

University Students' Perceptions on the Use of Google Translate: Problems and Solutions

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Abstract—Machine learning has globally become a trend in most educational settings. This study aims to explore students' perceptions when using Google Translate (GT) to support their learning as well as their problems and solutions from GT. With the participation of 250 university students at a private educational institution, a 5-point Likert-scale questionnaire and a semi-structured interview were employed to examine how students perceived the use of GT in their learning process. The findings revealed that practically students had positive perceptions on GT's use in learning. Several major problems were recorded when they used GT, and some recommended solutions were also considered for improvement. Specifically, students utilized GT as a learning tool, particularly for language study, because of its useful features such as multi-language translation, time saving, ease of use, and improving pronunciation. Although Google Translate has a number of advantages for students, several problems such as erroneous grammar and semantics on a frequent basis have led to misunderstanding of original words. As a result, students discovered that they needed to deal with these problems by double checking the results in a dictionary or other translation programs, as well as the help from a peer or supervisor. It is suggested that GT is a helpful machine translator, but students are encouraged to know how to make some judgement on its results for a better translation version.

Keywords—Google Translate, problems, solutions, perceptions, use

1 Introduction

Many individuals in the twenty-first century have developed sophisticated technology similar to what we have now. From the various modern technologies in the globe, laptops, mobile phones, tablets, and the Internet are the most often used by humans. There are so many things that can be accessed through mobile phones, especially smartphones, hence, it cannot be denied that humans have relied on technology, particularly mobile phones to promote communication and life mobility. Many applications that develop the convenience of instructions play a significant part in education. The Internet is fast evolving, and Google is currently the dominant player since it is

the most widely used platform for public and educational purposes, and one of its most popular features is Google Translate, which is incorporated in one of Google's applications [1].

Various online Machine Translation (MT) services, such as Google Translate (GT), Bing Translator, and Yahoo Babel Fish, are currently available for Internet users and language learners. Google Translate is well-liked and ranked first among the most popular Machine Translation services. Google Translate can store over 200 billion words and provide users with the widest range of words and phrases to make it popular among students [2].

Google Translate can assist translators in completing their tasks more rapidly, but it also puts the users at risk. A large number of students now rely on GT, so the problems with GT services have not improved significantly. Furthermore, it is unclear why students who are aware of using GT can cause problems, but they have continued to use it till now [3]. The vast majority of students use GT in class, hence, the researchers wish to evaluate students' perceptions of using it in their study. Students' perceptions of the problems and solutions when using Google Translate are being sought by researchers.

The purpose of this study is to look into the use of Google Translate as a supplementary tool for helping learners to develop their language skills, as well as to examine the problems that arose when using GT and potential solutions to these problems through an analysis of their subjective opinions on the subject. Therefore, the following research questions are addressed:

1. To what extent do university students perceive the use of Google Translate as an aid in their language learning?
2. What problems do university students encounter while using Google Translate?
3. What are their solutions when university students face those problems?

2 Literature review

2.1 Computer-assisted language learning (CALL)

Computer-assisted language learning (CALL) is a term used to describe an interactive approach between a learner and a computer that is used to aid in the acquisition of the second language [4][5][6]. According to Beatty [7], computer-assisted language learning (CALL) is the process of using computers to improve a learner's language abilities. One of the many meanings of CALL, according to Levy [8], is seeking for and studying PC applications in language teaching and realizing. The study discovered that CALL is more feasible than traditional learning methods [9][10][11].

2.2 Mobile-assisted language learning (MALL)

Chickering and Ehrmann [12] established the term MALL (mobile-assisted language learning) to describe the remarkable development of mobile phones. MALL is

a technique of language learning that employs portable mobile devices such as smartphones, tablets, and smartphone applications as learning and educational tools for learners via the online platform [13][14][15][16][17]. Many studies have demonstrated that MALL has a good effect on helping learners develop their language abilities, particularly their English vocabulary [18][19][20]. Aside from that, it assists the development of listening, reading comprehension, and writing abilities [21][22][23][24]. This implies that MALL apps may be utilized as an effective mobile language learning tool [25][26][27][28][29].

2.3 Machine Translation (MT)

Machine Translation (MT) is one of the various software kinds used to transform a source language into a destination language. With the initial effort at automated translation in the 1940s, MT researchers went on a road comparable to that of computer scientists [30]. MT is the primary step toward extracting information from large amounts of foreign material and analyzing it later [31] or helps with literature translation [62] and English long and short sentences [64]. According to Irfan [32], MT is also known as automated translation while Artificial Intelligence (AI) is an area of research. Moreover, GT is a type of computer program that transfers text from one language to another without the aid of a translator [33][34][35]. Sukkhwan [2] noted that there are various viable MT providers as of the date of writing, including Bing Translator, Yahoo Babel Fish, and Google Translate. Millions of individuals have used the online machine translation buttons on a daily basis. The bulk of those clicks will be on free online MT engines, notably those associated with major search engines above [36].

2.4 Google Translate (GT)

Google Translate (GT), a significant member of the Google organization, is a free online translation assistance tool for instantly translating words, phrases, or even web pages [37][38][39][40][41][42]. GT is accessible via two platforms: the web interface and mobile applications (Android and iOS) [37][39][42]. GT is based on Statistical Machine Translation, which means that instead of aiming for word-for-word translation, the system calculates the probabilities of various translations of a phrase being correct. Google Translate allows users to enter the source language in a variety of ways, including using a virtual keyboard, voice recognition, handwriting, the complete document, or the entire uploaded file. Users can also translate text using graphics or photos [40].

2.5 The effects of CALL and MALL on learning

Derakhshan, Salehi, and Rahimzadeh [43] claimed communicative CALL was introduced in the 1970s and 1980s, with personal computers replacing mainframe computers. On personal computers, certain programs were designed to aid in the learning process. Integrative CALL, which first appeared in the 1990s, is the most modern

approach. Its resources were designed to leverage computers and software programs to put learning ideas into practice. As a result, CALL materials facilitate learners' interaction and use of language. MALL, according to Miangah [44], is a brilliant solution for overcoming time and location constraints when learning a language. Teachers might use audio or video chats to provide learning materials to their students and collect feedback, making it more efficient for both teachers and students. Thoušny and Bradley [45] said MALL helps learners enhance language abilities, has no time constraints (may be practiced at any time), and motivates learners, especially it improves students' learning behaviors, provides a good opportunity for EFL learners to practice the English language both inside and outside the classroom, and boosts students' language skills [9][46] [63].

2.6 Previous studies on the use of Google Translate

Learners use GT as a supplemental tool for learning languages [39]. However, participants believed they were unable to translate idioms or proverbs, enhance their speaking and language abilities, and must rely on the Internet to get GT, particularly when they are unsure about its accuracy [38][39][47][48][49][50].

Brahmana, Sofyan and Putri [47] used the descriptive qualitative technique to analyze the challenges of GT. The findings of the study revealed that students frequently had problems with word accuracy and sentence structure. They also cited self-correcting the Google Translate outcomes and evaluating the meaning of the translated words on a regular basis as effective solutions to those problems. Besides, students who had inadequate English skills were becoming increasingly reliant on GT [1][51]. In contrast, other studies demonstrated that the quality of GT translations was superior to the quality of learner translations [1][48][51].

2.7 Conceptual framework

Researchers have identified the benefits of computer-assisted MT in language learning since the 1980s (CALL). The purpose of this study was to show how MT could be used as a MALL tool in foreign language classes [52]. Google Translate, according to Tumbal, Liando, and Ollii [53], has become a well-known machine translation service that has been used by people all over the world. Google Translate is a popular engine because of its easy accessibility, lack of cost, and speedy performance. In order to obtain insight into how students felt about using technology tools to assist them in performing the translation job, their perceptions of the use of Google Translate were also assessed [54]. Google Translate was a tool that could help learners enhance their language learning skills. This translation machine, however, was not thorough. The Google version was not a reliable source because it had a number of problems, especially grammatical errors. Nonetheless, Google Translate could help students improve their language skills [55]. As a result, supplying solutions was required to ensure the quality of its output. The solutions were based on Garcia's [56] with three tactics for using GT to improve learner language learning: pre-editing, post-editing, and selective use.

3 Methodology

3.1 Participants

The total number of participants was 250 university students at a private educational institution in Vietnam. All of the participants were aged from 18-24, who had experiences using Google Translate for learning purposes, in which 15 students were chosen to join the interviews based on their using frequency and perceptions of Google Translate.

3.2 Instruments

The research data were collected through a 5-point Likert-scale questionnaire of 40 questions that were adapted from previous authors [2][49][57][58][59] and semi-structured interviews. The questionnaire applied the 5-point Likert scale [60] to investigate the students' perceptions on the use of Google Translate, particularly the common problems, and their proposed solutions based on the research questions of this study. Participants showed their level of agreement with a value from 1 to 5, accordingly "strongly disagree", "disagree", "neutral", "agree", and "strongly agree". Furthermore, to explore the depth of common problems and recommended solutions from students' using Google Translate, semi-structured interviews were conducted with 15 participants.

3.3 Data collection and analysis

An important part of this study was the development of a pilot study that was used to analyze the sample responses of 30 students (accounting for about 12% of the total of 250) who had experience in using Google Translate to check for the reliability of the questionnaire before submission for data collection and analysis. The reliability of the questionnaire was measured by using International Business Machines Corporation Statistical Package for the Social Sciences (IBM SPSS) Statistics version 25. The Cronbach's Alpha result of the questionnaire ($\alpha = 0.958$) was considered reliable.

Researchers delivered the information sheet and consent form to participants on Google Forms before asking the participants to complete the online survey and participating in the interviews to tell them about the nature and scope of the study.

The questionnaire consisting of 40 questions (28 questions about the use of Google Translate, 6 questions about problems, and 6 questions about solutions) was sent to students of different majors to research their perceptions on the use of Google Translate in learning languages. After receiving the responses from students, the researchers chose 15 students among participants who achieved a high mean value for individual interviews on the platform of Google Meet. The interviews were recorded and manually coded and transcribed by thematic interview protocols.

4 Results

4.1 Results from the questionnaire

Participants answered a questionnaire about students’ perceptions of using Google Translate. In the data analysis, the questionnaire’s descriptive statistics included overall averages and standard deviations about students’ perceptions of Google Translate, namely problems and solutions.

As indicated in Table 1, the overall mean score of the participants who completed the questionnaire was 3.66 ($M = 3.66$, $SD=0.54$). In addition, the result for a One-sample t-test indicated that there was a statistically significant difference in the mean score between 3.66 and 3.0 ($t=19.270$, $p=0.000$) (see in Table 2). As a result, the computed mean score was higher than the average mean scores of the 5-point Likert scale ($M = 3.00$). Hence, students’ objective perceptions about Google Translate were at an above-average level. However, the student’s perception of the problems in using Google Translate ($M=3.94$, $SD=0.70$) was at a high level and their perception of the solutions to solve those problems ($M=3.89$) was at a rather average level.

Table 1. Mean scores of participants’ perceptions

Domains	N	Mean(M)	SD
Use of GT	250	3.56	.59
Problems of GT	250	3.94	.70
Solutions of GT	250	3.89	.74
General Means	250	3.66	.54

Table 2. One-sample t-test of general means (Test value = 3)

	t	df	Sig. (2-tailed)	Mean difference	95% Confidence Interval of the Difference	
					Lower	Upper
General Means	19.270	249	.000	.66600	.5979	.7341

The analysis of participants’ perceptions on the use of Google Translate. As seen in Table 1, the entire mean score of the participant’s perceptions of the use of Google Translate was 3.56 ($M=3.56$, $SD=0.59$). Besides, the result for a One-sample t-test showed that there was a statistically significant difference in the mean score between 3.56 and 3.0 ($t= 14.805$, $p= 0.000$) (see in Table 3). It means the students’ perceptions of the use of Google Translate was only an above-average level.

Table 3. One-sample t-test of perceptions on the use of Google Translate (Test value = 3)

	t	df	Sig. (2-tailed)	Mean difference	95% Confidence Interval of the Difference	
					Lower	Upper
Use of GT	14.805	249	.000	.55843	.4841	.6327

As the results in Table 4, Question 26 (M = 4.50, SD= 0.767), Question 23 (M = 4.34, SD= 0.811), and Question 25 (M = 4.16, SD= 0.863) gained a significantly higher mean score than the other statements. In addition, the result for a One-sample t-test showed that there was a computably significant difference in the mean score between these mean scores and 4.0 ($p < 0.05$). It pointed out the perceptions of Google Translate those multiple languages translation, ease of use, and save time are at a rather high level, thus, these results were suitable with the findings of Septiadi [1], Maulidiyah [38], Thouésny and Bradley [45], Krisnawati [50], Chandra and Yuyun [51], and Tsai [61]. Besides, Question 20 (M = 4.12, SD= 1.098), and Question 24 (M = 4.03, SD= 0.983) had slightly higher results than the others. The result for a One-sample t-test demonstrated that there was not a systematically significant difference in the mean score between these mean scores and 4.0 ($p > 0.05$), indicating that Google Translate quick translation and help students for improving pronunciation were at a high level. It was the same with the findings of Habeeba [48] and Krisnawati [50] related to useful features of Google Translate.

Table 4. Mean score of perceptions on the use of Google Translate

Items	Mean (M)	SD
Question 6: Google Translate makes me lazy to think	2.41	1.278
Question 20: Google Translate can translate texts quickly	4.12	1.098
Question 22: Poor students depend more on GT in learning English rather than average and good students	2.34	.903
Question 23: Google Translate is easy to use	4.34	.811
Question 24: Google Translate can help students to pronounce words	4.03	.983
Question 25: Google Translate can help students save time	4.16	.863
Question 26: Google Translate can translate various languages	4.50	.767
Use of GT	3.56	.60

In contrast, Question 22 (M = 2.34, SD= 0.903) and Question 6 (M = 2.41, SD= 1.278) were the lowest mean scores than other items. The result from a One-sample t-test demonstrated that there was a statistically significant difference in the mean score between these mean scores and 2.0 ($p < 0.05$). The result indicated the poor students did not depend on Google Translate a lot and Google Translate did not make students lazy to think, these problems were only at a low level, which was in line with the results of Esteban, Palawatwichai, and Inpaen [3]. Also, the remaining perceptions on using Google Translate were also at a normal level.

The analysis of participants' perceptions on the problems. As the results in Table 6, the mean score of participants' perceptions on the problems in using the Google Translate process was 3.94 (M = 3.94, SD= 0.70). Also, the result for a One-sample t-test demonstrated that there was not a statistically significant difference in the mean score between 3.94 and 4.0 ($t = -1.303, p = 0.194$) (see in Table 5). The measured mean score had the result approaching a high level of the 5-point Likert scale (M = 4.00). Therefore, the result showed problems that participants faced at the usual frequency.

Table 5. One-sample test of problems (Test value = 4)

	t	df	Sig. (2-tailed)	Mean difference	95% Confidence Interval of the Difference	
					Lower	Upper
Problems	-1.303	249	.194	-.05800	-.1457	.0297

Table 6. Mean score of problems on the use of Google Translate in learning

Items	Mean (M)	SD
Question 29: GT gives some grammatical errors from the translation results	4.30	.83
Question 31: Sometimes GT's outcomes are difficult to understand	4.36	.89
Question 33: GT makes confused about the meanings of words	4.11	.90
Question 35: GT is unable to translate proverbs and idioms	3.96	1.02
Question 37: Using GT's translation results is plagiarism	3.18	1.14
Question 39: I paraphrase the translation results from GT	3.73	1.29
Problems	3.94	.70

In Table 6, Question 31 (M = 4.36, SD= 0.89) and Question 29 (M = 4.30, SD= 0.83) had higher mean scores than the remaining statements. Based on a One-sample t-test, these mean scores had a mathematically significant difference in the mean score with 4.0 (p<0.05). It indicated that the problem of Google Translate giving some wrong grammar and its incorrect outcome was at a fairly high level, which was in line with the findings of Bahri & Mahadi [39], Brahmana, Sofyan and Putri [47], and Zulkifli [49] related to Google Translate giving some grammar errors and misunderstanding about its output. However, Question 39 (M=3.73, SD= 1.29) and Question 37 (M = 3.18, SD= 1.14) obtained a slightly lower mean score than others. There was a computably significant difference in the mean value with 3.0 (p<0.05) from the result of a One-sample t-test. It showed that the difficulty to access Google Translate and the plagiarism of the translation results were only at a pretty average level, participants did not often face these problems in using the Google Translate process.

The analysis of participants' perceptions on the solutions. In Table 8, the overall mean value of solutions to solve the popular problems in using the Google Translate process (M = 3.89, SD= 0.74) was moderately higher than the average level of the 5-point Likert scale (M=3.00). There was a statistically remarkable difference in the mean value between 3.89 and 3.0 (t= 18.951, p=0.000) (see in Table 7). Therefore, solutions that students utilize to solve the problems in the use of Google Translate only at a pretty average level.

Table 7. One-sample test of solutions (Test value = 3)

	t	df	Sig. (2-tailed)	Mean difference	95% Confidence Interval of the Difference	
					Lower	Upper
Solutions	18.951	249	.000	.89200	.7993	.9847

Table 8. Mean score of solutions on the use of Google Translate in learning

Items	N	Mean (M)	SD
Question 30	250	3.94	.96
Question 32	250	3.62	1.10
Question 34	250	3.99	1.02
Question 36	250	3.92	1.07
Question 38	250	3.91	.94
Question 40	250	3.98	1.26
Solutions	250	3.89	.74

According to Table 8, Question 34 (M = 3.99, SD=1.02) and Question 40 (M = 3.98, SD=1.26) had the highest mean value in all statements. As the result of the One-sample t-test, Question 34 and Question 40 did not have an analytically remarkable difference in the mean value with 4.0 ($p>0.05$), showing the perceptions on solutions to resolve the problems in using Google Translate was at a high level. To solve Google Translate making participants confused about the meaning of words, participants often used the dictionary to check the meaning of words, it was the same with findings of Chandra, and Yuyun [51]. Besides, almost all participants installed Google Translate into their mobile devices to be easy to access without the Internet (offline). Conversely, Question 32 (M = 3.62, SD= 1.10) had a lower value than the other items. It showed the solution of asking for the others’ help was only a quite average level because there was an analytically significant difference in the mean value between 3.62 and 3.0 ($p<0.05$) from the results of a One-sample t-test. It meant participants were less used to it than other solutions.

4.2 Results from the interviews

The interview showed that all the interviewees (100%) agreed that they considered GT as a tool to translate, with learning purpose. The participants 12 and 7 mentioned that:

“Google Translate was a tool to support learning such as language learning, translating from one language to another quickly and conveniently...especially for learning English.”

100% of the interviewees said that GT was used to check unfamiliar words. Participants 6 and 14 said that:

“I use Google Translate for learning purposes such as translating complicated sentences or writing essays and for learning purposes such as looking up unknown words.”

The majority of participants rated their satisfaction with GT’s results (about 67%), but the result still had some problems. Participants said that GT had some errors in vocabulary, grammar, and semantics. Participant 4 said that:

“Sometimes I’m not satisfied with the translation results. Google Translate translates wrong grammar, vocabulary, and the meaning of the sentence.”

In terms of semantics, 70% of the total participants said that mistranslation of the sentences or results from the translation was confusing. Participant 8 said:

“Translating word-by-word will have a different meaning, leading to the wrong purpose. Google Translate results are not as expected and confusing. Vocabulary is chaotic, and grammar is automatically omitted.”

About 67% of the participants used other electronic dictionaries to check vocabulary or incorrect words after receiving Google Translate outputs, such as Cambridge, Oxford, and TFlat. Participants 13 and 12 mentioned:

“I use Cambridge, Oxford to correct problems related to vocabulary or I use TFlat to recheck GT's incorrect words.”

The interview dedicated 5 interviewees out of 15 agreed that using other applications or software, such as Grammarly to fix grammar mistakes of Google Translate outcomes. Participant 6 said that:

“I use Grammarly to correct its errors. On the Grammarly page, it will show a yellow or red underline in order to suggest correct words and basic grammar for editing.”

However, interviewees suggested several solutions that were different from the others such as using suggestions from Google Translate, checking on grammar books, checking grammar on QuillBot (another application), and rewriting sentences better than Google Translate. Participant 9 said:

“If I have a grammatical error, I use the Grammarly page to recheck the grammar, then go to QuillBot web to check the grammar one more time and rewrite the sentence to a better level, then select academic words to replace.”

In another question, the interview revealed that most of the participants (70%) agreed that they were still using Google Translate because of its convenient features, such as being free, popular, and quick. Most of them stated that they used Google Translate because it's convenient, fast, and completely free.

5 Discussion

The study's goal was to look at students' perceptions of utilizing Google Translate for learning at a private university. The researchers discovered that students' perceptions of using Google Translate were generally above average after analyzing the data. Three aspects impacted students' perceptions: the use of Google Translate, general problems, and the recommended solutions. According to the findings, students had a favorable opinion on the use of Google Translate for general learning purposes, which was similar to the findings of Habeeba and Muhammedb [48], and Chandra & Yuyun [51].

The first aspect was that students' perceptions of using Google Translate were not high but above average, although they were above average ($M=3.56$, $SD= 0.60$). This section contains 28 questions in which students agreed that Google Translate could translate into a variety of languages. Lower-achieving students, on the other hand, were less reliant on Google Translate in their learning than higher-achieving students.

The second element was students' perceptions of the problems in using Google Translate ($M=3.94$, $SD= 0.70$). Grammar, vocabulary, semantics, idioms, and proverbs were some of the most common problems that students confronted. The first aspect that students were most interested in was semantics. The majority of students believed that Google Translate's results was usually confusing and incorrect, so this result was equivalent to Habeena and Muhammedb [48]. Hence, Google Translate was a machine translation, students commonly experienced problems with the grammar of the produced text. These findings are similar to Groves and Mundt [42], and Zukifli [49], who discovered that Google Translate translations might be grammatically incorrect. As a result, the findings might be less precise than those acquired by human translation. Students, on the other hand, did not consider utilizing Google Translate to be plagiarism. According to Septiadi [1], and Habeeba and Muhammedb [48], students had higher trust in Google Translate outputs than in their own hand-translated translations.

Finally, students' solutions while using Google Translate were not high, only rather average ($M=3.89$, $SD= 0.74$). According to the study's findings, students utilized a range of tactics to enhance their translation outputs, including asking for help from others and using a dictionary or other tools to double-check their work, particularly those who used alternative dictionaries instead of Google Translate. Sukkhwan's [2] and Maulidiyah's [38] results were equivalent. In addition, the students occasionally sought assistance from others.

In addition, students had a high perception of Google Translate problems and found other support tools to achieve complete translations. This is comparable to the point of view of Esteban, Palawatwichai, and Inpaen [3].

6 Conclusion

The findings of the current study indicated that students had positive perceptions on the use of Google Translate in learning languages at their private university, especially the problems when using Google Translate were very regular encounters and the proposed solutions were pretty at an average level. Students utilized Google Translate as an aid to learning, especially the language purpose because of its convenient functions such as translating multi-languages, saving time, using it easily, and improving pronunciation. Despite its benefits for learners, several problems appeared in using the process. Students regularly encountered inaccurate grammar and semantics, sometimes it made learners confused about the meanings of words. Therefore, students found that they had to have distinct solutions to resolve the inaccurate outcomes from Google Translate. Specifically, the majority of students used the dictionary or other translation applications, and the assistance of their acquaintance to examine the vocabulary and semantics. Importantly, students applied their background knowledge to ensure its outcomes when using Google Translate as an aid.

Conducting under the preparation and consultation based on conceptual frameworks from previous research, the study had some limitations in collecting data, including the small size of participants, short time duration, and the study process dur-

ing the Covid-19 lockdown. Moreover, students were in various majors, thus, they used Google Translate at varying levels. This directly affected the student's perceptions of using Google Translate for learning purposes.

The researchers trust that the study is able to be a serviceable reference for others to consider using Google Translate as an aid to learning in general and language acquisition in particular. The study provides greater visibility into Google Translate in learning, including the positive and negative aspects of what Google Translate offers. Therefore, students have perceptions of the duality of Google Translate to take advantage of it in learning and not be affected by their learning habits. In addition, Google Translate would be a valuable learning tool to help students understand more of a text in different fields of study.

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