

## A Combination of Google Translate and Grammarly App for a Better Translation Quality of Academic Papers

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**Abstract.** This research was based on concerns about the quality betterment of the academic paper translations translated from Indonesian to English. The quality of the academic paper translation is still inaccurate and less natural because the authors translated using Google Translation. The combination of Google Translate and Grammarly Application (GTG-com App) as a developed translation application can be one application of translation that gives an effective and fast solution in translating academic papers from Indonesian into English. This app can improve the quality of translation grammatically, syntactically, lexically, and mechanically. The goal of this study is to help translators translate Indonesian academic papers into more accurate and natural English. The research method used is Research and Development (R & D). In this study, first, the researchers did a translation pretest of translating five academic papers done by five lecturers as the participants used Google Translate (GT) from Indonesian into English. Second, we assessed the translation products based on the accuracy and naturalness levels using the translation quality assessment scales. Third, we distributed questionnaire 1 of translators' responses on GT translation products to five lecturers as the respondents and interviewed them about their needs for a new trans tool that can help them easily, accurately, naturally, and quickly translate their academic papers. Fourth, we developed GTG-Com App. Fifth, we did a translation posttest using GTG-Com App. Sixth, we compared the translation scores of GT translation to the GTG-Com App translation products. Seventh, we distributed questionnaire 2 of translators' responses on GTG-Com App usage, and Eighth, we interviewed the same respondents about the GTG-Com App effectiveness. The data were analyzed descriptively using the t-Test formula and translation quality assessment scales. The research results show that GTG-Com App produced more accurate and natural translations than Google Translate (GT) did. The translation accuracy of using the GTG-Com App is 2.65 (accurate) while using GT is just 2.00 (less accurate). In this case, there is a difference in the score of 0.65 and the GTG-Com App is more accurate. The translation naturalness of using the GTG-Com App is 2.74 (natural) while using GT is just 2.48 (less natural). Similarly, at the level of naturalness GTC-com App produces a more natural 0.26 than GT.

**Keywords:** Google Translate, Grammarly App, GTG-com, translation quality, scientific articles.

## 1 Introduction

Translating is difficult and complicated [9]. This statement is very relevant to the translation process and the quality of the translation results found in our everyday life. Finding the equivalent words and grammar complexity in the translation process that leads to less accurate and unnatural translation is difficult, so the translation products are not qualified. Researchers found several lexical, grammatical, and structural translation errors in academic papers [10]. These translation mistakes or errors make translation products less accurate, not natural, and difficult for readers to understand [14], [16], [18], so we can say that the translation products are poor. The translation problems above encouraged the researchers to analyze them further and motivated us to give an effective solution for those who will translate academic papers from Indonesian into English, especially the lecturers of Universitas Negeri Semarang who have Indonesian academic papers. In relation to this problem, the researchers developed a new application of translation by combining Google Translate to Grammarly App into a new combination application that is Google Translate and Grammarly Combination (GTG-Com). This new application is really just a room for translation process that utilizes the Google Translate Search Engine and Grammarly Application facilities to translate Indonesian texts into English in one integrated step. Through this application, translators can type or copy-paste the source text in a certain space or box of GTG-Com and translate them into English, then edit and revise them directly using Grammarly App. The translator can edit and revise the translated texts by referring to the Grammarly App suggestions again and again till the translation is accurate and natural or get the best score from Grammarly App (GA). The GTG-Com app has a powerful solution and contribution to the translation world, especially in the academic paper translation from Indonesian into English.

The Indonesian researchers' inability to write their research articles directly in English encourages them to translate their papers into English by using Google Translate. They are very familiar with this search engine that often helps them translate many various texts. However, after they tried to translate their academic papers, they still have problems, their translated papers have not met their expectations. The translation products are still inaccurate and less natural or less acceptable, even unreadable. The translation has a lack of accuracy in grammar and inadequate choice of vocabulary, so the translation is less or not qualified. Indeed, in general, the translation products of Google Translate tend to be literal. To solve the aforementioned problems, we have an idea to help them translate their Indonesian texts into English better and have higher-quality academic papers. Therefore, we developed GTG-Com App. In the process of translation, GT translates the texts fast and GA helps with the editing and revising process to provide the standard several English grammar, sentence and phrase structures, mechanics, and vocabulary choices. This effort leads to producing academic paper translations better, more accurate, and more acceptable in terms of grammar, sentence structure, word choice, and writing mechanism.

Some Indonesian researchers wrote their academic papers; however, the papers could not be accepted and published in reputable international journals because their English papers have no accurate and acceptable grammar and vocabulary. One solution is they need to translate their Indonesian papers into English. If they translate them, they need to know better ways of translating scientific papers. The quality of the translation becomes its primary goal because for example, scientific terms have a lot of different features from ordinary language, so if it is wrong, it can cause misunderstandings, translation errors, and inaccuracies [1].

Translating scientific works or academic articles as the results of the study occupies the peak of a relatively high need, along with the increase in the output of research that writers sent and published in international journals. This fact is also strengthened by many Indonesian researchers, for example, who have not been able directly to write the research results in English. Therefore the further effort carried out by them is to translate the academic papers into English. Professional and amateur translators welcome this great opportunity as a source of income that is quite tempting although this translation service is still quite expensive. In practice, some are worked per sheet or per word. But the problem is whether the translation results meet objective and acceptable quality criteria in the target language or not. Making a standard fee is homework for every translation and agent [6].

With the increasing number of research articles written by non-native speakers of English and the lack of free time owned by the researchers, machine translation (MT) becomes an exciting option [17]. Similar to automatic proofreading, MT is a lot and provides free services. Google Translate, for example, is one of the superior MT that is very popular and favored by translators, including academic paper translators. This machine has the speed of translating sentence patterns based on structure and grammatical and choosing words in the target language. However, the translation of this machine often produces mistakes and some types of errors that often confuse readers. Indeed this translator engine is more focused on literal translation techniques that are not suitable for translating literary text, for example [3].

There are four of the most severe mistakes that MT makes, namely: 1) Cutting sentence elements, 2) long sentences, 3) sorting of illogical phrases, and 4) literal translations that are not following the context [17].

### **1.1 Types of applications, software, and translation machines**

Translation technology has increased over the past five years. Large technology giant companies like Google and Microsoft dominated most. They have been able to combine their big data with machines and make translation algorithms independently. They developed portable applications that can be brought everywhere and accessed at any time [19].

In the world of machine translation, there are three types of software that we need to know at this time: 1) Machine Translation (MT) for speedy results, 2) Translation Memory (TM) to reduce or cut word repetition, and 3) Translation Management System (TMS) to simplify complicated work becomes simpler [19].

MT refers to automatic software that translates content into the target language without human intervention; leading solutions include Google Translate, Bing Translator, and Slate Desktop. TM stores content translated in the database to be taken later during the new content translation. TM is a database that stores sentences, paragraphs, or text segments that it translated previously. Translation memory (TM) reuses previous translations to increase translation productivity. It works by dividing the text into a short part and saving the Translation in the database. Some TM Providers are SDL Trados, Omega-T, Smart Cat, and Google Translator Toolkit. TMS streamlines and speeds up the handling of translation files and workflows. Previous Globalization Management System (GMS), is a type of software to automate many parts of the translation process of human language and maximize the efficiency of translators. TMS includes

at least two kinds of technology: technology management technology to automate workflow, and linguistic technology to help translators [7].

## **1.2 Google Translate in the translation of academic papers**

Google Translate is a free translator tool in the form of machine translation with enormous Google data support capacity and statistical techniques with n-gram systems from one language with n-gram to other languages (Greene, 2016). If we want to translate words or phrases from one language to another, Google Translate can be a helpful tool. It is not like a British dictionary to several other languages, containing words from one language and the appropriate translation. Google Translate takes words or phrases that we type, then looks for equivalent to the more reasonable and acceptable translation of billions of documents in extensive internet data. In a reasonably short time, this translator engine can find equally for us in the form of intact translations under the source text [2].

As a machine translation, Google Translate has advantages and disadvantages. Davis [3] suggests several advantages and disadvantages of Google Translate. Based on my experience of using this translator machine, Google Translate is 1) Easy to use. We just type or paste the text on the board or empty the space that it provides. In the process of translation, we do not need to communicate with other parties and only rely on the strength of the equivalent memory that the translator machine has. 2) Fast. In just a few seconds, the application produces the results of the translation we want. 3) Free. We do not need to pay translators or translation service bureaus. 4) Recognizing many languages. This MT can recognize many source languages and the reason is difficult to do by humans. However, of the many advantages he has, Google Translate as a machine translation has its own weaknesses, including 1) We accompany the results of the translation because it is not following the structure and grammatical parts of the target language, so that we must revise and edit the translation results with and reasonably need time. 2) Google Translate cannot translate figurative languages, proverbs, and idioms that are acceptable in the target language, so the translation results need to touch the ideas and ideas, and shavings of human hands so that the translation results are more acceptable to the user community.

## **1.3 Role and type of editing application program in writing academic papers**

The script editing software program performs more tasks than just checking spelling and internal grammar. Some application programs offer editing "first-pass" or "last-pass" to clean errors in spelling, grammar, and punctuation errors and advise improving language quality. Automatic editing is not as good as human editing, but maybe the program can do some accurate corrections before sending the article script to the journal editor [13].

These script editing application programs can help correct the use of words, cliches, redundancy, too-long sentences, sticky sentences, inherent words, unclear words and abstract, diction, and misuse of dialog tags excessively. By using a specific click button, we can use this tool. Here are some editing application programs commonly used by writers and translators in English: Autocrat, Consistency Checker, Draft, Grammarly, Hemingway Editor, Master Writer, ProwritingAid, Smart edit, and Writemonkey [13].

#### **1.4 Grammarly in the process of editing academic papers**

Grammarly is a "writer assistant" that writers and other professionals can use to correct and edit their documents. This application checks more than 250 types of spelling errors, grammar, and punctuation, and increases the use of vocabulary. Grammarly can exceed traditional editorial and corrector tools owned by the Word and Email platforms. It can conduct edits based on six different writing styles: business, academic, casual, technical, creative, and general [5].

In practice automatically, first, Grammarly gives the overall score to our documents based on the number of problems and errors found. After that, this application guides us to edit grammar, one by one. The system provides a brief and long explanation for any identified problems. This process continues until the pain and scoring mistakes are lost, and our documents are more accurate.

We need to assess translation products to see the quality of the GTG-COM. In the assessment process, we see two levels of translation quality which include accuracy and naturalness. The translation quality assessment levels are as follows:

##### **1.4.1 Accuracy test (Accuracy Test)**

The accuracy test checks whether the meaning of the source text is the same as the target text. To express the sense accurately, translators may change the form or structure of grammatical [11]. Nida & Taber [16] confirm that we must prioritize the message because the contents of the message are the most important.

##### **1.4.2 Naturalness Test (Naturalness Test)**

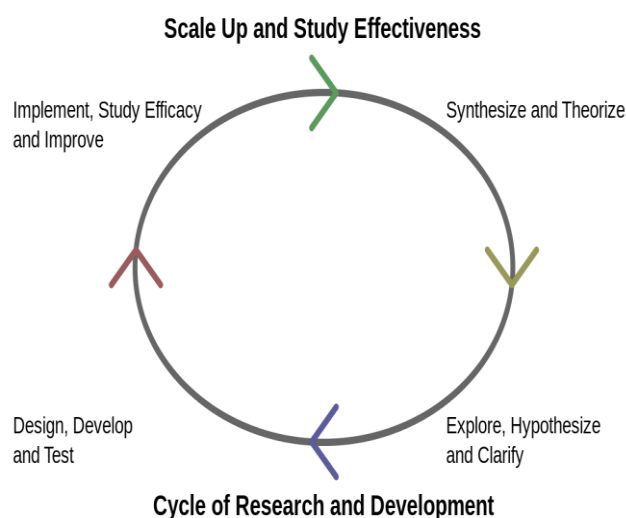
The fairness test checks the acceptance of translation results. It means that the user of target language users must accept their context and culture [10]. Larson (1984) added that reasonable translations mean the source language is translated fairly into the target language.

#### **1.5 Objectives**

There are four main objectives of this study, namely 1) Checking the quality of the translation results of academic papers using Google Translate by assessing the level of accuracy and naturalness from the aspects of grammar, sentence structure, vocabulary, and writing mechanisms. 2) Improving academic papers translated by Google Translate by using the Grammarly App. 3) Assessing the quality of the translated academic papers that have been checked using the Grammarly App. 4) Comparing the quality of the translation results of academic papers which are mostly based on Google Translate and the quality of the translation after being assisted by the Grammarly App.

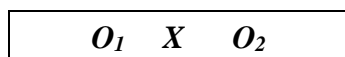
## 2 Methodology

The research method used is Research and Development (R & D). In this study, researchers used the R & D cycle, which was started by Dingwall & McDonnell [4], as follows:



**Figure 1.** Research Design

Furthermore, the Experiment Research Plan used is Pre Experiment One Group Pre Test-Post Test Design as follows:



- 1)  $O_1$  is a pre-test
- 2)  $x$  is a treatment
- 3)  $O_2$  is a post-test

The sample used is five lecturers in the Faculty of Engineering at Semarang State University. The hypotheses tested are:

H1 GTG-COM can improve the quality of the translation of English-language scientific articles.

H0 GTG-COM is unable to improve the quality of English-speaking articles.

The instrument used is a translation test of Indonesian language articles to English, a Questionnaire response, Guide to the GTG-COM application, and an interview guide. Furthermore, the results of the research results were analyzed descriptively qualitative and quantitative.

### 3 Results and Discussions

#### 3.1 Pre-test results of the accuracy level of translation using Google Translate

Here are the results of pretesting the accuracy level of the text of the Indonesian language article into English using Google Translate. The score used refers to the quality assessment of the translation of the accuracy level **Table 4.1** with a scale of 1-3.

**Table 1.** The Pre-test Score of Accuracy Translation Results with Google Translate

Article	Translation Accuracy Score						
	Title	Abstract	Introduction	Method	Finding	Discussion	Conclusion
#1	2	2	2	2	2	2	2
#2	2	2	2	2	2	2	2
#3	2	2	2	2	2	2	2
#4	2	2	2	2	2	2	2
#5	2	2	2	2	2	2	2

#### 3.2 Pre-test results of the naturalness level of translation using Google Translate

The following are the results of the pretest level of the results of the text of the Indonesian language article to English using Google Translate. The score refers to level 2 translation quality assessment in the **Table 4.2** with a scale of 1-3.

**Table 2.** The Post-test Score of Naturalness Translation Results with Google Translate

Article	Translation Naturalness Score						
	Title	Abstract	Introduction	Method	Finding	Discussion	Conclusion
#1	2	2	2	3	2	2	2
#2	3	2	3	2	2	2	2
#3	3	3	2	2	2	2	3
#4	3	2	2	3	2	3	3
#5	3	3	2	2	3	2	2

#### 3.3 Post-test results of the accuracy level of translation using GTG-Com

The following are the results of the Post of the Accuracy Level of Translation Results of Indonesian Language Articles to English by using the GTG-COM application. The score used refers to the quality assessment of the translation of the accuracy level **Table 4.3** with a scale of 1-3.

**Table 4.3** The Post-test Score of Accuracy Translation Results with GTG-Com

Article	Translation Accuracy Score						
	Title	Abstract	Introduction	Method	Finding	Discussion	Conclusion
#1	3	3	3	3	2	2	2
#2	3	2	3	2	3	2	3
#3	3	3	2	3	2	3	3
#4	3	2	3	3	3	2	3
#5	3	3	2	2	3	3	2

### 3.4 Post-test results of the naturalness level of translation using GTG-Com

The following are the results of the posts level of the trial of the text of the Indonesian language article to English using the GTG-COM application. The score used refers to the quality assessment of the translation of the level of **Table 4.4** with a scale of 1-3.

**Table 4.4** The Post-test Score of Naturalness Translation Results with GTG-Com

Article	Translation Naturalness Score						
	Title	Abstract	Introduction	Method	Finding	Discussion	Conclusion
#1	3	3	3	3	3	2	2
#2	3	3	2	3	3	3	2
#3	3	3	3	3	3	3	3
#4	3	3	3	3	2	3	2
#5	3	3	3	2	3	2	2

### 3.5 Transtool Need Announcement Questions

The following are the results of the trans tool analysis questionnaire obtained from four lecturers of scientific articles as respondents. Based on the results of the questionnaire, it is known that:

1. 100% of Indonesian-speaking scientific articles have difficulty translating the text of the paper into English. Some of the reasons they convey is that because they are not native speakers, their English skills are still minimal, and their English skills are still lacking.
2. 75% of them have no difficulty translating grammar, sentences, and vocabulary from Indonesian to English, while 25% have problems. Some reasons for those who are still tricky include because they are not native speakers have not found the proper application or trans tool, have mastery of grammar and vocabulary that are limited and do not have good ability in English.
3. 100% of them often use Google Translate when translating scientific articles from Indonesian to English because Google Translate is easy and practical, free and easily accessible, and easy to use. We quickly obtain the results of the translation.
4. 100% of them say that Google Translate cannot translate scientific articles more dearly and naturally.
5. 100% of them need a trans tool to translate more accurate and natural science articles.

### 3.6 The results of the project response to the GTG-COM application user

Here are the results of the inquiry response users of the GTG-COM application obtained from 3 lecturers of scientific article writers as research respondents. Based on the results of the questionnaire, it is known that:

1. They feel easy to use the GTG-COM application when translating Indonesian text articles into English because it is easy to use and already adjusts to the correct sentence.
2. They state that the GTG-COM application dramatically helps them translate Indonesian grammar into English grammatical more accurately because it is practically used and helps those who still lack English.
3. They say that the GTG-COM application helps them in translating the sentence and structure of the Indonesian language phrase to the design of the English phrase, and the system of the English phrase is more accurate because the GTG-COM application



has been tailored to the needs of the structure of the English phrase and also the grammar.

4. They state that the GTG-COM application helps them translate Indonesian vocabulary to English because it has the adequacy of the standard and natural language needed.
5. They say that this GTG-COM application is essential for Indonesian text translators of English because this application is efficient in helping to translate text accurately and naturally.

### 3.7 Interview results

The following are the results of the Interview response to the GTG-COM application users obtained from 2 lecturers of scientific articles as research respondents. Based on the results of interviews whose questions are not much different from the questions in the Questionnaire response, user GTG-COM application knew that:

1. The GTG-COM application makes it easy for text writers in Indonesian articles to translate them into English.
2. The GTG-COM application dramatically helps them in translating Indonesian grammar into English grammar more accurately.
3. The GTG-COM application greatly facilitates them in translating Indonesian language sentences into English grammar more accurately.
4. The GTG-COM application also greatly helps them in translating Indonesian vocabulary into English more naturally.
5. This GTG-COM application is essential for Indonesian text translators to English because this application is effortless to use and produces more accurate and natural translations.

### 3.8 Discussion

#### 3.8.1 Results of Parties and Post-test

Based on **Table 4.1**, it can be seen that the results of the article translation using Google Translate are less accurate. This is indicated by the average accuracy level of the accuracy of the translation of 2. This means that most of the meaning of words, phrases, clauses, and source language sentences have been transferred accurately into the target language, but there is still a meaning distortion that interferes with the integrity of the message [11], [16], [18]. So five scientific articles were translated from Indonesian to English.

**Table 4.2** shows the average score of the level of abstinence or acceptance for each article of seven aspects assessed as follows: Article # 1 of 2.71, Article # 2 of 2.28, Article # 3 of 2.43, Article # 4 of 2.57, and article # 5 of 2.43. If it is averaged, the level of the trial level from the five results of the translation of scientific articles using Google Translate is 2.48. This shows that the translation results are less natural or less acceptable because, in general, the translation has been felt naturally, but there is a slight problem with the use of terms; There was a bit of grammatical error [10], [14], [18].

Furthermore, based on **Table 4.3**, the average score of the accuracy level for each article translated by using the GTG-COM application shows the quality of the improved translation. This is evidenced by the average score of the article as follows: Article # 1 of 2.57, Article # 2

of 2.57, Article # 3 of 2.71, Article # 4 of 2.71, and Article # 5 of 2.57. If it is averaged, the accuracy score of the five translations of the scientific article that uses the GTG-COM application is 2.63. Compared to the level of accuracy of the results of the article translation using Google Translate, the translation result by using the GTG-COM application is 0.63 higher. So based on the scale of the level of accuracy, the translation results that use this GTG-COM application are still closer to accurate. The reason is the meaning of words, phrases, clauses, and source language sentences are transferred accurately into the target language; There was no distortion at all [11], [16], [18].

Similarly, **Table 4.4** shows satisfactory results because the average score of the translation results at the level of advantage that uses the GTG-COM application is perfect. The average score for each translation article is as follows: Article # 1 of 2.71, Article # 2 of 2.71, Article # 3 of 3, Article # 4 of 2.71, and Article # 5 of 2, 57. If it is averaged, the learning level of the five translations of the scientific article that uses the GTG-COM application is 2.74. Compared to the level of advantage, the results of the article translation using Google Translate, the translation results using the 0.26 GTG-COM application are higher. So based on the level of misunderstanding, the translation results that use this GTG-COM application are still closer to natural or acceptable. The reason is that the translation feels natural; the term used is common and familiar to the reader; words, phrases, clauses, and sentences used are under Indonesian rules [10], [14], [18].

### **3.8.2 Questionnaire results analysis**

Based on the results of the questionnaire about the need to find out that scientific article writers have difficulty translating the text of the article into English for a variety of reasons they present, for example, 1) they are not native speakers, 2) their English skills are still minimal, and 3) Their English skills are still lacking [9], [10].

Furthermore, a small portion of them still has difficulty translating grammar, sentence, and vocabulary from Indonesia to English. Some of the reasons are: 1) They are not native speakers, 2) they have not found the correct application or trans tool, 3) limited grammar and vocabulary mastery, and 4) they do not have good ability in English [10].

Then they all often use Google Translate when translating scientific articles from Indonesian to English because Google Translate is easy and practical, free and easily accessible, and easy to use and the translation results are quickly obtained even though they also realize that Google Translate is unable to translate scientific articles more dear and natural. They all need a trans tool that can translate more accurate and genuine scientific articles [3].

### **3.8.3 The results of the user response questionnaire**

Based on the Questionnaire results from the GTG-COM user response, these application users feel easy to use when they translate Indonesian text articles into English because this application is easy to use and has adjusted to the correct English language sentence.

Then they stated that the GTG-COM application really helped them translate Indonesian grammar into Grammatical English more accurately because it was practically used and helped

those who still lacked English. Furthermore, they say that the GTG-COM application helps them in translating the sentence and structure of the Indonesian language phrase to the design of the English phrase, and the system of the English phrase is more accurate because the GTG-COM application has been tailored to the needs of the structure of the English phrase and also the grammar.

Besides that, they stated that the GTG-COM application immensely helped them translate Indonesian vocabulary to English because it adequacy the standard and natural language needed. In addition to those, this application is essential for Indonesian text translators of English because this application is efficient in helping to translate text accurately and naturally [5], [12].

#### **3.8.4 Interview results**

Based on the results of interviews from the GTG-COM application users, it is known that this application: 1) makes it easy for text writers in Indonesian articles to translate them into English, 2) greatly helps them in translating Indonesian grammar into English grammar more Accurate, 3) It is elementary for them to translate Indonesian language sentences into English grammar more accurately, 4) greatly help them in translating Indonesian vocabulary into English more natural, and 5) is very important for language text translators Indonesia to English because this application is straightforward to use and produces more accurate and natural translations [5], [12].

## **4 Conclusion**

The GTG-COM translation application is beneficial for text writers in Indonesian scientific articles to translate into English. This GTG-COM application can be run online as an application or on other translator machines. This application is a medium or space made only for translating Indonesian language texts to English. It uses a Google Translate translator engine combined, combined, and continues with the Grammarly application editing process, which only produces English language editing text. The GTG-COM application is convenient for translating text. After all, it makes more accurate, acceptable, and efficient translations because it quickly produces edited translations.

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