

Comparative Study of Human Translation and Google Translation: Error Analysis of English into Pashto

Zaheer Ullah

Lecturer English, University of Malakand email: zaheerullah25@gmail.com

Asma Bibi

BS-English Graduate, University of Malakand

Asma Ali

BS-English Graduate, University of Malakand

Hamra Bibi

BS-English Graduate, University of Malakand

ABSTRACT

This paper aimed to compare Human translation with the machine translation, Google Translate. The primary purpose of the current study was to identify the types of errors made by Google Translate when translating sentences from the English-to-Pashto translation, of the book "The Pathan" written by the Pashto Poet Ghani Khan Baba. The data includes 50 random sentences that were translated into Pashto using Google Translate and were taken from the book "The Pathan". A mixed research methodology is employed to compare the capabilities of Human and Google translation in the context of Pashto language. The methodology of this proposed study is based on the research of Dzakiyyah (2017), who adopted the criteria of accuracy, acceptability, and readability suggested by Nababan (2012), as well as on the study of Al- Samawi (2014), who used a work sheet that categorises common translational errors. It was found that majority of the sentences were translated incorrectly by Google Translate. In addition, most of the sentences contained multiple types of translation errors. Only seventeen sentences were error-free. The remaining sentences, however, all contained one or more errors such as semantic error, grammatical error, syntactic error and translational error. After this study, it is claimed that Google Translate should not be considered the ultimate translation tool. Besides, human translation was found more accurate than the machine translation.

Key Terms: Human translation, Google translation, Semantic, translational, syntactic, grammatical.

Introduction

Language is a tool of communication which expresses the different social values, and religious beliefs of different cultures. There are a large number of cultures in the world and each culture has its own language. In order to study different cultures, it is difficult to learn every language. Thus, translation plays an important role in transferring the culture of one language to another language. In other words, translation acts as a bridge between the two cultures. Translation is a very efficient way of spreading new information and ideas among different cultures. It is a medium through which people learn more about different works, which helps in improving their knowledge of the world. Translation is defined as "translating a text's meaning into another language as intended by the author" (Newmark, 1988). The process of translation goes back over a thousand years BC in the eastern world. A well-known Zhou period quotation by Jia Gongyan states that "translation is the replacement of one written language with another without affecting the meaning for mutual comprehension". Thus, due to the advancement in technology, it has become easier to translate a text. Machine translation and human translation are the two types of translation. Some people translate texts using Google Translate, while others utilize human translation. Google translate is carried out by a translation machine, whereas, a human translation is carried out by humans. In translation studies, Google translation has become a trending topic because of the ease provided by the Google translate. Google translate has proved to be a widely

utilized translation tool, since it has shown the best accuracy as compared to other Machine translation. Although, translation errors appear in Google translate occasionally, that's why the quality of its output is not completely guaranteed. Through Google translate, not only a word is translated but a phrase, a sentence, or a paragraph is also translated. In addition to translating words, Google Translate can also translate phrases, sentences, and entire paragraphs.

Additionally, Google Translate has the option to pronounce and highlight the translated text along with the associated words and phrases. Language transfer from the source to the target, cultural context, and the ability of the translators themselves all define human translation (Bassett and Lefevre 1992; Wong and Shen 1999). Human translators are the experts of both target language (TL) and source language (SL). They know the words and their different contextual meaning and translate the text appropriately. As compared to Google translate, Human translation is a time consuming process, so a lot of advancement have been made to make Google translation more efficient tool in the process of translation. But compared to Google Translate, human translations are more accurate (Brazill et al. 2016). Approximately, 90 languages are translated by Google translate. Pashto is also one of those languages. It is integrated by Google translate in 2016, after ten years of its establishment.

Literature Review

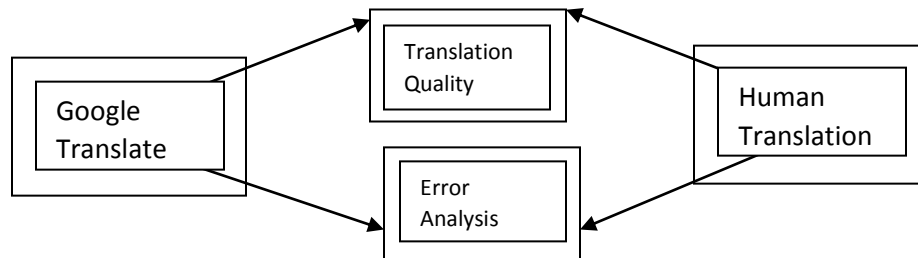
Pashto is the national language of Afghanistan and also a language of the 10% of the population in Pakistan. Translating between English and Pashto constitutes interesting challenges. Pashto has more rich forms than English; the induced Data experience can be partially resolved by segmentation in sub words unit's tokenization models such as Sentence Piece. There are Pashto categories in Pashto that are not explicitly present in English such as verb aspect or indirect case in common nouns, and categories in English that are not explicitly present in Pashto such as definite and indefinite articles, which may create certain challenges in generating correct text in machine-translation output. English translated into Pashto by Google translate is different from that translated by human translators. This study is conducted to find different types of errors in Google Translate and this research is also conducted to measure translations in terms of acceptability, readability, and accuracy. According to these aspects, it is necessary to compare Google Translate with Human Translation to determine the difference in the quality of text translation using Google Translate and Human Translation. The researchers therefore made the decision to carry out a comparison study with the title "A Comparative Study between Google and Human Translation".

The records of research and applications in the field of machine translation indicate a wide range of machine translations that have been the subject of extensive research to evaluate the quality of machine translation, such as, example-based, open-source, practical, principle-based, and translation of a statistical machine (Elliot, 2006; Sin-wai, 1988). Of the aforementioned machine translations, the most applicable machine translation in recent years has been devoted to the study of Google Translate (Aziz, Sousa, & Specia, 2012). In 1960s, Corder (1974) was the first to study error analysis and describe translation as a fundamental process in L1/L2 language learning. Pashto speaking L1 has trouble in pronouncing L2 (Ikramullah et al., 2023). Error analysis has been described by Keshavarz (1999) as a process of collecting samples, identifying errors, classifying, and analyzing them. He also classified errors and misused genres, articles, plural morphemes, qualifiers, and intensified, used common Persian structure in English as Grammatical-morphological errors in a group, and cross-association and language turned into literal errors.

There is a service called Google translate. It is possible to translate various texts from one

language to another language using Google Translate, which offer translation in 90 different languages. It can translate not only a word, but also an entire sentence, a paragraph, or even a web page. Google translate searches for various documentaries to find the best pattern of translation between human-translated texts. Such search process is known as SMT. As a result, (karami, 2014) suggested that the quantity of texts that have been translated by human affect the quality of Google translate. OR the effectiveness of Google translate is dependent upon the volume of text that have been translated by human (karami, 2014).

Theoretical Framework



The study aims to compare both human and Google translation capabilities in the context of Pashto. For that purpose both Google and human translation capabilities are analysed using “Translation quality” and “Error analysis” as main proxies for comparison. The above theoretical model is employed to the current study to find out the errors committed by Google Translate while translating from Pashto into English.

Statement of the Problem

Machine translation has made translation easier for human beings, though it is not considered the most reliable source of translation. Sometimes, it does not translate the text in appropriate way. It has been stated that Google translation lacks the flexibility of choosing the alternative expressions but it uses the exact words or expressions. Besides, Google translation has limited accuracy in translation. So, many people use Google Translate for translation, though unaware of its limitations. In the light of above statement, it is highly important to examine and compare both human and Google translation capacities in the context of Pashto to find whether the results are similar or not. The central issue investigated in this paper is about the authenticity of Google Translate and Human translation.

Material Methods

To compare human and Google translation capabilities in the context of Pashto language, a mixed research methodology is employed. The methodology of this proposed study is based on the study of Dzakiyyah (2017), who adopted the criteria of accuracy, acceptability, and readability suggested by Nababan (2012), as well as on the study of Al- Samawi (2014). Al-Samawi (2014) used a work sheet that categorizes common types of errors. This study also adopted the same work sheet established by Al-Samawi (2014), in order to determine errors. All sentences of “*The Pathan*” Book written by Ghani Khan represents the population, however, a sample of 50 sentences were selected randomly for translation with the help of Google Translate as well as with the help of an expert in order to compare human and Google capabilities. This proposed study uses secondary data (it is research data that has formerly been collected and can be accessed via researchers), therefore, Pashto version of “*The Pathan*” book by Gulzar Jalal Yousafzai was accessed online.

Results and Discussion

For the analysis, a technique used by Dzakiyyah (2017) is followed in this study. The data that was received was examined in the following way: Once the data has been translated through a human translator and Google Translate, first of all, both translations were read by two writers who are translation experts. Then, the two translators evaluated the two translations using a rubric before comparing them. Accuracy, readability, and acceptability are indicators of human translation quality. Accuracy is the ability to accurately translate the meaning of words, phrases, sentences, or clauses from the source text into the destination or target text. Readability in human translation means that the translation is correct and according to the rules of the Pashto language. Readability in human translation means that the translation is very easy to comprehend by the readers. The Pashto translation of the original book “The Pathan” in this study represents the human translation of the original text. Since, the book is translated by an expert and it is completely translated into Pashto using the Yousafzai dialect which is a standard dialect and the chances of omission of errors is minimal in it, thus human translation in this study is given the highest scores (3.0) in terms of acceptability, readability, and accuracy.

Translation Quality of Google

The accuracy, acceptability, and readability of Google translate are all terms used to describe machine or Google translation quality. The quality of Google translate can be seen in the table below:

Table.1 Results of Google Translate

Aspect	Score	Category
Maximum score	2.67	Accurate, acceptable and highly readable
Average score	2.05	Less accurate, less acceptable and medium readable
Minimum score	1.00	Not accurate, not acceptable and low readable

The highest possible score for Google Translate is 2.67, which is considered to be accurate, acceptable, and very readable. The usage of words, technical terms, sentences, etc. that are accurately translated into the target language (Pashto) and that are familiar to readers and whose meanings are easily understood by readers serve as examples of the accuracy, acceptability, and readability in this score. Google Translates overall performance is rated as less accurate, less acceptable, and medium readable with a 2.05 average score. The use of words, technical terms, phrases, sentences, or clauses, or source language text which has been accurately translated into the target text (Pashto), but still has a deformity of meaning or double meaning, which corrupts the unity of the entire message, serve as examples of the score's lower accuracy. The lower acceptability of this score is demonstrated by the ease with which technical terms and phrases are used, as well as certain grammatical faults. However, the translation is natural. Medium readability in this score is illustrated through multiple readings of some parts of the translation.

Google Translates minimum rating is 1.00, which is classified as unreliable, unacceptable, and poorly readable. The use of words, technical terms, phrases, sentences, or source language content that has been wrongly translated into the target text is used to describe inaccuracy in this score. Not acceptability in this score is illustrated through the translation which is not natural and the words used are unfamiliar to the readers. The translation is not according to the rules and principles of the Pashto language. The translation is challenging for readers to understand, which contributes to the low readability score.

Table.2 Comparison between Google Translation and Human

Translations	Average score	Categories
Human Translation	3.00	Accurate, acceptable, and readable.
Google Translation	2.05	Less accurate, less acceptable, and medium readable.

The average score for human translation carries the highest average of 3.00 whereas the average score of Google Translation is 2.05. According to the table above, there are some distinctions between Google and human translations. These variations can be seen in terms of readability, acceptability, and accuracy. The average score of a translation done by a human is higher than the average score of a translation done by Google. This indicates that when it comes to translating material from English into Pashto, there is a significant difference in quality between human translation and Google translation. It can be asserted that this huge difference is caused by the use of many dialects when it comes to the translation of English text into Pashto by Google translate which disturbs the quality of the translation.

Errors in Human Translation

Human Translation is carried out by a person who takes the Source text and transforms it into the Target language. A professional translator who has obtained training in the art of translation does human translation. As an illustration of a human translation, the Pashto translation of the original book "The Pathan" is used in this study. Gulzar Jalal Yousafzai is a scholar who translated this book into Pashto. Complete translation of the book from English into Pashto was accomplished using the Yousafzai dialect, a standard dialect. There are essentially no or very few errors in the translation of this book because it was done by an expert. It signifies that there are no errors at all in human translation. All the words, phrases, clauses or sentences in the translated book by the scholar, Gulzar Jalal Yousafzai are meaningful, because the sentences are not translated word for word. It means that Human translation see beyond literal meaning of the words and introduce symbolic and cultural meaning.

Errors in Google Translation

Google Inc. offers a service called Google translate that allows users to quickly translate a passage of a text or a web page to another language. It makes use of its own translation tools. While it can help the reader understand the general substance of a document written in a foreign language, Google Translate, like other automatic programs for translation, has several limitations and cannot provide an accurate translation. This study aims to reveals the types of errors discovered in the translated text, the source text is taken from the most influential book "The Pathan" written by the Pashto Poet Ghani khan baba, by using Google Translate.

Human Translation Quality

The average score of human translation is 3.00 which show that human translation has a high acceptability, readability and accuracy. The translations conducted by human do not ignore, add and reduce the meaning contained in the source text. The human translator does not summarize a source text into something new but it only conveys information, and messages contained in the source text into the target text appropriately. For example, the translator of the English book "The Pathan" translates the information of the source text (English language) into the target text (Pashto language) correctly, and there is no distortion of meaning in the translation because the translator used the Yousafzai dialect of the Pashto language. Yousafzai dialect is the standard dialect of the Pashto language. The translator has complete command of both languages (English and Pashto). He uses sense for sense translation because through word-for-word translation one cannot get the true essence of the Target language. He translate English idioms into possible

Pashto idioms that's why his translation looks more natural. He relates the source text to the near context of the target text. His translation quality is close to the linguistic norms and rules of the target language (Pashto language).

Google Translation Quality

The average score of Google Translate is 2.05 which demonstrates that the translation quality of Google Translate is lower in terms of acceptability, readability, and accuracy

- **Less accurate**

The following are some examples which show that Google translation is less accurate.

Example 1

SL: The evenings in the Peshawar valley in the winter are long, dark and intimate.

TL: ژمي کې د پېښور په دره کې ماښامونه اوږد، تياره او زړه پورې وي

Example 2

SL: Law is the essence of life and a saint is a lawbreaker as much as a dacoit.

TL: قانون د ژوند جوهر دی او سنت د يو ډاکو په څير قانون ماتونکی دی

The examples mentioned above are less accurate. The words are translated correctly into the target language but there are some words which give different meanings and create distortion in the meaning of a sentence. In example 1 the proper translation of Valley is "وادی" not "دره" which disturbs the meaning of the sentence. In example 2 the proper translation of Saint is "ملنگ" or "زبرگ" not "سنت" the use of this term distorts the message in the sentence.

Less acceptable

The samples below are evidence of the quality of Google Translate in terms of acceptability. These examples show that Google Translate is less acceptable.

Example 1

SL: Murtaza khan was the eldest child of a proud khan and had to defend that at a very age when he shot another khan.

TL: مرتضی خان د فخر خان مشر زوی و او په ډیر عمر کې یې د بل خان په بزو د هغه دفاع کړې وه

Example 2

SL: Customs and laws save man from what is too good for him and from what are too bad for him.

TL: دودونه او قوانین انسان له هغه څه څخه ژغوري چې د ده لپاره ډېر بڼه وي او له هغه څه څخه چې د ده لپاره ډېر بد وي

Example no 1 is less acceptable because there are a few grammatical errors in the translated sentence and the technical terms used in this sentence create little problem in getting the message of the sentence. Example no 2 is less acceptable because the translated sentence contains some words which are unusual to the readers however, there are no grammatical errors in this sentence.

Less readable

The following examples show that Google translate is less readable in the case of Pashto as compared with human translation.

Example 1

SL: The great ferocity of the Pathan might well be a reaction to a rather long dose of Buddhist non-violence.

TL: د پټان لوی وحشت ممکن د بودا د عدم تشدد د اوږدې مودې لپاره عکس العمل وي

Example 2

SL: Customs are subtle chains with which the primitive man tries to keep intact the pattern of his society.

TL: دودونه هغه فرعي زنجيرونه دي چې له مخي يې لومړی انسان هڅه کوي د خپلي ټولني بڼه وساتي.

The translation of the above examples can be comprehended by the readers but there are some parts in the translated sentences which require more than one reading to understand the translation.

Error Analysis

Finding and classifying specific faults in a text that has been translated using machine translation is the process of error analysis. A Machine Translation system's strengths and weaknesses can be identified through such an evaluation which can be helpful for language learners who want to use the system to translate source texts. In this way error analysis aids language learners in strengthening their performance in terms of their abilities (Presada and Badea: 2014)

Errors in Human Translation

Human translation of the original book "*The Pathan*" is free from errors because Human Translation is carried out by a human/person who takes the Source text and transforms it into the Target language. Most likely a professional translator who has received training in the field of translation is responsible for this. In human translation, the translator transforms the words clauses, phrases, sentences or source text exactly into the target language. The original book "*The Pathan*" has been translated by Jalal Yousafzai, who used sense for sense translation. He accurately interpreted the Pashto meaning of words, phrases, clauses, and sentences. He translated English idioms into Pashto idioms, for this purpose he used a sense-for-sense manner. He does not use word-for-word translation in the translation of the original book "*The Pathan*" because word-for-word translation increases the error percentage in translation.

Errors in Google Translation

The primary aim of this research study is to identify the errors made by Google Translate when translating sentences from the English-to-Pashto translation of the book "*The Pathan*". The data includes 100 random sentences that were translated into Pashto using Google Translate and were taken from the book "*The Pathan*". The majority of the sentences were found to be incorrectly translated. The majority of the sentences contained multiple types of translation errors. Only three sentences were error-free. The remaining sentences, however, all contained one or more errors such as semantic error, grammatical error, syntactic error and translational error. Google Translate made the following types of errors in case of Pashto language.

i. Semantic errors

Semantic errors accounted for 62.0% of all errors. This is the highest percentage among the other types of errors. Most of the sentences of the book "*The Pathan*" translated through Google translate into Pashto doesn't give a complete sense, it is because Google translate followed word for word translation approach, it uses such terms that convey different meanings thus corrupting the meaning of the whole sentence.

The term "small dark" is translated by Google translate as "د کوچني تياره". The correct Human translation for this is "تور رنگی لنډی". Similarly the phrase "British made gallows" is translated by Google translate as, "انگریزانو لخوا جوړ شوي تخت", human translated this as "د قانون بیرو" "کښي".

It demonstrates the word-for-word approach taken by Google Translate. The context is not important to Google Translate, and the sentences are not translated in accordance with the context For example; "The tribes of khaloon were sad and sorrowful". This sentence is translated

د خالون ټولي“ while the accurate Human translation for this is “د خلون ټول قومونه غمجن او غمجن وو“ as “قبيلی غم او افسوس کولو خو هيڅ څه نه شوکيده” it makes clear that human translation is done taking context into account.

The addition of unnecessary words in a sentence by Google translate also distorted the meaning of the sentence. For example; “For the magician, the priest and the charmer are the greatest enemies of men”. In the translation of this sentence Google translate add an unnecessary word “حکه، جادوگر، کاهن او جادوگر د انسان لوی اوقانوندبمنان دي” the human translation for this sentence is “زما په خيال جادوگر او دم گران د انسان د ټولو نه لوی دبنمنان دي” the term “اوقانون” is the unnecessary word in the sentence which makes the meaning unclear.

ii. Grammatical errors

As far as Grammatical Errors are concerned, it accounted for 23.0%. Usually Google translate doesn't make use of punctuation marks during translation. For example; “He is hot-blooded, hot-headed and poor and proud”. The sentence is translated by Google translate as “هغه گرمه وينه او دده وينه گرمه، مازغه“ while the human translation for this sentence is “سخت، په اصل کبني غريب خو په ظاهره غاوره دے” There is no punctuation marks in this sentence; moreover, there is the wrong use of the conjunction” او”.

In most of the Google translated sentences verb is used in place of noun. For example; “The politics of the Pathan centre round gold and power, hunger and ambition, just like yours”. This sentence is translated by Google translate as “د پټان د مرکز سياست د سرو زرو او ځواک، لوري او ارمانونو“ the human translation for this sentence is “د پښتنو سياست په دولت، زور، حرص،” while the human translation for this sentence is “د پټان د مرکز سياست” the verb “مرکز” is used. Grammatical errors had a lower percentage as compared to other types of errors made by Google Translate.

iii. Syntactic errors

The percentage of syntactic errors in the Google translated text is 33.0%. Word order is the most frequent sort of error made by Google Translate, so the most of the translated sentences have incomprehensible word and phrase patterns. For example “Poor Pathan! He cannot understand what his priest tells him in the light of what his heart tells him”. Google translated this sentence as “غريب پښتونه! هغه نشي پوهيدای چې د هغه کاهن هغه ته د هغه څه په رڼا کې چې د هغه زړه ورته وايي“ whereas the accurate human translation for this sentence is “پښتون غريب د خپل زړه د اواز په رڼا کبني هيڅ نه“ the human translation for this sentence is “پوهيري چې ملا ورته څه بناني په هغي يقين کوی” The whole phrase structure of the sentence is violated as a result the sentence does not make sense.

It signifies that Google cannot understand the content; it just read it and translates it. The structure is distorted in majority of Google translated sentences. For example; “He refers to the Pathan's part of the world as Bectia and says it is inhabited by a small dark people who deal in gold and spices”. Google translate this sentence and gives a distorted structure to it. Such as, “د نری د پټان برخه د بکتيا په توگه دا د کوچني تياره يادوي او وايي چې د سرو زرو خلکو لخوا ميشته دي چې او مصالحو ده د پښتنو شجره د «بکتيا» علاقې سره تړلي ده چې تور رنگی“ The correct human translation is “لندی خلک پکبني اوسيدل وائي چې پښتانه د هغي وړوکي قبيلی نه دی چې د سرو زرو او مصالحو کار کسب به ئي”.

iv. Translational errors

The total percentage of the Translational errors is 44.0%; it is the second highest percentage among the other errors. Google translate often mistranslated the words. For example; “The Pathan is short of girls and generous of emotes”. Google translate this sentence as “پټان د نجونو“ the human translation for this sentence is “کم دی او د احساساتو سخی دی” while the accurate human translation for this sentence is “نجونو” and “پښتون” instead of “پټان” Google translate used the term “جینکو کمه ولي د جذباتو بهير دے-” instead of “جینکو”.



Another example is “The great ferocity of the Pathan might well be a reaction to a rather long dose of Buddhist non-violence”. Google translation for this sentence is “د پټان لوی وحشت ممکن د بودا” “د عدم تشدد د اوږدې مودې لپاره عکس العمل وي”, on the other hand, the accurate human translation of this sentence is “د پټان زياته غصه به د بده مت د عدم تشدد اوږد رد عمل وي” it used the terms “بودا” and “پټان” instead of “د بده مت” and “پټتون”.

The main reason for translational errors in Google translation is that Google translate is found to be susceptible to the use of several dialects when it comes to the translation of English text into Pashto which increases the risk of errors.

Conclusion and Recommendations

The researchers discovered that Google translate had an average score of 2.05, which is classified as being less accurate, less acceptable, and medium readable based on the comparison of Google and human translations. The use of words, technical terms, phrases, sentences, or clauses, or source language text that has been accurately translated into the target text (Pashto), but still it has a deformity of meaning or double meaning, which corrupts the unity of the entire message, serves as examples of the score's lower accuracy. Less acceptability in this score is illustrated through little trouble with the usage of technical terms or phrases and certain grammar errors. However, the translation is natural. Medium readability in this score is illustrated through multiple readings of some parts of the translation. Google Translate also made several errors while translating English into Pashto. The translated text by Google Translate shows semantic errors, grammatical errors, syntactic errors and translational errors. In contrast, human translations have an average score of 3.00, which is considered correct or accurate, acceptable, and highly readable. The accuracy, acceptability and readability in this score are illustrated through the use of words, technical terms, sentences etc. are translated accurately into the target text (Pashto) and the words, technical terms, phrases and sentences etc. are familiar to the readers and the meaning in the sentence is easily comprehended by the readers. There is no or few errors at all inhuman translation because human translation was done by an expert of both SL and TL. All the words, phrases, clauses or sentence in the Pashto version of “The Pathan” are translated by the scholar is meaningful, there is no word for word translation of the sentences, it means that Human translation see beyond literal meaning of the words and introduce symbolic and cultural meaning.

In short, human translation has higher score than Google translation which shows that the quality of Google Translate is poorer than the quality of human translation in the case of Pashto. Similarly, the errors in Google translation are higher than human translation. A Machine cannot understand symbolic or cultural interpretations that are introduced by human translators, which go beyond the literal meaning of words. Not a machine but a Human translator is required to convey the message accurately. The accuracy level offered by a Human translation cannot be compared to that of Google Translation. The Pashto translation capabilities of Google translate have not been upgraded, thus translators should not rely solely on its services. Translators need to have particular training in order to use Google Translate efficiently and correct any mistakes it makes when translating content.

References

- Aiken, M., & Balan, S. (2011). An analysis of Google Translate accuracy. *Translation journal*, 16(2), 1-3.
- Al-Samawi, A. M. (2014). Language errors in machine translation of encyclopedic texts from English into Arabic: The case of Google translate. *Arab World English Journal*, 182-211.
- Anazawa, R., Ishikawa, H., Park, M. J., & Kiuchi, T. (2013). Online machine translation use with nursing literature: evaluation method and usability. *CIN: Computers, Informatics, Nursing*, 31(2), 59-65.

- Anggaira, A. S. (2017). Linguistic Errors on Narrative Text Translation Using Google Translate. *Pedagogy: Journal of English Language Teaching*, 5(1), 1-14.
- Aziz, W., Castilho, S., &Specia, L. (2012, May). PET: a tool for post-editing and assessing machine translation. In *Proceedings of the Eighth International Conference on Language Resources and Evaluation (LREC'12)* (pp. 3982-3987).
- Bozorgian, M., &Azadmanesh, N. (2015).A survey on the subject-verb agreement in Google machine translation. *International Journal of Research Studies in Educational Technology*, 4(1).
- Brazill, S., Masters, M., &Munday, P. (2016). Analysis of human versus machine translation accuracy.
- Boitet, C., Blanchon, H., Seligman, M., &Bellynck, V. (2009).Evolution of MT with the Web.In *Proceedings of the Conference Machine Translation* (Vol. 25, pp. 1-13).
- Butler, F. (2011). Machine versus Human: Will Google Translate Replace Professional Translators.
- Elliott, D. (2006). *Corpus-based machine translation evaluation via automated error detection in output texts* (Doctoral dissertation, University of Leeds).
- Ikramullah, Muhammad Ramzan, & Zartashia Kynat Javaid. (2023). Psychological Factors Influencing Pashto Speaking ESL Students' Pronunciation of English Vowels. *Pakistan Journal of Society, Education and Language (PJSEL)*, 9(2), 52-63.
- James, C. (2013). *Errors in language learning and use: Exploring error analysis*. Routledge.
- Karami, O. (2014) The brief view on Google Translate Machine. Paper presented at the meeting of the 2014 Seminar in Artificial Intelligence on Natural Language, German.
- Larson, M. L., & Translation, M. B. (1984).A guide to cross-language equivalence. *Maryland: University Press of America*.
- Mohaghegh, M., &Sarrafzadeh, A. (2009, December).An analysis of the effect of training data variation in English-Persian statistical machine translation.In *2009 International Conference on Innovations in Information Technology (IIT)* (pp. 105-109).IEEE.
- Nababan, M., &Nuraeni, A. (2012). PENGEMBANGAN MODEL PENILAIAN KUALITAS TERJEMAHAN. *KajianLinguistikdanSastra*, 24(1), 39-57.
- Presada, D., &Badea, M. (2014).The effectiveness of error analysis in translation classes.A pilot study. *Porta Linguarum: revista internacional de didáctica de laslenguasextranjerar*, (22), 49-59.
- Pym, A. (1992). Translation error analysis and the interface with language teaching. *The teaching of translation*, 279-288.
- Shankland, S. (2013). Google Translate now serves 200 million people daily. *CNET.CBS Interactive Inc*.
- Seljan, S., Brkić, M., &Kučiš, V. (2011).Evaluation of free online machine translations for Croatian-English and English-Croatian language pairs.
- Sin-Wai, C. (2015).The Routledgeencyclopedia of translation technology. *Abingdon: Routledge*.
- Silalahi, M., Rafli, Z., &Rasyid, Y. (2018).The analysis of errors in translation of scientific text from English to Indonesian Language. *Journal of Education, Teaching and Learning*, 3(1), 23-27.
- Whyatt, B. (2012). *Translation as a human skill.From predisposition to expertise*.Wydawnic two Naukowe UAM.
- Wong, D., &Shen, D. (1999).Factors influencing the process of translating. *Meta: journal des traducteurs/Meta: Translators' Journal*, 44(1), 78-100.