Use of Google Translate for Translating Scientific Texts: An Investigation with Saudi English-Major Students

Bader Alharbi[1]

[1] Department of English and Translation, College of Science and Arts, Qassim University, Ar Rass, Saudi Arabia

Correspondence: Bader Alharbi, Department of English and Translation, College of Science and Arts, Qassim University, Ar Rass, Saudi Arabia.

Abstract

English is not the first language in Saudi Arabia, which makes most students face problems with the most used language globally, consequently pushing most Saudis to use the Google Translate (GT) application. This paper reports the attitudes and perceptions of Saudi EFL students on using Google Translate, the strategies applied, the number of editions they make, and the reasons for amending the Google Translate outputs. The study sample comprised 43 English major students at Qassim University, Saudi Arabia. A validated questionnaire was used for data collection, followed by translation tasks where the participants would do translations between English and Arabic languages. Results showed that most of the participants frequently used GT in their English learning. The results also indicated that Saudi EFL students frequently edited the syntax produced by GT in addition to checking the meaning of some new words. The study concludes with some recommendations, most importantly that Saudi EFL students should be motivated and encouraged to make use of GT to conserve their time; however, total dependency is not welcome.

Keywords: advantages, English learning, foreign English learners, Google Translate (GT), scientific texts, Saudi learners

1. Introduction

Google Translate (GT) is one of the many Google products that enables users to translate words and texts from one language to another. Although it is not the first such product developed for translating languages, GT has become a popular and successful one due to the large volume of users that resort to it to translate words or texts from other languages to English (Ducar & Schocket, 2018). With advanced technology, most people own computers, have adequate internet access (Bin-Hady *et al.,* 2020), and opt for online translation over human translation (Murtisari *et al*., 2019). Earlier on, EFL learners relied on the manual dictionary, which was difficult for many, time-consuming, and strenuous. GT is a very reliable free tool that can translate words between English and over a hundred languages (Alhaisoni & Alhaysony, 2017; Latief *et al.,* 2020). It is the most used online translation resource. GT is also compatible with computers and smartphones, which mainly contributes to its heightened and preferred usage. GT is an indispensable translator that helps people to communicate across languages better and more effectively (Benda, 2014; Shadiev *et al*., 2018). Aside from communicating with people from foreign countries, GT is also used by EFL writers and students (Chandra & Yuyun, 2018; Tsai, 2019). It is the most used online translation resource because it is user-friendly, fast, and free. For example, many EFL writers use GT to check the quality of their translation and to ensure they have not lost meaning in their written text (Cancino & Panes, 2021). Also, GT is an excellent source for foreign language learners because it can help them understand the meaning of certain words and expressions. Due to its wide use, especially by students in Saudi Arabia (Alhaisoni & Alhaysony, 2017; Alhaysony, 2017, Bin Dahmash, 2020), it is vital to study hitherto unexplored dimensions in the Saudi EFL context (Alzabidi & Al-Ahdal, 2021; Murtisari *et al*., 2019), for example, the purpose of GT, attitudes, and behaviors towards helping students learn English in Saudi Arabia. It is also essential to evaluate its advantages and disadvantages and weigh between them to determine if necessary to build appropriate recommendations for development. The study also investigates the benefits, problems, and drawbacks of the use of GT by Saudi students to determine how it influences their progress in English learning.

*Research objective*s

The study aims to:

1. Find out the frequency of GT use by Saudi EFL learners for different learning purposes.
2. Determine the Saudi EFL students' attitude towards GT use in their language learning.
3. Investigate the frequency of use and reasons behind editing of GT outputs by Saudi EFL learners.

Research questions

1. What are the Saudi EFL students' attitudes towards GT use in their language learning?
2. How frequently do Saudi EFL students apply strategies while using GT for different learning purposes?

3. Why and in what volume do Saudi EFL students edit the output of GT?

2. Literature Review

Many of the previous studies reported that the majority of EFL students use Google Translate (GT) in their learning (Chandra & Yuyun, 2018; Malang, 2019; Tsai, 2019, Bin Dahmash, 2020). EFL students use GT for various purposes, for example, to translate the meaning of unknown words, and to produce and edit their writing tasks (Chandra & Yuyun, 2018; Chompurach, 2021; Tsai, 2019). Besides, previous studies focused on the perception of students on the use of GT (Alhaisoni & Alhaysony (2017; Tsai, 2019); others on the purposes that students applied GT to (Chandra & Yuyun, 2018; Chompurach, 2021; Malang, 2019); or the strategies applied by EFL students while using GT (Jaganathan *et al.*, 2014).

Tsai (2019) studied the perceptions of Chinese EFL students on the use of Google Translate as a composition tool. Students were exposed to 5 minutes of movie clips and told to write a reflective essay based on them. They wrote the text in Chinese and then used Google translate to convert the output into English. Students' perceptions of using GT for writing and revising self-written texts were gauged. Results showed that students perceived that using GT to write was better than writing directly in English due to lesser spelling and grammar mistakes in the former, and the enriched vocabulary available. Besides, the study reported that using GT to revise students' writing helped improve students' self-written English texts significantly.

Chandra and Yuyun (2018) investigated the Ukrid (Indian) EFL students' application of GT in essay writing. The study explored both perceptions and performance of the participants on using GT. Results classified students' use of GT in writing to check vocabulary, spelling, and grammar. The study also reported that students use GT as a dictionary to look up words for their writing.

Alhaisoni and Alhaysony (2017) measured the attitudes of 92 Saudi EFL students on GT. She used a questionnaire with the participants' responses to which showed that all the participants used GT to assist them in vocabulary, reading, and writing among other things. Students used GT to look up unknown words, in their writing and in translating reading texts.

Chompurach (2021) investigated the use of GT in the Thai EFL context as a writing assistant tool. The study participants were 15 EFL students in Thailand. Findings showed that all Thai students used GT to do their sentence or paragraph writing tasks. Findings also revealed the majority of the students post-edited their GT-assisted writing before submitting them while a few students trusted GT more than themselves and submitted the tasks as produced by GT.

Jaganathan et al. (2014) explored the use of GT in decoding texts as well as the strategies EFL students applied to select appropriate meanings. The study reported that students are familiar with the use of GT in translating words. The study showed that using GT plays important role in raising students' decoding of the meaning of semantic units. Furthermore, GT suggested many meanings for words associated with the appropriate cultural contexts.

Google Translate in Saudi Arabia

Bin Dahmash (2020) analyzed the application of GT by foreign language learners in Saudi Arabia. In her study, she found that almost all the second language learners in Saudi Arabia frequently used GT to enhance their language learning. Bin found that majority of the users were highly optimistic about the GT App and admitted that it is essential in their language learning. They admitted to the use of GT for learning new vocabulary, writing, reading, and comprehending texts written in a foreign language. Furthermore, Alhaisoni and Alhaysony (2017) also researched EFL students' perception of GT use in their foreign language learning. They found that most users had a positive attitude towards GT as it is free and reliable. They revealed that they could all afford it and access it anytime if they owned a computer or a smartphone and had a reliable internet connection. The participants also indicated that GT was quicker than human translation, which saved their time and enabled them to finish their assignments and homework on time. Alhaisoni and Alhaysony (2017) reported that some of the participants also had a negative attitude towards GT use. They claimed that it reduced their desire to read extensively as GT acts as a shortcut. They also admitted that GT use affected their thinking and comprehension of texts as they no longer attempted to figure out their meanings without the help of GT. Alsalem (2019) explored the use of GT on boosting Saudi EFL students' abilities in translation. The study analyzed the think-aloud data of 4 participants. The study showed that students over depended on GT at drafting the first version of the text. Findings showed that the use of GT minimizes the students' search for equivalents. The study also reported that students post-edited their texts by analyzing the translated text. Post-editing is reported to be of great importance in enhancing the GT production.

3. Methods

Research design

The study used a quantitative approach to investigate how the students used the GT for their English learning, their attitudes, and their reference behaviors. The study also explored the advantages, drawbacks, issues, and concerns associated with using GT. The study was conducted at the English and Translation Department, for the first semester of the academic year 1444 AH. Data were collected via an online questionnaire and translation task form and statistically analyzed using SPSS 21 software package.

Participants

The study recruited 43 Saudi English majors aged between 19 and 21 years. The 43 students were asked to fill out the close-ended questionnaire, and 20 students out of the total number were randomly selected to participate in the translation task. All the participants were enrolled in the eighth level in the English Department at Qassim University, Saudi Arabia, with the inclusion criteria being the Arabic

language as their first language and English as their foreign language. Their proficiency levels varied from intermediate to advanced. These participants were chosen based on their enrollment and attendance to the same course. The students explained the purpose of the test and questionnaire. Their consent was duly taken verbally as per the university regulation at the beginning of the study. Furthermore, the researcher obtained the approval letter from the committee of the deanship of scientific research at Qassim University dated (Sep. 24, 2022) to conduct the study. The students were taking a translation course which was about scientific texts and how to deal with specialized texts and complex terminology when translating. Moreover, the course aimed to develop students' translation skills and knowledge by exposing them to specialized texts in various scientific and medical fields. It also involved dealing with unknown terms and employing dictionaries to reach the equivalent meanings. This meant that this group fairly represented a homogeneous sample.

Instruments

The primary research instrument for this study was a questionnaire asking the students about their reasons and perceptions of using GT. The students were required to fill out questionnaires on their attitude towards the use of GT, their GT use frequency, their linguistic needs, and the advantages and disadvantages of using GT. Another research instrument was a translation task, where the participants were required to translate English into Arabic using GT to accomplish the task.

Questionnaire

The questionnaire consisted of 12 items with a Five Point Likert Scale. The first part was designed to measure the students' perceptions of the use of GT as a learning tool. The second part which included 4 items aimed to explore the frequency of other/ accompanying strategies used along with GT. The items were refereed by three specialists in Translation and Applied Linguistics.

Translation task

After the students chose the reading articles, they were given two hours to complete the translation task. They were instructed to complete this task by choosing the Google Translate app or Google Web Translate. The students had to submit two documents: the summary, and the task record form, which included information about (1) their reason for choosing the news reading text, and (2) looked-up words, their meanings, and word classes.

Procedures

The students were asked about their desire to voluntarily participate in the translation task of the current study. Although there were more than 20 students who indicated that they were willing to engage in the translation task, the number of participants was limited to 20 for the purposes of this study. After that, the students were instructed on how to complete the form by having them practice doing so while translating the chosen texts. This is done so that the participants in the study do not have any misunderstandings that could be caused by the details included in the form. The researcher made sure that the GT was available to every participant in the study. The students were instructed to read both of the passages over separate class periods. The total time allotted for the session was two hours. It was made clear to the students that the answers they provided would not be used in any form of evaluation for the translation course that they were currently studying and were only for research purposes. In addition to that, they were informed that their identities would be concealed. The task form consisted of three main sections: (1) students were required to provide the sentence(s) with which they faced difficulties; (2) students were asked to write the words that posed a challenge to them; and (3) students were requested to write their opinion on the output translation and indicate whether they changed or improved the translated sentence obtained from the GT.

4. Results

RQ 1: What are the Saudi EFL students' attitudes towards GT use in their language learning?

Table 1 shows the participants acknowledged the benefits of using GT as a tool for translating and learning as shown. Table 1 shows that about two-thirds (51%, 21%) of the students positively perceived the role of GT in helping them in their language learning. 72% of them agreed that GT made them feel more confident when using it for text translation. This means that the use of GT for the translation of texts makes the translation more accurate. 67% of the students revealed that they preferred GT as it is a free app and highly reliable. They affirmed that they could easily access it from their PCs and smartphones without any cost. Most students were positive about it, claiming that GT is quick in translation, reliable, and easily accessible. 87% agreed that GT provided a very quick translation for their text. This feature allows many students to save their time when looking for lexical information.

Table 1. Saudi EFL students' attitudes on the use of GT

Statement	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
1. I feel more confident when using GT for text translation	72%	22%	3%	2%	1%
2. I prefer using the GT because it is a free dictionary and easy to use.	67%	19%	3%	5%	6%
3. GT can provide very quick translation for texts.	87%	10%	1%	2%	0%
4. I understand English passages better with the assistance of GT	37%	28%	10%	14 %	11 %
5. I feel satisfied with the texts translated by GT	50%	25%	7%	10.0 %	8.0 %
6. GT has more benefits than drawbacks	48%	18%	2%	17%	15%
7. The quality of GT's translations is better than mine.	28%	22%	14%	20%	16%
8. GT is very effective for students of all levels of English proficiency.	22%	27%	15%	24%	10%
Average	51%	21%	7%	12%	8%

RQ 2: How frequently do Saudi EFL students apply strategies while using GT for different learning purposes?

Table 2 exhibits the frequent use of accompanying strategies along with GT. Table 2 shows that an average of 33% of the participants always used other strategies along with GT when translating scientific texts. Similarly, 28% of them often used the strategies of editing, comparing the output, and tapping the new words to select appropriate meanings. Furthermore, 19% of them, sometimes used such accompanying strategies. On the contrary, just 12% and 9% of the participants seldom and never used such strategies respectively.

Table 2. Frequency of applying other strategies along with GT

Statements	Always	often	Sometimes	Seldom	Never
I edited the GT-translated output after finishing the translation process.	45%	29%	11%	8%	7%
I read the whole text before referring to GT.	39%	28%	18%	9%	6%
I use GT to look for the meanings of unknown words.	36%	21%	19%	14%	10%
I use GT to translate the whole text.	30%	33%	19%	11%	7%
I tap on the new words to select the most appropriate meaning to see the other possible meanings	15%	27%	28%	17%	13%
Average	33%	28%	19%	12%	9%

Table 2 indicates that 45% of the students admitted to always editing the GT-translated text while 7 % never edited the GT-translated output. In the task form, students who had edited the output claimed that their actions aimed at two different objectives: improving the accuracy and understandability of the output and, enhancing the quality of translation. Most of the participants thought that they should engage in some kind of self-editing during the translation process. In order to deal with the coherent and logical connection problems, almost all of the participants tried to modify the output. 39% of the participants admitted always considering reading the whole text before referring to GT. Students used this strategy to improve their translation and the overall flow of the GT output. The students demonstrated in the task form the need to modify the GT outputs in different sentences over the translating passages to improve the quality of the translation. 36% claimed to always use GT to look for the meaning of unknown words in the GT. In the task form, students were asked to write the words that they believed created difficulties for them. Students utilized GT to check the meanings of the unfamiliar words in the text. This could be because the students were interested in the process of translation, or they could just want to ensure that the appropriate word was selected. 30% of the students agreed to use the GT to translate the whole text, whereas 33% often used it to translate the whole text. This may indicate that students choose the easiest way to translate English texts, especially those students who do not know much about their mother tongue or whose English is poor. 15% of the students agreed to look for all the possible meanings of a word to select the most appropriate meaning. This skill may be used by the students because they wanted to make sure they had used the most suitable word.

RQ 3: Why and in what volume do Saudi EFL students edit the output of GT?

The students' procedures for using the GT to translate the tasks are laid forth in Table 3. It details how many sentences were modified and how many words were looked up by each editor. Some examples of student behavior with the GT-translated texts are provided in the table below. As already established, the students revised the GT-translated products. A total of 381 sentences were revised by the students. They explained several reasons behind their modifications:

- The translation was weak, confusing, unclear, not understandable, or not correct, the need to change the sentence order to be more compatible with Arabic syntax.
- To change the English word (eg., *Tarbela*).
- GT failed to know the class (F) and (C) of the fly ash.
- The style is not accurate.

They focused on some of the key factors that prompted them to revise the final translation product. The total amount of referenced words, 523, is also included in the table. The reason that prompted the students to check the meaning of the difficult words was that they wanted to confirm the meaning of the word. They presumably wanted to clearly understand the sentence before starting the editing process.

Table 3. Students' reasons and the volume of editing the output of GT

Students	Number of edited sentences	Reasons for modifications	Number of looked-up words	Reasons to use the GT
S1	13	• The translation was not correct • I need to change the sentence order • The translation is weak • To change the English word (Tarbela) • Unclear translation • Confused translation • GT failed to know the class (F) and (C) of the fly ash • The style is not accurate • The translation is not understandable • Rearranging the words in a way more compatible with Arabic syntax • The translation lacks accuracy in terms of style. • Some words were written in English	29	• The words were difficult • Difficult terms and abbreviations • Many scientific words • Complicated passages • First time to come across these words. • The words were difficult • Texts were too scientific • To make sure of my translation • To know some unknown meaning of words • I wanted to understand the passage • The texts were long • The GT is very quick • I needed to finish the task before the time end • The task is difficult • To improve my translation.
S2	15		15	
S3	18		25	
S4	17		20	
S5	20		24	
S6	10		18	
S7	13		21	
S8	18		28	
S9	24		34	
S10	27		29	
S11	15		28	
S12	24		32	
S13	31		43	
S14	22		22	
S15	20		28	
S16	27		36	
S17	17		21	
S18	13		19	
S19	15		27	
S20	24		24	
Total	**381**		**523**	

Some samples of the edited translations by the students are listed in Table 4. Students' editing attempts to improve the quality of the output translation by the GT. Table 4 shows that student 7 made more than 13 changes to the GT translation and referred to the dictionary to look up the definition of 21 different words. This could imply that student 7 needed a second look at the translations of some words. Students mentioned the reasons for them to refer to the GT to look up the new words because *"the words were difficult", "difficult terms and abbreviations", "many scientific words", "complicated passages", "first time to come across these words", "words were difficult", "texts were too scientific".* The students also explained in the form that the GT failed to provide the meaning of the word "Tarbela", which referred to a well-known dam in Pakistan. This may indicate GT's lack of knowledge about the translation context which may affect the quality of the translation.

Student 3 made changes to 18 sentences and referred to the GT to check the meaning of 25 words. He stated that the GT did not provide an accurate translation to the sentence according to the Arabic language syntax. He mentioned that he needed to rearrange the order of the sentence to make it start with a verb (تنشر) instead of the noun (القوائم). In Arabic, a verbal sentence begins with a verb and is followed by the subject of that verb. This is different from the English sentence which starts with the subject followed by the verb and then the object (SVO). It seems that GT translates word by word which makes the translation output grammatically incorrect.

Another example of this can be seen in the work of student 5, who in order to enhance the quality of the translation made, 20 different edits and 24 word-meaning check-outs. According to him, the translation of the GT was of very poor quality and lacked clarity. Therefore, it was necessary to perform editorial work on the translation to enhance the translation outputs. In other words, GT translation is inaccurate and does not convey the exact meaning of the original text.

Table 4. Examples of students' editing of GT

students		
S7	Original text (OT)	The repair of the collapsed intake tunnel of Tarbela Dam proved that the material had more than adequate strength and durability.
	Google test (GT)	وأثبت إصلاح نفق السحب المنهار لسد Tarbela أن المادة لديها أكثر من القوة والمتانة الكافية
	Edited text (ET)	وقد أثبتت عملية إصلاح نفق السحب المنهار في سد تاربيلا أن لهذه المواد ما يكفي من القوة والمتانة.
S3	OT	Lists and supplements thereto published by Grove and distributed by it showing suggested resale prices of Products and Parts.
	GT	القوائم والملاحق التي تنشرها Grove وتوزعها توضح أسعار إعادة البيع المقترحة للمنتجات والأجزاء.
	ET	تنشر وتوزع شركة جروف قوائم ومعلومات تكميلية تبين الأسعار المقترحة لإعادة بيع المنتجات وقطع الغيار.
S5	OT	Inspection, starting and testing of Products and Parts as applicable at the time of their delivery to initial users, as specified in the applicable Service report form of Grove
	GT	فحص وبدء واختبار المنتجات والأجزاء حسب الاقتضاء في وقت تسليمها للمستخدمين الأوائل ، كما هو محدد في نموذج تقرير الخدمة المعمول به منGrove
	ET	تتم معاينة المنتجات وقطع الغيار وتشغيلها وتجربتها حسب النظام المعمول به وقت تسليمها إلى اوائل المستخدمين حسب الاجراء المتبع في نموذج تقرير الخدمة المعمول به من قبل شركة جروف

In conclusion, it can be said that the students encountered great difficulties regarding the quality of the translation while using GT. The

participants of this study performed various editing attempts to improve the quality and increase the clarity of the translation. Another significant observation was that the students looked up words in the dictionary to verify the meaning of specific keywords given by GT. This is crucial because it suggests that the students do not believe the initial version of the translation.

5. Discussion

The findings of the study reported that the majority of the participants acknowledged the benefits of using GT as a tool for translating and learning. This finding indicated the positive awareness that Saudi learners have towards using technology and its applications for their learning. This finding has earlier been confirmed by Pham *et al*. (2022) who found that GT was preferred by most of the students in their study for its quick features to provide meanings. It helped them understand complex concepts learned in class, which significantly improved their foreign language learning. The findings concur with Bin Dahmash (2020), who found that more than 90% of the Saudi students majoring in English preferred GT over human translation since it was quick and gave more quality results than theirs. Alhaisoni and Alhaysony (2017) found that most students frequently used GT to improve their vocabularies, enhance their writing and communication skills and increase their reading and understanding capabilities by translating difficult words and phrases.

The study found that Saudi EFL learners frequently used other strategies along with GT on the produced texts like editing, checking for the suitable meaning of words, etc. This finding is of great importance. It shows that Saudi students make use of GT to do their tasks, but they did not depend on GT outputs completely. This finding is in line with Chompurach's (2021) study which showed that all Thai students used GT to do their sentence or paragraph writing tasks and the majority of them edited the output. Furthermore, this result confirms the result of Maulidiyah (2018) who reported that 50% of the participants showed satisfaction with texts translated by GT. The GT output is excellent and satisfying and might enable EFL learners to develop their confidence for independent learning. 48% of the students felt that more positives could be found in GT than negatives. It helped them reliably and quickly handle their assignments and homework. 28% of the students were satisfied with the GT results, as they claimed that GT gave better quality results than they would have if they did it by themselves. Moreover, the students positively agreed that GT is highly helpful in their English learning. 22% of the participants thought that GT was effective for all students, no matter how well they knew English. Bin Dahmash (2020), however, argues that GT is not meant to replace the human translator but to enhance their efficiency. Therefore, students should be aware of its limitations and avoid them accordingly.

The study also reported that students used GT as a dictionary to look up words for their writing as also reported by a previous study (Chandra & Yuyun, 2018). Furthermore, students with a low level of English may depend on GT. This is what Tsai's (2019) findings showed as students perceived that using GT to write was better than writing directly in English due to the less number of spelling and grammar mistakes, and the enriched vocabulary used. Besides, the study reported that using GT to revise students' writing improved students' self-written English texts significantly. Likewise, Alsalem (2019) reported that Saudi students' use of GT minimized their search for equivalents, they post-edited their texts by analyzing the translated text.

Finally, the study found that students edit the sentences of GT output and choose suitable words. They reported that they edited the GT sentential outputs because they are unclear on comparing them with the Arabic syntax, or could not figure out the meanings of some words. This finding indicated the level of awareness that Saudi students developed in their use of the GT app. They did not forget to seek naturalness in their translation even if they had used GT.

6. Conclusion

The study revealed that foreign language students extensively use GT to enhance their language study. They also have a positive attitude towards the app and call it highly useful in learning foreign languages. They revealed that GT was reliable and easily accessible, which immensely helped translate and comprehend the new language. The study also revealed that Saudi students applied other (additional) strategies over the GT products like editing and looking up the suitable meaning of new words. Furthermore, the study showed the volume of editions that students made on GT outputs for several reasons indicating that the GT sentences were unclear, confused, or they do not appear compatible with the Arabic syntax. Some reported that the meanings of some words were checked searching for the most appropriate ones to reach naturalness.

The study explored the use of Google Translate from different perspectives. It bridges the gap of how Saudi students use GT for translating literary texts. The study outperformed the frequently and often conducted research studies which explored the perceptions of students and frequent dependency on GT.

7. Recommendations

Based on the findings of this study, it is recommended that translation and language teachers at the higher education institutions educate their students in the judicious and reliable use of tech tools in translation. GT and other such apps can be great tools in the learning process, but can still not replace the human mind, at least, not in the immediate future. Therefore, a more robust but tech-enabled learning environment in the language and translation classrooms is the need of the hour.

8. Limitations

Though a unique study in terms of aims and objectives, it is recommended that future studies classify the source of mistakes in the GT outputs associated with Arabic syntax and investigate how to minimize their occurrence by rephrasing the source texts before translating them. The other limitation of this study has been the limited data that was analyzed though there are genuine administrative and academic reasons for that. Future studies, therefore, may work on expanded and/ or more diverse data.

References

Alhaisoni, E., & Alhaysony, M. (2017). An investigation of Saudi EFL university students' attitudes towards the use of Google Translate. *International Journal of English Language Education*, *5*(1), 72-82. https://doi.org/10.5296/ijele.v5i1.10696

Alsalem, R. (2019). The effects of the use of Google translate on translation students' learning outcomes. *AWEJ for Translation & Literary Studies, 3*(4), 46-60. https://doi.org/10.24093/awejtls/vol3no4.5

Alzabidi, A. S., & Al-Ahdal, A. A. M. H. (2021). Translanguaging in Saudi classrooms: A study of upper secondary learner perceptions. *Journal of Language and Linguistic Studies*, *17*(3), 1680-1689.

Benda, J. (2014). Google Translate in the EFL classroom: Taboo or teaching tool? *Writing and Pedagogy*, *5*(2), 317-332. https://doi.org/10.1558/wap.v5i2.317

Bin Dahmash, N. (2020). 'I can't live without google translate': a close look at the use of google translate app by second language learners in Saudi Arabia. *Arab World English Journal (AWEJ)*, *11*(3), 226 -240. https://doi.org/10.24093/awej/vol11no3.14

Bin-Hady, W. R. A., Al-Kadi, A., Alzubi, A. A. F., & Mahdi, H. S. (2020). Assessment of language learning strategies in technology-enhanced learning environment. In *ICT-Based assessment, methods, and programs in tertiary educatio*n (pp. 83-99). IGI Global. https://doi.org/10.4018/978-1-7998-3062-7.ch005

Cancino, M., & Panes, J. (2021). The impact of Google Translate on L2 writing quality measures: Evidence from Chilean EFL high school learners. *System, 98*, 102464. https://doi.org/10.1016/j.system.2021.102464

Chandra, S. O., & Yuyun, I. (2018). The use of google translate in EFL essay writing. LLT Journal: *A Journal on Language and Language Teaching, 21*(2), 228-238. https://doi.org/10.24071/llt.v21i2.1539

Chompurach, W. (2021). "Please let me use google translate": Thai EFL students' behavior and attitudes toward google translate use in English Writing. *English Language Teaching*, *14*(12), 23-35. https://doi.org/10.5539/elt.v14n12p23

Ducar, C., & Schocket, D. H. (2018). Machine translation and the L2 classroom: Pedagogical solutions for making peace with Google translate. *Foreign Language Annals, 51*(4), 779-795. https://doi.org/10.1111/flan.12366

Jaganathan, P., Hamzah, M., & Subramaniam, I. (2014). An analysis of Google Translate use in decoding contextual semanticity among EFL learners. *Asian Journal of Research in Social Sciences and Humanities*, *4*(8), 413-425. https://doi.org/10.5958/2249-7315.2014.00962.9

Latief, M. R. A., Saleh, N. J., & Pammu, A. (2020, October). The effectiveness of machine translation to improve the system of translating language on cultural context. In IOP Conference Series: Earth and Environmental Science (Vol. 575, No. 1, p. 012178). IOP Publishing. https://doi.org/10.1088/1755-1315/575/1/012178

Maulidiyah, F. (2018). To use or not to use Google Translate in English language learning. *Jurnal Linguistik Terapan*, *8*(2), 1-6.

Murtisari, E. T., Widiningrum, R., Branata, J., & Susanto, R. D. (2019). Google Translate in language learning: Indonesian EFL students' attitudes. *Journal of Asia TEFL, 16*(3), 978-986. https://doi.org/10.18823/asiatefl.2019.16.3.14.978

Pham, A. T. (2022, May). Investigating Factors Affecting ESL Students in Translation in Higher Education. In *Proceedings of the 7th International Conference on Distance Education and Learning* (pp. 273-278). https://doi.org/10.1145/3543321.3543366

Shadiev, R., Wu, T. T., Sun, A., & Huang, Y. M. (2018). Applications of speech-to-text recognition and computer-aided translation for facilitating cross-cultural learning through a learning activity: issues and their solutions. *Educational Technology Research and Development, 66*(1), 191-214. https://doi.org/10.1007/s11423-017-9556-8

Tsai, S. C. (2019). Using google translate in EFL drafts: a preliminary investigation. *Computer Assisted Language Learning, 32*(5-6), 510-526. https://doi.org/10.1080/09588221.2018.1527361