

# Web Based Application of TiPS, a Programmable Method of Teaching Simple Statement Grammar in the English Language to Indonesians

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## Abstract

Low level of confidence and competence in English grammar result in Indonesian students underachieving at the international level such as in winning international grants. Three main areas were covered in the process: the study of the problems that Indonesians face while studying the English grammar, designing a systematic teaching method, and designing a computer application of the new teaching method. The study yielded three main results. First we developed a set of new tools to explain the grammar of simple statements in the English language which included new tenses, a new approach in defining tenses, and a set of formulae. Second, we developed the “TiPS” method. Third we developed a web based computer application with MVC architecture. The application used Java running on Java Development Kit (JDK) 1.7 on Windows 7. GlassFish 4.0 ran as the server, and MySQL 5.5 was used as the relational database management system. A few frameworks such as Hibernate 3.6.10, Java Server Faces (JSF) 2.2, and Primefaces 4.0 simplified the development process. Survey analysis led us to the successful acceptance of our alternative hypothesis that a systematic method for teaching simple statements which is translatable into an application does simplify English grammar problems for Indonesians.

**Keywords**—English grammar, Simple statement, TiPS teaching method, MVC, Hibernate, Java Server Faces, Primefaces

## 1. INTRODUCTION

With a population of around 250 million and Gross National Income Per Capita of USD 3,630 this year Indonesia sent 7,920 students to universities in the United States of America and 8,525 to Australia. Meanwhile Nepal with a population of around 25 million and Gross National Income Per Capita of USD 730 sent 8,155 to the USA and 10,221 to Australia <sup>[1,2]</sup>. At Trinity College in Hartford, a small Liberal Arts college with large but competitive institutional financial aid to international students in Hartford, Connecticut in the USA, four Indonesian students were accepted, while on the average four Nepali students were accepted with that kind of grant every year between 2008 and 2015. Another difference is that the accepted Indonesian students came from international educational backgrounds, while the Nepalese came from local schools. What caused such underachievements of Indonesian students from Indonesian schools in getting international grants? One very probable cause can be gleaned from the following. At an academic work place in one of the larger cities in Indonesia, four persons always get the privilege of having lively discussions that have enriched their lives and enlarged their horizons exceedingly with a large assortment of foreign guests, and of transposing abstract ideas into written English ready to be read by a world larger than our country. The rest prefer to stay back, because although they have been learning English since grade 3 and speaking or writing in English is a dream, it is scary to make grammatical mistakes.

We set out to find what can be done to remedy the situation. Thus the purpose of this study is to produce a systematic and practical tool for Indonesians to have the self confidence in making correct simple statements in English.

In this study we attack the problem from two angles: from developing simple and comprehensible grammar lessons, yet each tense has comprehensive coverage, and from developing helpful tools for practice. The first part would involve literature reviews of what others have done to explain English grammar and utilizing our experience of teaching English at Universitas Kristen Immanuel (UKRIM) over

the past six years. The second part involves researching IT tools and developing an application to strengthen the lessons.

Our alternative hypothesis is, that a systematic method for teaching simple statements which is translatable into an app will simplify English grammar problems for Indonesians.

We assume that the students who will participate in the validation of this study to have had a minimum of high school diploma.

Finally, a few restrictions are applied in this research:

1. This is not a linguistic study, and we have no claim of linguistic expertise. We look at the problem of understanding English grammar from the point of view of a scientist and an IT person.
2. The scope of English grammar that is covered in the discussion is limited to simple, continuous, and perfect simple statements in present and past tenses.
3. The application will be web based and run on a PC.

## 2. RESEARCH DESIGN

Three main areas are covered in the process: the study of the problems that Indonesians face while studying the English grammar, designing a systematic teaching method, and designing a computer application of the new teaching method. A set of volunteers will then test the result, and their responses will be surveyed and analyzed.

A few problems immediately stood out as the main contributors to why Indonesians in general have difficulties in learning the English grammar. In this study we focused on providing a teaching method that would solve or minimize the problems. First, linking verb is uncommon in Indonesian, and therefore the verb “be” is a foreign concept. We believe linking verbs, particularly the verb “be,” must be explained separately. In this study we need to search for a way to incorporate this important point. Second, there is no concept of tenses in the Indonesian language. We must study how to nail in the concept of tense and the importance of the different verb conjugations in a simple way, since the Indonesian language is one of the languages that does not conjugate verbs to indicate the time of the description or event in the sentence. In Indonesian the adverb of time and some other adverb are used to give that effect. In this study we make observations from the teaching and learning dynamics at the English classes we conducted at UKRIM. The inputs we take are questions and comments from the students which often reflect the confusions of Indonesians in general, as well as the progression of their grades throughout the semesters. Third, humongous grammar rules blur the simplicity of making simple statements. This problem is yet worsened by the tendency of adult students to make complex sentences. Competence in making correct simple statements is the foundation for making more complex ones. In this study we must produce a method that focuses on simple statements. Fourth is the common practice of word by word direct translation from Indonesian to English. This study must offer standard formulas which students can use.

Although the idea of creating formulas for simple statements is not new, we have never been able to find is a systematic method of choosing and using those formulae. In this study we will develop a very clear step-by-step procedure to produce a correct simple statement in English. This method must also be very systematic such that it is programmable.

A web based computer application using MVC architecture would be designed where the materials and exercise problems would be controlled by an administrator that understands the TiPS method, the sentence components and vocabulary would be provided, the sentence components must be presented in a simple way, Indonesian would used as the language of instruction, and the application would be a database system, not a compiler.

The design of the data model involves the design of the Entity Relationship (ER) diagram and the tables. Figure 1 shows the ER diagram of the database. Reading materials and dictionary are extras that should assist the students although they are not part of TiPS.

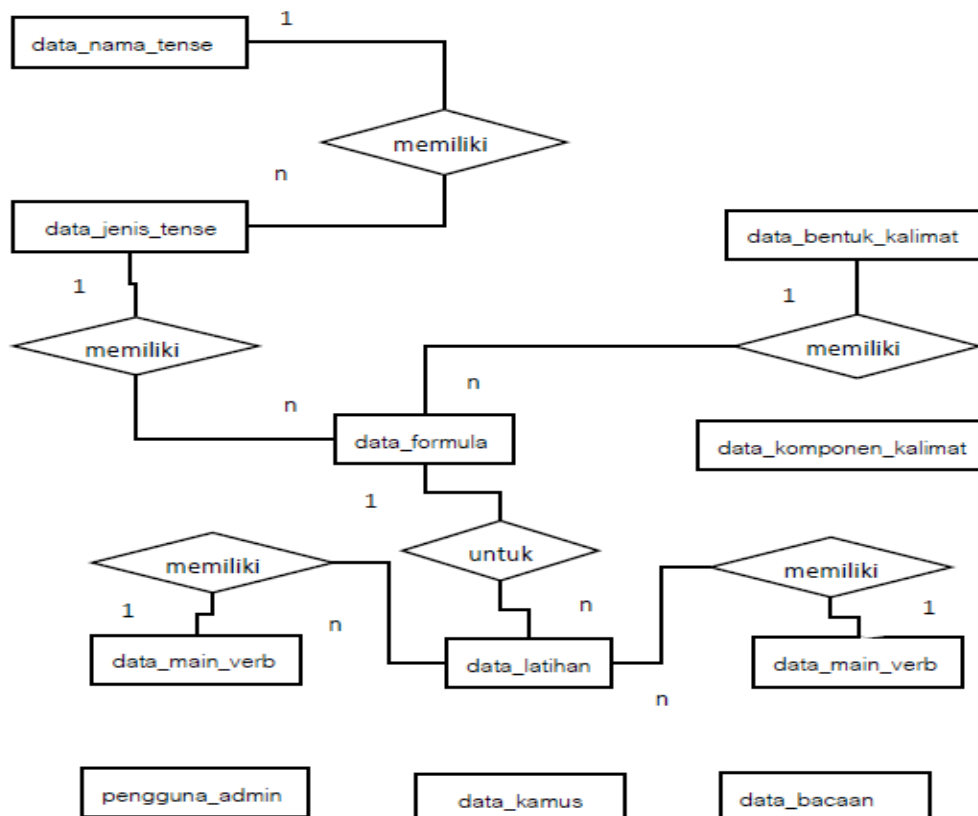


Figure 1 The ER Diagram of the Database

The diagram would be implemented using The table for Names of Tenses (“data\_nama\_tense”) can be seen on Table 1, Kinds of Tenses (“data\_jenis\_tense”) on Table 2, Sentence Patterns (“data\_bentuk\_kalimat”) on Table 3, Formulas (“data\_formula”) on Table 4, Sentence Components (“data\_komponen\_kalimat”) on Table 5, Auxiliary Verbs (“data\_aux\_verb”) on Table 6, Exercises (“data\_latihan”) on Table 7, Main Verbs (“data\_main\_verb”) on Table 8, Dictionary Entries (“data\_kamus”) on Table 9, Reading Materials (“data\_bacaan”) on Table 10, and Administrators (“pengguna\_admin”) on Table 11.

Table 1 Table for Names of Tenses

data_nama_tense		
Field	Type	Description
id	Bigint(20)	Primary key, auto increment
nama_tense	Varchar(255)	Not null
deskripsi	Longtext	Not null
publish	Varchar(2)	Not null

Table 2 Table for Kinds of Tenses

data_jenis_tense		
Field	Type	Explanation
id	Bigint(20)	Primary key, auto increment
id_data_nama_tense	Bigint(20)	Foreign key

nomor	Bigint(20)	Not null
nama_jenis_tense	Varchar(255)	Not null
deskripsi	Longtext	Not null
publish	Varchar(2)	Not null

Table 3 Table for Sentence Patterns

data_bentuk_kalimat		
Field	Type	Explanation
id	Bigint(20)	Primary key, auto increment
nomor	Bigint(20)	Not null
nama_bentuk_kalimat	Varchar(255)	Not null
deskripsi	longtext	Not null
publish	Varchar(2)	Not null

Table 4 Table for Formulas

data_formula		
Field	Type	Explanation
id	Bigint(20)	Primary key, auto increment
id_data_jenis_tense	Bigint(20)	Foreign key
Id_data_bentuk_kalimat	Bigint(20)	Foreign key
nomor	Bigint(20)	Not null
komponen1	Varchar(40)	Not null
komponen2	Varchar(40)	Not null
komponen3	Varchar(40)	Not null
komponen4	Varchar(40)	Not null
komponen5	Varchar(40)	Not null
komponen6	Varchar(40)	Not null
komponen7	Varchar(40)	Not null
komponen8	Varchar(40)	Not null
komponen9	Varchar(40)	Not null
komponen10	Varchar(40)	Not null
deskripsi	longtext	Not null
publish	Varchar(2)	Not null

Table 5 Table for Sentence Components

data_komponen_kalimat		
Field	Type	Explanation
id	Bigint(20)	Primary key, auto increment
nomor	Bigint(20)	Not null
nama_komponen_kalimat	Varchar(255)	Not null
deskripsi	longtext	Not null
publish	Varchar(2)	Not null

Table 6 Table for Auxiliary Verbs

data_aux_verb		
Field	Type	Explanation
id	Bigint(20)	Primary key, auto increment
nomor	Bigint(20)	Not null
nama_auxverb_positif	Varchar(255)	Not null
nama_auxverb_negatif	Varchar(255)	Not null
keterangan	Varchar(255)	Not null

Table 7 Table for Exercises

data_latihan		
Field	Type	Explanation
id	Bigint(20)	Primary key, auto increment
Id_data_formula	Bigint(20)	Not null
Id_MainV	Bigint(20)	Not null
kalimat_bahasa_indonesia	Varchar(255)	Not null
Kalimat_bahasa_Inggris	Varchar(255)	Not null
subject	Varchar(255)	
auxV	Varchar(255)	
mainV	Varchar(50)	Not null
object	Varchar(255)	
complement	Varchar(50)	
know	Varchar(255)	
where	Varchar(255)	
when	Varchar(255)	
qw	Varchar(50)	
qws	Varchar(50)	
there_existence	Varchar(5)	
punctuation	Varchar(1)	Not

Table 8 Table for Main Verbs

data_main_verb		
Field	Type	Keterangan
id	Bigint(20)	Primary key, auto increment
verb_1	Varchar(255)	Not null
verb_2	Varchar(255)	Not null
verb_3	Varchar(255)	Not null
verb_ing	Varchar(255)	Not null
verb_s	Varchar(255)	Not null
arti	Varchar(255)	Not null
kelompok	Varchar(255)	Not null

Table 9 Table for Dictionary Entries

data_kamus		
Field	Type	Explanation
id	Bigint(20)	Primary key, auto increment
kata	Varchar(255)	Not null
arti	Varchar(255)	Not null

Table 10  
Table for Reading Materials

data_bacaan		
Field	Type	Explanation
id	Bigint(20)	Primary key, auto increment
judul	Varchar(255)	Not null
sumber	Varchar(255)	Not null
tanggal	timestamp	Current Timestamp
foto	longblob	Not null
bacaan	longtext	Not null
publish	Varchar(2)	Not null

Table 11 Table for Administrators

Pengguna_admin		
Field	Type	Keterangan
id	Bigint(20)	Primary key, auto increment
nama_lengkap	Varchar(255)	Not null
username	Varchar(255)	Not null
password	Varchar(255)	Not null

We designed the interfaces for the administrator and for users. An administrator has to first login by entering his/her userid and password, after which he/she will enter into the administrator's home page. The administrator has CRUD (Create-Read-Update-Delete) power over the tables in the database. We designed the main interface pages as well as the interface pages for each of the administrator's CRUD functions for Names of Tenses, Kinds of Tenses, Sentence Components, Sentence Patterns, Formulas, Auxiliary Verbs, Main Verbs, Exercises, Reading Materials, and Dictionary Entries. A user has to first login by entering his/her userid and password, after which he/she will enter into the user's home page. Users have access to Lesson, Exercise, Reading, and Dictionary pages. In the Lesson section they can access learning materials on Tenses, Kinds of Tenses, Sentence Components, Auxiliary Verbs, Main Verbs, and Formulas. In the Exercise section they may choose Indonesian sentences that they will express in English while being guided step by step through the TiPS method until they can construct an English simple statement which is grammatically and semantically correct. They may also find extra reading materials and dictionary service. For all of these we designed the appropriate interfaces.

The administrator's and the users' navigation through the application is controlled by menus. The administrator's menus comprise the login and management of administrator's information, and the main pages and the menus that allow CRUD processes for Names of Tenses, Kinds of Tenses, Sentence Components, Sentence Patterns, Formulas, Auxiliary Verbs, Main Verbs, Exercises, Reading Materials, and Dictionary Entries. The users' menus comprise the login of users, and the main pages and menus that allow users to access and use the Lesson, Exercise, Reading, and Dictionary facilities.

### 3. RESULTS and DISCUSSIONS

The three main areas of the study have yielded three main results: a set of new tools to explain the grammar of simple statements in the English language, the development of "TiPS" method, and the development of "TiPS" computer application. We will then discuss the result of the survey after we picked a sample to test our hypothesis.

Since Indonesians have so much problem with linking verb, we created new "tenses" that we called Descriptive and Existence. Sentences belonging to these new tenses are non-action sentences are usually found in simple and perfect tenses, and once in a while may even appear in the continuous form. In order to simplify the concept for the students, however, we only discussed those belonging to Simple tenses. Also for the sake of simplicity we only used "be" as the linking verb in these new tenses.

A Descriptive sentence is a non-action sentence that simply describes the subject. A Descriptive sentence therefore uses a non-action linking verb. In order to simplify the concept, we will only use "be" as the linking verb.

An Existence sentence is also a non-action sentence that deals with the existence of the subject using the preparatory subject "there" and the verb "be."<sup>[3]</sup>

As a result of the study, we extended L.G. Alexander's definition of simple statement<sup>[4]</sup>.

A simple statement is a string of words that expresses one and only one complete thought and contains at least one and only one subject and one and only one verb.

We also extended the definition of tense by adding a second part of the definition suggested in [www.englishclub.com](http://www.englishclub.com)<sup>[5]</sup>.

Tense is a verb-based method used to indicate the time, and sometimes the continuation or completeness, of an action or state in relation to the time of speaking; it is also at times used to convey an additional understanding implicitly.

Table 12 summarizes the traditional understanding why a certain tense is chosen in conjunction with time and the possible other uses of the tense due to other additional understandings that are implicitly conveyed by it.

Tense	Use in conjunction with time	Possible other uses of the tense
Present Descriptive (using linking verb "be")	Description of the subject presently	<ol style="list-style-type: none"> <li>1. Identity/function of the subject E.g. "He is an artist."</li> <li>2. Description such as feeling, color, age, nationality, price, and dimension by using the verb "be" E.g. "They are angry. The flowers are blue. We are 18. I am Indonesian. It is Rp 10,000. He is 175 cm tall."</li> <li>3. Description of time and air (weather) with "it" as subject E.g. "It is cold. It is Friday today."</li> </ol>
Present Existence (using preparatory subject "there" and verb "be")	Existence of the subject presently	
Present Continuous (for action verbs)	A temporary action in progress	<ol style="list-style-type: none"> <li>1. An action that in general is in progress over a present period of time although it is not exactly going on at the moment E.g. "He is studying IT at UKRIM" can be said at 7pm on a Sunday when he is not exactly studying.</li> <li>2. An action in the future that has been planned or arranged E.g. "We are having a party tomorrow."</li> </ol>
Present Simple (for action verbs)	A permanent action that happens repeatedly, periodically, or always	<ol style="list-style-type: none"> <li>1. General truth E.g. "The sun rises in the east."</li> <li>2. Habit E.g. "Indonesians eat rice."</li> <li>3. Hobby E.g. "He plays football."</li> <li>4. Ability E.g. "My nephew plays the piano beautifully."</li> <li>5. Work E.g. "Mr. Hutabarat teaches Physics at a high school in Yogyakarta."</li> </ol>
Present Perfect	A completed (finished) event with a period of time continuing "up to now"	A current condition caused by a completed action in the past. E.g. "I have eaten" actually says "I am full because I ate."
Past Descriptive (using linking verb "be")	Description of the subject in the past	See other uses of Present Descriptive
Past Existence (using preparatory subject "there" and verb "be")	Existence of the subject in the past	
Past Simple (for action verbs)	A completed event in the past	Reporting an event in the past

Past Continuous (for action verbs)	An action in progress around a certain point of time in the past	1. Emphasizing that the event is really in progress at every point of time over a period of time in the past. It adds the nuance that the action is a lengthy one. E.g. "We were studying all day yesterday." 2. Creating a "background" for a short event in the past. The short event is expressed in Past Simple. E.g. "We were studying when he arrived."
Past Perfect (for action verbs)	A completed (finished) event with a period of time continuing up to a point of time in the past	A condition during a point of time in the past caused by a completed action before that E.g. "I had eaten" actually says "I was full because I ate."

Table 12 Summary of uses of tenses

We utilized and developed the concept suggested by Raymond Murphy <sup>[6]</sup>, that a simple statement can be of one of the following four patterns:

1. A positive sentence  
The sentence describes a condition or an event positively. In our formulas this sentence pattern is depicted as "+".
2. A negative sentence  
The sentence describes a condition or an event negatively. In our formulas this sentence pattern is depicted as "-".
3. A question that expects yes or no for an answer  
In our formulas this sentence pattern is depicted as "?Y/N".
4. A question that expects an explanation for an answer  
In our formulas this sentence pattern is depicted as "?Expl".

To the four patterns above we added pattern #5:

5. A question that asks for the identity of the subject  
Questions such as "Who likes ice cream?" and "Who are tired?" fit into this pattern. The identity of the subject is being sought in this kind of question. The subject in the answer substantially answers the question. In our formulas this sentence pattern is depicted as "?S".

In "Practice and Progress" L. G. Alexander proposed six components in a simple statement which he arranged in a table format <sup>[4]</sup>. We adopted that style, but in order to create our final set of formulas with the five different patterns, we added and defined some additional components. Table 13 lists these components, what they are, and how we will denote each of them in the formulas.

Component	How it is denoted in the formulas	
Subject	<b>S</b>	
Verb	<b>V</b>	
Auxiliary Verb	<b>auxV</b>	
Main Verb	<b>mainV</b>	
Object	<b>O</b>	
Adverb of Manner	<b>how</b>	
Adverb of Place	<b>where</b>	
Adverb of Time	<b>when</b>	
Complement	<b>C</b>	
Question Word	<b>QW</b>	
Question Word as Subject	<b>QWS</b>	This is used in sentences of pattern #5 (?S)
Preparatory Subject	<b>PS</b>	
Punctuation		

Table 13 Components in a Simple Statement



In general, components placed between parantheses in the formulas are optional.

A Present Descriptive tense is used for describing the subject in the present tense. The formulas for Present Descriptive tense are shown in Table 14.

Pattern	Formulas
+	S <u>am/is/are</u> ( C where when ). V
-	S <u>am/is/are not</u> ( C where when ). V
?Y/N	<u>Am/Is/Are</u> S ( C where when )? V
?Expl	QW <u>am/is/are</u> S ( C where when )? V
?S	QWS <u>am/is/are</u> ( C where when )? V

Table 14 Present Descriptive with the verb “be”

The formulas of Present Existence tense are explained in Table 15

Pattern	Formulas
+	<u>There</u> <u>is/are</u> ( S where when ). PS V
-	<u>There</u> <u>is/are</u> ( no S where when ). <u>There</u> <u>isn't / aren't</u> ((any) S where when ). PS V
?Y/N	<u>Is/Are</u> <u>there</u> ((any) S where when )? V PS
?Expl	QW <u>is/are</u> <u>there</u> ( S where when )? V PS
?S	QWS <u>is/are</u> <u>there</u> ( where when )? V PS

Table 15. Present Existence with preparatory subject “there” and verb “be”

The formulas of Present Continuous tense with action verbs are explained in Table 16

Pattern	Formulas
+	S <u>am/is/are V<sub>1</sub>-ing</u> ( O how where when ). V
-	S <u>am/is/are not V<sub>1</sub>-ing</u> ( O how where when ). V
?Y/N	<u>Am/Is/Are</u> S <u>V<sub>1</sub>-ing</u> ( O how where when )? auxV mainV
?Expl	QW <u>am/is/are</u> S <u>V<sub>1</sub>-ing</u> ( O how where when )? auxV mainV
?S	QWS <u>am/is/are V<sub>1</sub>-ing</u> ( O how where when )? V

Table 16 Present Continuous tense with action verbs

The formulas of Present Simple tense with action verbs are explained in Table 17.

Pattern	Formulas
+	S <u>V<sub>1</sub>/V<sub>1</sub>-s</u> ( O how where when ). V
-	S <u>do/does not V<sub>1</sub></u> ( O how where when ). V
?Y/N	<u>Do/Does</u> S <u>V<sub>1</sub></u> ( O how where when )? auxV mainV

?Expl	QW <u>do/does</u> S <u>V<sub>1</sub></u> ( O how where when )? auxV mainV
?S	QWS <u>V<sub>1</sub>/V<sub>1-s</sub></u> ( O how where when )? V

Table 17 Present Simple tense with action verbs

The formulas of Present Perfect tense with action verbs are explained in Table 18.

Pattern	Formulas
+	S <u>have/has</u> V <sub>3</sub> ( O how where when ). V
-	S <u>have/has not</u> V <sub>3</sub> ( O how where when ). V
?Y/N	<u>Have/Has</u> S <u>V<sub>3</sub></u> ( O how where when )? auxV mainV
?Expl	QW <u>have/has</u> S <u>V<sub>3</sub></u> ( O how where when )? auxV mainV
?S	QWS <u>have/has</u> V <sub>3</sub> ( O how where when )? V

Table 18 Present Perfect tense with action verbs

The formulas for Past Descriptive tense are shown in Table 19.

Pattern	Formulas
+	S <u>was/were</u> ( C where when ). V
-	S <u>was/were not</u> ( C where when ). V
?Y/N	<u>Was/Were</u> S ( C where when ) ? V
?Expl	QW <u>was/were</u> S ( C where when ) ? V
?S	QWS <u>was/were</u> ( C where when ) ? V

Table 19 Past Descriptive with the verb “be”

The formulas of Past Existence tense are explained in Table 20

Pattern	Formulas
+	<u>There</u> <u>was/were</u> ( S where when ). PS V
-	<u>There</u> <u>was/were</u> (no S where when ). <u>There</u> <u>wasn't / weren't</u> ((any) S where when ). PS V
?Y/N	<u>Was/Were</u> <u>there</u> ((any) S where when ) ? V PS
?Expl	QW <u>was/were</u> <u>there</u> ( S where when ) ? V PS
?S	QWS <u>is/are</u> <u>there</u> ( where when ) ? V PS

Table 20 Past Existence with preparatory subject “there” and verb “be”

The formulas of Past Simple tense with action verbs are explained in Table 21.

Pattern	Formulas
+	S <u>V<sub>2</sub></u> ( O how where when ). V
-	S <u>did not</u> V <sub>1</sub> ( O how where when ).

	<b>V</b>
<b>?Y/N</b>	<b><u>Did</u> S <u>V<sub>1</sub></u> ( O how where when )?</b> <b>auxV mainV</b>
<b>?Expl</b>	<b>QW <u>did</u> S <u>V<sub>1</sub></u> ( O how where when )?</b> <b>auxV mainV</b>
<b>?S</b>	<b>QWS <u>V<sub>2</sub></u> ( O how where when )?</b> <b>V</b>

Table 21 Past Simple tense with action verbs

The formulas of Past Continuous tense with action verbs are explained in Table 22.

<b>Pattern</b>	<b>Formulas</b>
<b>+</b>	<b>S <u>was/were V<sub>1</sub>-ing</u> ( O how where when ).</b> <b>V</b>
<b>-</b>	<b>S <u>was/were not V<sub>1</sub>-ing</u> ( O how where when ).</b> <b>V</b>
<b>?Y/N</b>	<b><u>Was/Were</u> S <u>V<sub>1</sub>-ing</u> ( O how where when )?</b> <b>auxV mainV</b>
<b>?Expl</b>	<b>QW <u>was/were</u> S <u>V<sub>1</sub>-ing</u> ( O how where when )?</b> <b>auxV mainV</b>
<b>?S</b>	<b>QWS <u>was/were V<sub>1</sub>-ing</u> ( O how where when )?</b> <b>V</b>

Table 22 Past Continuous tense with action verbs

The formulas of Past Perfect tense with action verbs are explained in Table 23.

<b>Pattern</b>	<b>Formulas</b>
<b>+</b>	<b>S <u>had V<sub>3</sub></u> ( O how where when ).</b> <b>V</b>
<b>-</b>	<b>S <u>had not V<sub>3</sub></u> ( O how where when ).</b> <b>V</b>
<b>?Y/N</b>	<b><u>Had</u> S <u>V<sub>3</sub></u> ( O how where when )?</b> <b>auxV mainV</b>
<b>?Expl</b>	<b>QW <u>had</u> S <u>V<sub>3</sub></u> ( O how where when )?</b> <b>auxV mainV</b>
<b>?S</b>	<b>QWS <u>had V<sub>3</sub></u> ( O how where when )?</b> <b>V</b>

Table 23 Past Perfect tense with action verbs

The TiPS method simply asks three sequential answers which leads to finding the correct formula and word order as outlined in Figure 2.

1. <b>Tense</b> is	_____.
2. <b>Pattern</b> is	_____.
3. <b>Subject</b> is	_____.
↓	
Verb is	_____.

Figure 2 The TiPS Method

Each step in TiPS is significant for the following reasons:

1. Step 1 (Tense is \_\_\_\_\_.)

Choosing the correct tense to express a thought is a very crucial first step towards making a grammatically and semantically correct simple statement. The summary of tenses in Table ... is instrumental in making the correct choice in this step . This step reduces the number of possible formula from dozens to five.

2. Step 2 (Pattern is \_\_\_\_\_.)

A correct answer in this step immediately provides the students with the one formula to be used, which guides them into making the correct word order. Using the formula also ensures the students to make complete sentences with at least a subject and a verb in each sentence.

3. Step 3 (Subject is \_\_\_\_\_. → Verb is \_\_\_\_\_.)

Even though step 2 has pointed the formula to the students, it is critical that the students take great care in answering this third step to ensure subject-verb agreement. The choices of verb conjugations are already provided in the formula.

The students now simply need to construct their simple statements using the information they have obtained from the steps in TiPS.

The application uses Java running on Java Development Kit (JDK) 1.7 on Windows 7. GlassFish 4.0 is run as the server, and MySQL 5.5 is used as the relational database management system. In the development we used a few frameworks such as Hibernate 3.6.10, Java Server Faces (JSF) 2.2, and Primefaces 4.0.

The interface and menu pages of TiPS application facilitate the administrator's navigation to manage the lesson as well exercise contents and the users' navigation in using the lesson and exercise facilities. The administrator logs in by entering his/her userid and password, after which he/she will enter into the menus on the home page of the administrator. The implementation of the administrator's CRUD (Create-Read-Update-Delete) power over the data in the database used the design plans in Section 2. The main interface and menu pages as well as the interface and menu pages for each of the administrator's CRUD functions for Names of Tenses, Kinds of Tenses, Sentence Components, Sentence Patterns, Formulas, Auxiliary Verbs, Main Verbs, Exercises, Reading Materials, and Dictionary Entries have been implemented. A user logs in by entering his/her userid and password, after which he/she will enter into the menus on the home page of the user. The implementation of the users' access to Lesson, Exercise, Reading and Dictionary pages used the design plans in Chapter 3. The main interface and menu pages as well as the interface and menu pages in the Lesson section allow the users to access learning materials on Tenses, Kinds of Tenses, Sentence Components, Auxiliary Verbs, Main Verbs, and Formula. The implementation in the Exercise section allows users' navigations to choose Indonesian sentences that will be expressed in English while being guided step by step through the TiPS method until they can construct an English simple statement which is grammatically and semantically correct. The interface and menu pages also allow them to use the extra reading materials and dictionary service.

The implementation of the web based TiPS application used Java with Java Server Faces and Hibernate frameworks using the Model View Controller (MVC) concept<sup>[7]</sup>. Hibernate is used to define the model. This framework facilitates easy mapping of objects, one-to-one relations, one-to-many relations, as well as many-to-many relations in the database. The connections, mappings, and configurations which regulate the interaction of the entities in the database are summarized and managed in a file called hibernate.cfg.xml. This file contains the property, mapping class and other configurations that will be used as identities by Hibernate. The Model layer in Hibernate uses java class and java interface. Java class is used to make the master model (entity), while java interface is used to make the methods that will be implemented on the java class, the result of which will be used by the class controller to control the interaction between the program and the database. The script contains the implemented methods and the rules of interaction on the database. JSF framework is used for the View and Controller. As the controller JSF makes the control of an action on a component in View easier. JSF provides a feature called Facelet in the layout or template of a web page. Using this feature gives the web developer the advantage of not having to add every source template on every JSF page. The public layout script works to ease making the client view on the public menu. JSF provides a controller feature called Managed Bean. Managed Bean functions as the controller on actions done on View through the components that have actions. Managed Bean must first be registered in faces-config.xml file. JSF has the faces-config.xml file which manages the communication between facelet (View) and Managed Bean (Controller). This file contains the class controller that have been registered.

#### 4. HYPOTHESIS TESTING

The instrument that we use for the survey is the questionnaire with nine questions as shown in Table 24, which we spread to 24 respondents.

No	Because of TiPS and its application I:	SA	A	N	D	SD
1	Know and understand different tenses in English					
2	Know and understand that a tense is determined by time and a possible additional meaning that is implied					
3	Know and understand, that a sentence consists of sentence components.					
4	Know and understand, that an English sentence has an exact pattern.					
5	Know and understand that the choice of verb must agree with the tense and subject.					
6	Know and understand that the order of sentence components is governed by the pattern of the sentence.					
7	Find an inspiration that stimulates me to learn English grammar.					
8	Feel that the application's interface is attractive.					
9	Feel the application is user friendly					

Table 24 The Questionnaire

Two hypotheses are proposed in this study:

1. Ho: TiPS and its web based application do not help Indonesian students to understand correct English grammar.
2. Ha: TiPS and its web based application help Indonesian students to understand correct English grammar.

The result and calculation of the survey data can be seen in Table 25. We treated SA (Strongly Agree) and A (Agree) responses as positive responses, while N (Neither agree nor disagree), D (Disagree) and SD (Strongly Disagree) as negative responses. A total of 95.37% of the responses were positive and only 4.63% are negative. This showed that 95.37% of the responses over nine questions by 24 respondents agreed that TiPS and its application helped them in understanding English grammar.

No	X	SA	A	N	D	SD	Number of Data	Dominant	SA (%)	A (%)	N (%)	D (%)	SD (%)
1	x1	9	15	0	0	0	24	A	37.500%	62.500%	0.000%	0.000%	0.000%
2	x2	7	15	2	0	0	24	A	29.167%	62.500%	8.333%	0.000%	0.000%
3	x3	8	16	0	0	0	24	A	33.333%	66.667%	0.000%	0.000%	0.000%
4	x4	11	11	2	0	0	24	SA, A	45.833%	45.833%	8.333%	0.000%	0.000%
5	x5	7	15	2	0	0	24	A	29.167%	62.500%	8.333%	0.000%	0.000%
6	x6	12	11	0	1	0	24	SA	50.000%	45.833%	0.000%	4.167%	0.000%
7	x7	14	9	1	0	0	24	SA	58.333%	37.500%	4.167%	0.000%	0.000%
8	x8	12	11	1	0	0	24	SA	50.000%	45.833%	4.167%	0.000%	0.000%
9	x9	13	10	1	0	0	24	SA	54.167%	41.667%	4.167%	0.000%	0.000%
Total		93	113	9	1	0	216	A	387.500%	470.833%	0.375%	4.167%	0.000%
Mean		10.33	12.56	1.00	0.11	0.00	24.00	A	43.056%	52.315%	4.167%	0.463%	0.000%

Table 25 Result of Survey

We used Friedman test to test whether TiPS and its application successfully reject or fail to reject  $H_0$ . Table 26 shows the result of the statistical test.

Table 26 Friedman Test result on the survey

Statistical Test	
N	24
Chi-Square	111.803
df	9
Asymp. Sig.	.000

The calculated Chi-Square value is 111.803 with  $df = 9$ , and asymptotic significance value = 0.000. The value of Chi-Square in the Chi-Square Table with  $df=9$  and  $\alpha=0.05$  is 16.92. Because the calculated Chi-Square is larger than table Chi-Square and the significance is less than  $\alpha$ , we successfully reject  $H_0$  and accept  $H_a$ . We therefore conclude, that TiPS and its web based application help Indonesian students to understand correct English grammar.

## 5. CONCLUSION

TiPS and its web based application have been developed, and testing them on a number of samples results led to the success in accepting our alternative hypothesis that a systematic method for teaching simple statements which is translatable into an app will simplify English grammar problems for Indonesians. Hibernate and JSF frameworks simplified the development process. We also observe, that the TiPS method and its web based application that we developed are flexible in terms of allowing for easy extension of the grammar scope to include other kinds of tenses. This is done simply by the addition new tenses in the database by the administrator.

We recommend a further study that can be done to better the tools in teaching English grammar to Indonesian students utilizing the concept of TiPS and using current technologies. A TiPS application that runs on Android should be developed. Further studies on how to present the lesson on a smaller size of screen must be done.

## ACKNOWLEDGEMENT

The authors would like to acknowledge and thank Universitas Kristen Immanuel for the financial aid given for this study.

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