' tenses mastery at 1st semester students of English department of Mathla'ul Anwar University, Banten*. Jurnal Pendidikan Unsika.
- Suroso, Bambang. (2010). *Declarative and procedural knowledge in teaching grammar*. Leksika.
- Torras, Eulalia and Bellot, Andreu. (2016). *Online teaching and learning process : declarative and procedural knowledge*. International Journal of Educational and Pedagogical Sciences.
- Uibu, Krista and Liiver, Merili. (2015). *Students' grammar mistakes and effective teaching strategies*. International Journal of Teaching and Education.

Untu, Zainuddin., Purwanto., Parta, I Nengah., Sisworo., & Rofiki, Imam. (2020).

Teacher's mistake related to declarative knowledge in mathematical learning. Journal of Critical Reviews.

VanScoy, A. (2019). *Conceptual and procedural knowledge: a framework for analyzing point-of-need information literacy instruction.* Communications in Information Literacy.

Yilmaz, Ismail and Yalcin, Necati. (2012). *The relationship of procedural and declarative knowledge of science teacher candidates in newton's laws of motion to understanding.* American International Journal of Contemporary Research.

