

Comparison of Translation Techniques by Google Translate and U-Dictionary: How Differently Does Both Machine Translation Tools Perform in Translating?

Kammer Tuahman Sipayung ¹, Novdin Sianturi ², I Made Dwipa Arta ³, Yeti Rohayati ⁴,
 and Diani Indah ⁵

¹ University of HKBP Nommensen Medan, Medan, Indonesia

² Universitas Simalungun, Pematangsiantar, Indonesia

³ Universitas Udayana, Denpasar, Indonesia

^{4,5} Universitas Langlangbuana, Bandung, Indonesia
 kammertuahmansipayung@gmail.com

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ABSTRACT

Better translation produced by computation linguistics should be evaluated through linguistics theory. This research aims to describe translation techniques between Google Translate and U-Dictionary. The study used a qualitative research method with a descriptive design. This design was used to describe the occurrences of translation techniques in both translation machine, with the researchers serving as an instrument to compare translation techniques which is produced on machine. The data are from expository text entitled "Importance of Good Manners in Every Day Life". The total data are 122 words/phrases which are pairs of translations, English as source language and Indonesia as target language. The result shows that Google Translate apply five of Molina & Albir's (2002) eighteen translation techniques, while U-dictionary apply seven techniques. Google Translate dominantly apply literal translation techniques (86,8%) followed by reduction translation techniques (4,9%). U-dictionary also dominantly apply literal translation techniques (75,4%), but follows with the variation translation techniques (13,1%). This study showed that both machines produced different target texts for the same source language due to different applications of techniques, with U-dictionary proven to apply more variety of translation techniques than Google Translate. The researcher hopes this study can be used as an evaluation for improving the performance of machine translations.

1. Introduction

Translation is the easiest and cheapest way to share information or knowledge from one to another language. Even though, it is easiest and cheapest but translation is a complicated task. Generally, there are three stages in translating. The first stage is source text analysis, the next stage is transferring process, and the last is re-expressing to the target meaning. Whole stages above have a complex and complicated problems. There is a need for translator to have well language competence in source text (ST) and target text (TT). Brković et al. (2020) states that language competence to indicate their level and type of their education. In other words, well competence on both (source and target) languages is a key for three translation stages above.

In other words, translators need to produce the closest natural equivalent in the target language. Translation function as a bridge (Yao, 2017) to connect people from different cultures and languages. The existence of machine translation help people to connect in different culture and language. Abdi (2019) states that translation plays the main role in introducing the history and in transferring the culture of a country.

In this new era, digital translation has become a hot issue to investigate. Computer-assisted translation and machine translation are classifications of digital translation. In this research, the researcher focus on machine translation namely Google Translate and U-dictionary. The evolution and evaluation of machine translation are developing rapidly in the era of 4.0. Way (2018) states that machine translation is deployed by millions of people today. The researcher predicts the improvement of digital translation leads to an easy life on communication. Swasthi & Jayashree (2020) describes some advantages and disadvantages of some corpus-based translation like direct translation machine, interlingual machine translation, transfer-based machine translation, statistical machine translation and neural machine translation. It is a great study to reduce disadvantages on the level of corpus to Google Translate and U-dictionary.

Translation techniques is an effort to achieve better translation result or quality. It plays in the level of words, phrases, or lower level. Molina & Albir (2002) state that there are eighteen translation techniques. The usage of the eighteen techniques on machine translation like Google Translate and U-dictionary was examined in this study because knowing the variation techniques produced by each

machine will give a positive impact to the corpus data of machine translation.

Timeliness is arguably the strongest advantage machine translations have over human translations. We do not need a long time to translate one language to other since it perceives that target language produced by statistical and neural translation machine categorised as post-editing (Moorkens et al., 2018). However, the result of machine translation is considered as a draft of the translation (Yamada, 2019). Translators still need to analyse, edit and proofread to target before publishing. In other words, the human is important to achieve high translation quality. Machine translation is a great instrument in translating sources to the target language, but a great machine translation need no manual improvement.

Objectively, the researcher assumes that every machine translation has a weakness and strength. According to Sipayung (2021) state that the machine translation Yandex is recommended to use in translating based on reference shifts point of view, in addition, the weakness of machine translation in producing high level (explicitation) than the source text. The study indicated that Yandex lack to apply amplification translation technique and linguistic amplification translation technique. However, in this chance the researchers investigated machine translation like Google Translate and U-dictionary. The researcher predicts that one of them apply more translation techniques.

Napitupulu (2017) states that Google translate is weak on verb agreement in translating English to Persian, indicating that Google Translate lacks the application of transposition translation technique from English to Persian. This weakness occurred due to the difference on grammatical point of view. In addition to that, machine translation tends to reduce target information (Ahangar & Rahneem, 2019). It means that machine translation tends to use linguistic compression and reduction translation techniques in translating. In their findings, which particular machine was not mentioned. In addition, Napitupulu (2017) also figured out that Google Translate produce some translation error in the level of lexicosemantic, tense, preposition, word order, verb group, active and passive voice. This signals that there is a great problems on translation techniques. This research hopes to expand these findings by using different target text, namely Indonesian.

Machine translation tends to use word-for-word translation (Harper, 2018). This means that calque translation techniques and literal translation are dominant applied by machine translation. Calque and literal translation are translation techniques which express the ST to TT through word-for-word and phrase-to-phrase. However, the population of the previous study was too large on whole machine translation, thus this research focused on Google Translate and U-dictionary only.

Lingu et al. (2021) stated that Google Translate cannot replace translators since some limitations on context and

cultural understanding. Google translate or machine translation is a tool to help translator in doing their project or job. In fact, translators need to improve the product of machine. The researchers agreed with the previous study's statement. By knowing the variation of translation techniques produced by machine translation can help translator in balancing the usage of translation techniques.

The researchers would like to see and demonstrate how both machines (Google Translate and U-dictionary) apply translation techniques. There are eighteen translation techniques according to Molina & Albir (2002) (see table 1), and the researchers predicted that machine translation has a limitation to apply the entire list of translation techniques. In addition to that, the researchers believe that Google Translation and U-dictionary have a different ability in applying translation techniques. To know the dominant translation technique is important to know whether the result is oriented to the source or target language. By revealing the implementation of strategies by both machines, translators will know the weakness of a certain machine. In line to that, scholarship on computation linguistics can benefit the additional corpus on these machine translations.

Pre-observation indicated that there is a different result—based on translation technique point of view—in translating source (English) to target language (Indonesia). It can be seen in the following preliminary:

ST :start to use **marjuana**...

TT₁:...*mulai menggunakan ganja*.... (literal)

TT₂:...*mulai menggunakan marijuana*...(borrowing)

The first target (TT₁) is produced by Google Translate and the second target (TT₂) is produced by U-dictionary. Both machines applied different techniques in translating. The first machine applied the literal translation technique (word-for-word translation) to re-express “marijuana” as “*ganja*”. U-dictionary did not make any changes in translating “marijuana” since the word stays the same. This means that U-dictionary applied pure borrowing in translating the ST above. This clearly shows that Google Translation and U-dictionary have different characteristics to keep equivalence or re-express the target language.

Translation techniques have been explored by many researchers in the past. On poem translations, Febriani (2020) found that the dominant translation technique is literal translation techniques. On subtitle translations, Fitria (2020) found that the most used translation technique is transposition. Sodiq et al. (2021) investigate translation techniques on texts related to cultural issues and found that pure borrowing is the translation technique that was mostly employed. Anggraini et al. (2020) investigated the impact of translation techniques on translation accuracy and revealed that established equivalent is a dominant translation technique that translators used. Nasution (2020) investigated the ideological impact of a text entitled “*mantra jamuan laut*” and found that literal translation technique is the most

used. Majority, if not all, of these previous studies focused on translation techniques used by a human. This present study is different as it focuses on the translation techniques produced by machine translation. The novelty of this study is addressed to computation linguistics through corpus-based machine translation. More translation techniques, target orientation and focus on context information are important for computation linguistics to develop. It seems that only a few researchers are interested to conduct an investigation on translation techniques on machine translations. Moreover, there exists only very few studies on U-dictionary on the field of translation. This research is presented to fill those gaps which gives contribution in computation linguistics.

Based on the phenomenon above, it is important to make research on machine translation based on the theory of linguistics to fill the gap of research. The purpose of such research is to achieve better translation quality produced by machine translation like Google Translate and U-dictionary. Target text produced by a machine should be viewed based on the theory of semantics, pragmatics, and functional linguistics, etc. The translation result can be more accurate based on evaluation metrics like BLE, NIST, translation error rate (TER). Finally, high translation quality can be achieved since the role of linguistics theory. The researcher hopes the result of this research will give a positive impact on the engineering of language derived from corpus-based machine translation.

Furthermore, results of this research will contribute in helping scholars of computational linguistics to reduce the consideration only on lexical words, improve the relationship among words, avoid the loss of meaning and produce an accurate meaning. As we know, there are currently eighteen translation techniques but machine translation cannot accommodate to all translation techniques. Machine translation tends to omit or reduce target information (Ahangar & Rahnemoon, 2019). Equivalence is

a complex translation problem since the translator needs to choose better techniques to achieve the equivalence in source and target. In a decision on translation techniques, the translator needs to give their attention to coherence, cohesion, and contextual dimension. The social function of expository text is to persuade listener and reader to do something or do not to do something (Gerot & Wignel, 1994). It means that machine translation need to keep the equivalence to achieve the social function of expository text. In another point of view, Bin Dahmash (2020) stated that the development of machine translation goes rapidly. Both statements invite the great desire to investigate the development of machine translation by using linguistics theory or translation theory. Last but not least, the contribution of this research is also addressed to users of both applications. They can choose better application in translating the source to target language.

2. Literature Review

2.1 Translation Techniques

Translation techniques are a way that the translators used to get the equivalence in the level of words and phrases. In other words, translation techniques play in the level words. It based on the linguistics point of view. In computation linguistics, translation techniques called neural machine translation which focus on contextual information than other machine (Swasthi & Jayashree, 2020). The weakness of this technique is on the usage of efficient semantic structure. The weakness of this technique can be as the new field to investigate through linguistics approaches. This research applied the translation theory of Molina & Albir (2002). More detail on translation techniques and description can be seen in **Table 1**.

Table 1. Description of Translation Techniques

Translation Techniques	Description
1 Adaptation	Replaces the existing cultural element in TT or replaces the equivalents on both ST and TT cultures.
2 Amplification	Adds more information in TT even though the information does not appear in ST. ST: <i>The girl</i> came on time. TT: <i>Gadis cantik</i> itu datang tepat waktu.
3 Borrowing	1. Pure borrowing does not change anything in the translation. ST: Setting TT: Setting 2. Naturalised borrowing makes some changes on the level of spelling. ST: Panic TT: Panik
4 Calque	Literally translates from word to word or from phrase to phrase. ST: She is a good teacher

5	Compensation	<p>TT: Dia adalah seorang guru terbaik</p> <p>Replaces the position of words due to TT's disability to realise the meaning with the same word positions.</p> <p>ST: A bunch of flower</p> <p>TT: Setangkai bunga</p>
6	Description	<p>Describes the target language in the absence of meaning on TT.</p> <p>ST: <i>Saksang</i> is nice to eat</p> <p>TT: Makanan tradisional batak berbahan dasar daging Babi gurih rasanya.</p>
7	Discursive creation	<p>Appears in cases of translating the title of novels, movie and books where the original's equivalent is far away from the TT</p> <p>ST: The one</p> <p>TT: Satu-satunya</p>
8	Established equivalent	<p>Translates source term to the target, generally based on the daily phrase or dictionary.</p> <p>ST: Warm regards</p> <p>TT: Hormat kami</p>
9	Generalisation	<p>When the source language is parallel to the target, in the absence of the meaning on TT but still parallels.</p> <p>ST: Lontong</p> <p>TT: Rice</p>
10	Linguistic amplification	<p>Adds some information in the TL during interpreting or dubbing.</p> <p>ST: Everything is up to her!</p> <p>TT: Segalanya terserah kepadanya sendiri lah!</p>
11	Linguistic compression	<p>Omits some ST information in the TL during interpreting or dubbing. This technique contrasts linguistic amplification.</p> <p>ST: Are you calling?</p> <p>TT: Telepon?</p>
12	Literal translation	<p>Used when the source and target <i>can</i> be expressed through word to word.</p> <p>ST: The rain will come</p> <p>TT: Hujan akan datang</p>
13	Modulation	<p>Replaces the focus of cognitive meaning which appear on ST lexically or structurally.</p> <p>ST: Everyone loves him</p> <p>TT: Semua orang mengutuknya</p>
14	Particularization	<p>Translate specific and concrete words. This technique contrasts generalisation.</p> <p>ST: This rice is nice for baby to eat.</p> <p>TT: Bubur nasi ini bagus untuk dimakan balita.</p>
15	Reduction	<p>Makes source information become condense or reduces some source information in the TT.</p> <p>ST: In the next two month is the Muslim month of fasting.</p> <p>TT: Dua bulan lagi bulan Ramadhan.</p>
16	Substitution	<p>Translates gestures and intonation according to TT's culture.</p> <p>ST: Shaking head</p> <p>TT: Tidak</p>
17	Transposition	<p>Used due to the difference between SL and TL on grammatical point of view.</p> <p>ST: I have lunch with her</p> <p>TT: Saya telah makan siang bersamanya</p>
18	Variation	<p>Used for textual change for tone, style, social and dialect, etc. The influence of this technique can be seen from the linguistic variable.</p> <p>ST: Grab the bike to me now!</p> <p>TT: Pesankan ojek sepeda motor ke gue sekarang!</p>

2.2 Machine Translation

Machine translation is a branch of computational linguistics, defined as automatic process through system. The issues of machine translation has been existence since 1940 and a lot of improvement has been built up (Kituku et al., 2016). Nowadays, linguistic computational plays a significant role in translation as machine translation has moved from text-based to speech-based.

It is imposible to avoid that linguistics theory plays a capital role in machine translation. This role is important to improve and develop machine in translating target language. Based on the language engineering theories, translation can be divided into three groups, they are rule-based, corpus-based, and hybrid machine (Stevanović & Radičević, 2012). Hu (2011) in (Zheng, 2015) states that machine translation methods can classify into four kinds: 1) the linguistics approach, 2) the transfer approach, 3) the interlingual approach, 4) the knowledge-based approach. This means that both of them have a different perspective on machine translation. The difference should be made as a strength to achieve goal.

In this research, the researcher focused on two translation machines. The first machine is Google Translate and the second is U-dictionary. The first is considerably more famous or popular than the latter, perhaps due to Google Translate being older in existence than U-dictionary (Sujarwo, 2020). Both of them can be used to translate one language to other language. However, Google Translate can translate over than 90 languages and U-dictionary can only translate over than 30 languages (Septarina et al., 2019).

2.3 Google Translate

Google Translate website was launched as a translation service from one into another language (Bin Dahmash, 2020). It is an application developed by Google Incorporation in April 2006 (Ying et al., 2021). This application can be used with or without internet connection. The user can translate the source text in the level of words, phrases, clauses, sentences and essays because it offers instant translation based on schocket 2018 (Bin Dahmash, 2020). The machine uses statistical translation approach (Lingu et al., 2021), so it does not rely on language skills and belongs to a rule-based group (Stevanović & Radičević, 2012). The result on target language may not yet be qualified in said target language (Bayu, 2020), but it does not rule out the advantages and benefits of this machine.

Nowadays, Google Translate can be used as teaching media as done by Bayu (2020). This media is used to improve students' mastery of vocabulary, which is categorised as a sub-skill of language. Students' mastery of sub-skills such as vocabulary will support mastery in other language skills (speaking, writing, reading, and listening). Google Translate's facilities are related to the three other skills other than writing, namely listening, speaking, and reading (Bin Dahmash, 2020), so the machine can be a

teaching medium that can improve language learners' listening, speaking, and reading. Ying et al. (2021) stated that Google Translate can be used without having to connect to the internet by first downloading the desired translation language. The study showed how Google Translate play a role in translation classes by having students download it in their smartphones and use the tool as an alternative dictionary than print dictionary.

2.4 U-Dictionary

U-dictionary has just released in March 2016, a decade after Google Translate was released. This machine translation is supported with Android 4.0.0 and smartphones IOS 3.0.0. Based on the statistics, more than 50 million people have downloaded U-dictionary and become users. This media can be used to find definitions through the dictionary of Collins and Wikipedia. This machine is also equipped with some tests and exercises to improve language fluency. Hongkong is the first place of U-dictionary released, but U-dictionary application has achieved the first rank in Google Play's educational apps in Indonesia, Peru, Mexico, Colombia and Egypt in 2019. This ranking was reportedly due to most users finding this application very useful to learn English, to translate, and to fulfil other purposes related to working and traveling.

Despite its recent and quick rise to popular use, studies on U-dictionary has a minimal presence. Zheng (2015) states that U-dictionary helps students in translating the words or sentence by typing them, with one particularly advantageous feature of taking a picture and uploading it for the system to scan and translate the text directly. With its camera feature, users can scan the source language without typing and the target meaning will appear immediately. U-dictionary can be used as a teaching media for EFL as Wulandari & Handayani (2020) found that it has a positive effect on training students' English speaking skills. This is supported by Akmalun (2018) who found that U-dictionary can improve students' ability in pronunciation. The study recommends U-dictionary as an English teaching media because it is equipped with games, exercises, learn-from-the-android-lockscreen, and features English articles.

2.5 Expository Text

Based on functional perspectives, the social function of the expository is to persuade the reader that something should or should not be the case. The generic structure of the expository is the thesis, argument, and recommendation. In formulating the thesis, the writer announces the issue in concern. In building an argument, the writer needs to write the reason, leading to a recommendation in which the writer needs to tell what ought to or ought not to happen. In formulating a well expository text, the writer needs to consider a lexicogrammatical feature, using simple present tense and focusing on generic human and non-human participants, use of mental, material, and relational processes.

This type of text can be classified into two kinds, namely expository and narrative text. Expository text are different from narrative text in terms of their goal (Kristina & Sujarwati, 2021). The goal of narrative is to entertain whereas the goal of expository is to inform a certain topic to the reader. The information is organised in interesting and logical manner. There are six expository text structure, namely description, listing, sequence, comparison and contrast, cause and effect and problem and solution (Rani, 2019). Each structure have a different purpose in formulating expository text. By knowing the text structure on expository text, university students will be more structure in their study process, especially in writing their research proposals, reports and scientific articles.

3. Method

To achieve the research aims, the researcher applied a qualitative descriptive research design due to the characteristics of the data (Bogdan & Bilken, 2007), which are pairs of translations (from English to Indonesia) which is recorded in two machine translations, Google Translate and U-dictionary. The source data of this research is an expository translation text in English entitled “*Importance of Good Manners in Every Day Life*”, which was copied as the source text (ST) into both machines. Then, the researcher coded all the sentences as ST (in English) and TT (in Indonesian) , with results of translations from Google Translation being designated as TT₁ and texts produced by U-dictionary as TT₂.

To analyse the data, the researcher used interactive data analysis. Referring to Miles (2014), state that there are three concurrent flows of activity: 1) Data condensation, 2) Data display, 3) Conclusion drawing/verification. Upon data completion, the researcher coded each machine translation technique based on Table 1. Then the researcher displayed the data to show the results of the tabulation. Then, the researcher concluded which translation technique is dominant among eighteen translation techniques.

4. Results

Both Google Translate and U-dictionary apply translation techniques in transferring source language to target language.

Table 2. Usage Frequency of Translation Techniques by Google Translate and U-Dictionary

No	Translation Techniques	Machine Translations	
		Google Translate (TT ₁)	U-Dictionary (TT ₂)
1	Literal	86,8%	75,4%
2	Amplification	3,2%	1,6%
3	Reduction	4,9%	4,0%

4	Variation	3,2%	13,1%
5	Ling Amplification	1,6%	4,0%
6	Transposition	-	0,8%
7	Addition	-	0,8%

Table 2 shows that in translating the same type of source text, both machines choose several translation techniques. Google Translate uses five of eighteen translation techniques, namely literal, amplification, reduction, variation and linguistics amplification translation techniques. . Meanwhile, U-dictionary uses seven of eighteen translation techniques, which include the same five techniques as Google Translate but alsotransposition and adaptation translation techniques in addition. For both machines, the most dominantly used technique is the literal translation. In translating the text, 86,8% was applied the literal translation technique by Google Translate , followed with the reduction translation technique (4,9%). Similarly, though in a lesser frequency, U-dictionary used literal translation techniques for 75,4% of the text, followed by the variation translation technique. This data proves that Google Translate and U-dictionary have different abilities in choosing which translation techniques they apply.

Table 3. Example of Literal and Linguistic Amplification Techniques

ST	She	will be	rude	all the day long
TT ₁	<i>dia</i>	<i>akan</i>	<i>bersikap kasar</i>	<i>sepanjang hari</i>
TT	Lit	Lit	Amp	Lit
TT ₂	<i>dia</i>	<i>akan</i>	<i>kasar</i>	<i>sepanjang hari</i>
TT	Lit	Lit	Lit	Lit

Based on the data analysis above, it can be seen that both machines dominantly used literal translation techniques, with the exception of Google Translate using a different technique to translate one part of the data. The source text of “*rude*” is translated by Google Translate to be “*bersikap kasar*”. This machine translates a detail which is not present in the source, in other words, Google translate adds some information in target text or makes the target become explicit (higher than source text). Based on this phenomenon, the researcher concludes that Google translate apply the amplification translation technique. Meanwhile, U-dictionary translate the word “*rude*” to become “*kasar*”. U-dictionary translated this data literally based on dictionary.

Table 4. Example of Literal and Variation Translation Techniques.

ST	In this article	we have compiled	some of the important points
TT ₁	<i>Dalam artikel ini</i>	<i>Kami telah memenuhi</i>	<i>Beberapa poin penting</i>
TT	Lit	Lit	Lit

TT ₂	Dalam artikel ini	Kami telah mempelajari	Beberapa poin penting
TT	Lit	Var	Lit

While previous data indicated that Google Translate used more variety than U-dictionary, **Table 4** shows that the opposite can happen. Both machines still dominantly applied literal translation techniques, although while Google Translate literally translated the source text "...compiled..." to "memenuhi", U-dictionary used variation translation technique and designated the word as "...mempelajari...". This data shows how the machine can see the ST from other variable of linguistics.

Table 6. Example of Literal, Variation and Reduction Translation Techniques

ST	we	teach	our children	the importance of	of good manners
TT ₁	Kami	mengajari	Anak-anak kami	Pentingnya	Sopan santun
TT	Lit	Lit	Lit	Lit	Var
TT ₂	Kami	mengajari	Anak-anak	Pentingnya	perilaku yang baik
TT	Lit	Lit	Red	Lit	Var

Table 6 shows that in translating one sentence, U-dictionary has more variety of translation techniques than Google Translate. Google Translate applied two techniques, namely literal and variation translation techniques, while U-dictionary (TT₂) applied three different types of translation techniques, namely literal, reduction and variation translation techniques. Despite the added variety, both machines continue to show that they dominantly use literal translation technique.

5. Discussion

Based on the research findings on this study, literal translation technique is the most dominantly used technique that both Google Translate and U-dictionary apply in translating the English source text into the Indonesian target text. This result indicates that computation linguistic of Google Translate and U-dictionary is rule-based machine translation with direct translation approach (Kituku et al., 2016). In other words, both machines "do not care" on the situation or context while translating ST to TT. Swasthi & Jayashree (2020) found that neural machine focused on contextual information than other machine translation. The neural approaches for machine translation or hybrid (Swasthi & Jayashree, 2020) should be taken into account if users need both machines to consider the contextual information case. A good translation should be oriented on the target language, not on the source language (Ying et al., 2021). Thus, the current models of Google Translate and U-dictionary still have room for improvement since their concepts are primarily word-for-word translation (Harper, 2018).

Table 5. Example of Literal and Reduction Translation Techniques

ST	We	do not	Pay attention	To their usage
TT ₁	Kami	Tidak	Memperhatikan	penggunaannya
TT	Lit	Lit	Red	Red
TT ₂	Kami	Tidak	Memperhatikan	penggunaannya
TT	Lit	Lit	Red	Red

In **Table 5**, both Google Translate and U-dictionary applied literal translation technique in translating the source text of "we" and "do not" as "kami" and "tidak". Both machines also omitted some information in translating the ST "pay attention" and "to their usage" to "memperhatikan" and "penggunaannya", demonstrating the use of reduction translation.

Other researchers such as Ahangar & Rahneem (2019) stated that machine translations tend to omit or reduce target information, indicating a propensity to apply reduction translation technique and linguistic compression. However, this study revealed that U-dictionary actually tend to add target information. In fact, reduction translation technique is only applied to 4,0% of the text by U-dictionary. The same case applied to Google Translate, which only apply reduction for 4,9% of the text. However, U-dictionary's usage of linguistic amplification is 5,6% while Google Translate's 4,8%, so it seems the findings in this study support Ahangar & Rahneem (2019), but only for Google Translate.

Results of this study still shows that the role of machine translation as a tool for helping translator to translate in real time is not yet perfect, as it still need a manual development on the semantic and pragmatic aspect. Human touch is still needed so that the implicated meaning (pragmatic equivalence) can be coped in translation Chakrawarti (2017) also investigated machine translation with corpus-based, rule-based, direct and hybrid approaches, and her results pointed out that machine translation has great problems in the level of structural divergence, level-idiom, word-level, non-standard language. This present study showed that Google Translate applied five of eighteen translation techniques, while U-dictionary applied seven of eighteen translation techniques. This results slightly disagree the previous study's statement as both machine translations since they solve problems on word level and language norm. However, considering that one technique in particular, namely the literal translation, is used at a much higher frequency that other translation strategies, the results of this study also partially agree with Chakrawarti (2017).

In terms of the translation quality, Google Translate has been described as less accurate, less acceptable, and even less readable (Kartika & Priyatmojo, 2018). Apparently, translation produced by Google Translate is less accurate from the aspects of morphology, semantic and syntax (Citra Putri, 2021). Based on the findings, machine translation employed several translation techniques to achieve their goals, but the human touch is still needed to achieve a good translation. Human touch can be applied in the level of structural, standard language and words equivalence to improve the translation quality (accuracy, acceptability and readability). The inclusion and usages of more types of translation techniques may be needed to improve the accuracy.

This study illustrates another problematic aspect of the current model of machine translations in translating cultural terms. Machine translation in Instagram dominantly used the borrowing translation technique (Purwaningsih et al., 2019), meaning that it translates cultural terms without any changes in translation except the changes on spelling. This contrasts the long-standing human translation which dominantly preferred the use of linguistic amplification translation technique in order to provide some additional information to encourage understanding of different cultural terminologies. Machine translations still need to add some information to re-express cultural terms in the target language.

6. Conclusion

Most scholars focused on investigating human translation, but machine translation investigation with linguistics theory are seldom achieved. This research is conducted to fill this gap to contribute to the computation linguistics by using linguistics theory as the control for machine translation evaluation. This research also addressed the scarce number of studies on U-dictionary in comparison to its decade-old counterpart, Google Translate. Results of this study showed that U-dictionary apply more variety of translation techniques than Google Translate and even include more variety of functions that can be used for other purposes beyond mere translations. Therefore, the researchers tentatively recommend U-dictionary for users. However, both machine translations are proven to dominantly favour literal translation technique, indicating a high orientation to source language rather than target language and neglect for situational, contextual meaning or pragmatic equivalence in translating. This study contributes to the designers of U-dictionary and Google Translate by pointing out the importance of developing the neuro corpus to help these machines to be more target language-oriented.

Additionally, this study revealed more room for research in the field of computational linguistics. Linguistics theory can be as an instrument to evaluate the translation quality produced by machine translations. Moreover, computational linguistics can be further explored through other approaches such as rule-based machine translation, data driven machine translation and hybrid machine translation. Future studies are recommended to investigate

other neural translation machines with neural approach with linguistics theory.

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