

**The Effects of Using Machine Translators on the Performance of Second Language
Learners**

Kasey Myer

Honors College, Indiana State University

GH 401: Honors Independent Study

Dr. Gregory Bierly and Mr. Matt Bird

May 6, 2024

Abstract

With the rise of technology has also come the development of various online language translators and artificial intelligence that are often utilized by individuals learning a second language. However, there is a wide range of quality between the different machine translation tools, and many people tend to be under the impression that it is inferior to the quality of interpretations provided by human translators. This paper considers the positives and negatives of machine translation as a tool for second language learning. Variations between the input and output languages on a grammatical and cultural level are analyzed. Machine translation is compared to techniques brought forth by human translators. Online language translator usage in and outside of the classroom setting is examined. It was concluded that cultural context is often left out of machine translation due to a tendency to translate literally from one language to another. Overall, it appeared that rather than replacing human translation with machine translation, professionals prefer to utilize a combined method called machine translation post-editing. However, second language learners are still able to use online language translation to their advantage in practice, such as in conversation with chatbots. It is also suggested that the usage of machine translation impacts professionals in a “real world” setting, such as teachers and speech-language pathologists.

Keywords: machine translation (MT), second language learners, post-editing, artificial intelligence (AI), human translation

The Effects of Using Machine Translators on the Performance of Second Language Learners

Language is a uniquely complex element of human development. There are numerous ways to approach language. Each individual has a slightly different path towards acquiring their first or second language. Even a pair of siblings raised in a very similar environment may reach language development milestones at different stages in childhood. One unique aspect of human language that differs from forms of communication displayed by other animals, such as bee dances designed to inform other bees of where to find pollen, is that it changes. The form of the English language spoken by modern day native speakers would be unintelligible to speakers of Old or Middle English. Because languages evolve so quickly, each person develops their own set of vocabulary, figurative language, proverbs, and beyond, each specific to their culture. Geography can also play somewhat of a role in this: speakers of English from England may have an entirely different set of everyday language than speakers of English that grew up in New Zealand.

It is commonly estimated that there are over seven thousand languages spoken worldwide, many of which have dialects within that language depending on the region. While many countries have official national languages, it is common for citizens to be bilingual or multilingual beyond that. For example, though there are several other languages or dialects spoken in France, French is the only one labeled as an official language. The United States, on the other hand, has no official language, although English is considered to be the most widely spoken.

This diversity of language presents a challenge for speech-language pathologists because their mission is to assist with speech and language concerns while taking multicultural

differences into consideration. For that line of work, it is imminent that the clinician takes the necessary steps to provide the most beneficial support for that client. Teachers face similar concerns, because while their expertise does not revolve around the intricacies of speech and language, they must also take multicultural differences into consideration, and may teach students whose primary language does not match their own. There is a growing demand within the fields of education and communication sciences and disorders for professionals with experience in foreign languages and language studies.

Within the last few decades, the internet has grown drastically, and with it, machine translators such as Google Translate have sprouted. Not only are there applications to plug in the words or sentences one wants to use in another language, but individuals can also utilize options on social media to translate something posted in another language. Online translation was groundbreaking for second language learners, for both formal and independent study. Recently, with the introduction of public access to artificial intelligence (AI) systems such as ChatGPT, some aspects of second language acquisition seem easier from the perspective of second language learners, because they can be used to simulate conversations in the foreign language.

However, while there seem to be many advantages from the point of view of a second language learner, online translation has been met with its fair share of skepticism. Currently, it seems to be that machines may be unable to replicate the accuracy and nuance present in translation and interpretation by humans that understand the cultural context and the flow of each language. While modern machines can be programmed to add vast amounts of vocabulary to their set of data and may even be able to pick up basic grammar structure, to people that are proficient in the target language, the phrase or sentence produced by the online translator may seem unnatural or confusing. Similarly, a foreign text translated into one's native language via

online translation could seem confusing or incoherent. This may be due to the fact that languages are largely influenced by the surrounding culture, as well as the fluidity of language.

Language is constantly evolving, leading to new slang terms or phrases. Modern speakers may not recognize some words from the internet or from textbooks because they are older and not used anymore or feel too formal. Each language has its own proverbs and figurative language, and a lot of jokes will be based off of the vocabulary of that language, meaning they will likely not translate directly into another language. There may also be aspects of one culture or society that don't quite exist in another culture. For example, the Republic of Korea is built on the premise of a hierarchical society, involving honorifics and seven levels of speech. Korean speakers address their elders and strangers with words and verb conjugations that offer more respect than what they would use with people the same age or younger than them (Portner et al., 2022). This is unfamiliar to native English speakers because English does not have speech levels in that way. So, machine translation from English to Korean is difficult because it may not translate to the correct speech level for the user's intended interaction.

The process of learning a first or second language can last a lifetime, and online resources such as translators and AI systems supposedly facilitate the process of switching from one language to another and help with second language practice activities. However, the effect of using machine translators on the performance and proficiency achievement of long-term language learners is unknown. Although internet databases are efficient at storing information such as vocabulary, online translators may have difficulty accurately interpreting to or from a foreign text and may lack the cultural context necessary to convey the significance of it. While online resources such as translators can be convenient and beneficial sources of practice during the process of learning another language, human translators and interpreters can also provide the

cultural context that machines may lack, which is beneficial for language learners looking to gain proficiency.

How do factors specific to each language impact the ability to use online tools to translate from one language to another accurately?

Each language is an intricate network with its own array of rules that address morphology, phonology, syntax, semantics, and pragmatics. For world languages such as Chinese and English, many resources are easily accessible for the public to utilize. However, machine translation (MT) may not have the database to support regional languages that have fewer available resources, including Kazakh. Some language differences, such as tenses and particle use, may also confuse the MT systems. Additionally, the literal meaning of a word might be the same between languages, but each language may use the word in different contexts. Alternatively, one language might use one word for various situations while the other changes the word for different contexts, such as the use of the word “biscuit” in the United States versus England.

How might a lack of cultural considerations impact the accuracy of machine translators?

Language is directly influenced by the culture surrounding it. For example, as previously stated, Korean uses honorifics and involves seven levels of speech depending on different situations (Portner et al., 2022). How one might interact with an older stranger in a store might differ from how they speak to a younger friend of theirs. On a larger scale, literature and expressions such as figurative language and proverbs are all closely tied to culture. Successful online translation should provide translations that have semantic and communicative equivalence to that of the original text.

How does this differ from consulting human translators?

Over the past few decades, as technology has rapidly advanced, so has the production and use of machine translators. It has provided a quick, straightforward way for individuals to switch between their native language and a foreign one. MT has grown in popularity with foreign language learners as well as individuals looking to translate a text from a language they are unfamiliar with. But can technology actually replicate the accuracy of human translation? Humans with high levels of proficiency in a language can apply the patterns of that language, such as grammatical structure, accurately. They also have the ability to internalize cultural implications from one community and its language that do not exist in another language. In MT, depending on a variety of factors including which languages are paired, a faulty translation that confuses native speakers of the target language may be produced. Generally, MT is not perceived to be as nuanced as human translation.

How does the use of online translators impact the performance of second language learners in the classroom and in “real world” contexts? Can they still be utilized to an advantage?

With the introduction of MT and AI, foreign language learners have begun to use it as a means of facilitating and hastening the process of translating from one language to another. Many students take advantage of the advanced technology for assignments to save themselves from excessive time and effort. However, like any other internet tool, there may also be opportunities to use machine translators and AI systems to improve the performance of second language acquisition. Because it is largely unprecedented, foreign language teachers have had to consider implementing various policies in regards to use of AI and MT overall to address academic dishonesty on assessments as opposed to checking their own work and putting their own abilities to the test.

While one seemingly common belief is that machine translation is less effective than human translation, there appear to be several advantages and disadvantages for both machine translation and human translation. Each language has a number of morphosyntactic features that determine how the language operates and cultural differences specific to the region where it is spoken. Having experience learning a language or an understanding of how to learn languages is important in a variety of contexts, including academic and professional environments.

Literature Review

How do factors specific to each language impact the ability to use online tools to translate from one language to another accurately?

Th Ahmed and Lenchuk (2024) presented a study that examines the performance of some machine translation tools—namely, Google Translate, Microsoft Bing, and Systran—on translating sentences that are lexically and structurally ambiguous, as well as garden path sentences. The paired languages were Arabic and English, which provided significant data regarding how MT would input different morphosyntax features. For instance, Standard Arabic requires that adjectives match the gender, number, case, and definiteness of the nouns (Th Ahmed & Lenchuk, 2024). Modern English, on the other hand, does not have a true gender or case system for nouns.

Overall, the three MT tools performed roughly the same, particularly with subject-verb agreement in Standard Arabic. Excluding the twenty lexically and structurally ambiguous sentences and garden path sentences, Google Translate and Microsoft Bing both scored 36/40 and Systran Translate scored 35/40 on the remaining forty structures (Th Ahmed & Lenchuk, 2024). Even so, all three MT tools seemed to have difficulty accurately translating dual number and gender features, as well as lexically ambiguous words that share the same syntactic category

as the alternative word. Case in point, Th Ahmed and Lenchuk (2024) pointed out, “the term ring in give me a ring (= give me a call) and in give me a ring (= give me a golden or silver ring to wear) is a noun.” In this case, the listener in a conversation would likely be able to deduce whether the “ring” was a call or an accessory depending on the context of the conversation. MT tools, in comparison, tend to make more mistakes by translating word-for-word.

Garden path sentences are referred to as such because they describe sentences that cause confusion for listeners when they incorrectly parse the sentence initially, but after going over it again, the meaning is clear (Th Ahmed & Lenchuk, 2024). In other words, they are ‘led down a garden path.’ As an example, Th Ahmed & Lenchuk (2024) wrote, “the florist sent the flowers was pleased.” Upon first reading it, one might initially believe that, according to basic English sentence structure, the florist was the subject who had sent flowers to someone. However, upon rereading the sentence, the individual would realize that someone had sent the flowers to the florist, and that the florist was pleased. While human listeners are able to reconsider their initial mistake in interpreting the meaning of the sentence, MT tools such as Google Translate seem to consistently generate the aforementioned errors over and over again.

While the MT systems are imperfect, for widely spoken languages such as English and Chinese, there are many resources for MT tools to pull from to add to their databases to form somewhat accurate translations. The post-editing process appears to assist machine translation in meeting the needs of languages with limited linguistic resources, such as Kazakh. As indicated by Rakhimova et al. (2024), MT tools will have more accurate translation results if there is a structured and diverse corpus to pull from. For languages that have fewer resources, including regional dialects or minority languages, the introduction of post-editing may bring about more effective results.

Earlier forms of MT tools, otherwise referred to as statistical machine translation (SMT), are what most people may have in mind when they think of machine translation. SMT is where the online translation tool pulls from a corpus of existing text in the language (Rakhimova et al., 2024). While SMT still exists and is widely used, neural machine translation (NMT) is a more recently developed system that produces translations that are “perceived as smoother and more natural” (Rakhimova et al., 2024). It seems that, given the proper amount of data that includes the vocabulary of the targeted text, advanced NMT systems will make fewer errors and output translations of higher quality than SMT systems (Rakhimova et al., 2024). Thus, it is often easier for specialists to use NMT systems for post-editing.

Post-editing is done by professional editors fluent in the target language or native speakers. Machine translation post-editing (MTPE) is described as “the process of correcting and improving machine-generated translations to enhance their quality and bring them closer to the standard achieved by human translators” (Rakhimova et al., 2024). However, low-resource languages like Kazakh require further development of MTPE due to lack of resources to train the MT tool in said language and the language’s unique characteristics. For instance, in Kazakh, the same word can have different prefixes and suffixes depending on the situation, whereas the English interpretation may not need to convey the same information (Rakhimova et al., 2024). This is because English has different morphological rules due to how other aspects of the language are structured. It may result in the MT tool attempting to provide too much or too little information (Rakhimova et al., 2024). Other factors that may challenge MT tools when translating between Kazakh and Germanic languages like English include syntactic differences such as word order, transliterating from Cyrillic to Latin script, and cultural differences such as idioms and proverbs (Rakhimova et al., 2024).

A recently reported study researched errors in the output language made by NMT when translating from pre-edited source texts in Japanese to English. It was concluded that common errors noted in the target language included inappropriately used vocabulary (Tsuji, 2024). For example, the NMT output used the phrase “a reasonable decision,” whereas a translation with the closest semantic equivalent would have used a different phrase such as “an informed decision” (Tsuji, 2024). The input sentence in the first language may not need such a distinction due to its set of morphosyntactic rules, but in the target language, there is a difference in meaning. Other errors that were identified involved redundant sentences that could have been simplified, such as “therefore, newly cleared land was cleared” which could be simplified to “therefore, the land was newly cleared” (Tsuji, 2024). Additional notable errors included incorrectly used or missing determiners and prepositions, and incorrect usage of singular or plural forms and verb tenses (Tsuji, 2024).

How might a lack of cultural considerations impact the accuracy of machine translators?

In a study analyzing the efficiency of machine translators on fixed expressions—that is, proverbs—between Arabic and English, five MT tools were tested: Google Translate, Bing Microsoft Translator, Systran Translate, Yandex Translator, and Reverso Translation. The researchers compared each MT and deduced their abilities to produce a translation in the target language with literal, semantic, and communicative equivalence to the source language without altering the meaning of the original expression (Jibreel, 2023).

Jibreel (2023) concluded that the MT tools most frequently translated the proverbs literally; the second highest method being semantic, and the least utilized method being the communicative equivalent. Of the five online translators that were tested, Bing translated with the highest percentage of communicative equivalents and lowest percentage of literal translation

(Jibreel, 2023). Bing and Google Translate had similar levels of semantic equivalents, though Google Translate had a lower percentage of communicative equivalents and the remaining three MT tools—Yandex in particular—had more literal translations (Jibreel, 2023).

The researchers were also able to surmise the most common errors made by the MT systems they analyzed. Jibreel (2023) summarized that MT failed to convey the implied meaning of the proverbs, chose incorrect synonyms of words used in the source material, and resulted in translations that had weaker structures with skewed meanings. The concluding discussion of the study implied that additional work would need to be done to improve the quality of MT, including post-editing (Jibreel, 2023).

Another form of expression that may be difficult for MT systems to translate is a joke, or more specifically, puns. Like proverbs, puns can vary depending on region, and there may not be an equivalent in another language, especially when the amusing aspect of a pun relies on the implications of multiple meanings of a word, which varies from language to language. Mehawesh et al. (2023) explored the difficulties faced by translators when translating puns from Arabic poetry to English. They discovered that the majority of the challenges posed by respondents involved the preference to interpret the apparent meaning of the pun and inability to describe the origin and context clues (Mehawesh et al., 2023). In other words, rather than adding explanatory notes or rewriting to include a pun, respondents had a tendency to translate the pun literally, losing the joke along the way.

One notable study examined how Peter Clark translated culture-specific items from *Dubai Tales* by an Emirati author named Mohammed Al Murr from Arabic to English. The two major strategies employed by Clark appeared to be globalization and preservation, which seemed to prove his efforts to keep cultural components of the stories in the translated version, rather

than omitting them or rewriting them with localized equivalents (Al Tenaijy & Al-Batineh, 2024). The globalization strategy was primarily used to translate aspects of social culture, namely work, hobbies, and entertainment equivalents (Al Tenaijy & Al-Batineh, 2024).

Another factor to consider is that some language learners—particularly those who are practicing learner autonomy or doing independent studies of a foreign language—use social media for additional practice. Social media application popularity may vary depending on the region, and it can be a good way for learners to grow more familiar with the culture surrounding their target language.

For instance, students studying English in Saudi Arabia were evaluated in a study following approaches to teaching after the coronavirus global pandemic and lockdown demonstrated positive experiences of using social media as a learning tool (Jamshed et al., 2023). This could be due to the fact that English is such a widely spoken language and it is common for native and non-native speakers to communicate in English online. There appeared to be no significant effects of gender and level of education on the students' perspectives toward using social media as an English learning tool (Jamshed et al., 2023). The study did suggest there was a difference in perspectives toward using social media depending on the professions of the student's parents, though it was ultimately determined that social media should be suggested by teachers as a potential resource for language learning (Jamshed et al., 2023).

When considering the effectiveness of the use of machine translators, it is important to take into account the many nuances of language. As Zhang (2012) claimed, “there are different types of ‘faithfulness’ and translators may be required to be faithful in some situations and free in others.” Throughout the article, the author uncovered four methods that human translators use to manipulate the text to convey culturally relevant information. Using examples of Chinese

tourism publicities translated to English, Zhang (2012) referred to these methods as addition, omission, using explanatory notes, and rewriting. Each method of altering the original text has the potential to facilitate interaction between cultures, although it is up to the discretion of the translator, and individuals may interpret the meaning of a text in different ways, leading to slightly different translations of the same text.

In the case of statistical machine translation, at least, it seems that online translators do not account for culturally significant information. One might consider whether these four methods may be integrated into the programming for neural machine translators, and whether they would improve its quality. Attempts to preserve the cultural integrity of the original text may be beneficial for foreign language learners, particularly in terms of the inclusion of additions or explanatory notes to give students more context that they can then incorporate into their studies.

How does this differ from consulting human translators?

As Al Shaikhli (2022) pointed out in an article detailing a study on Arabic to English machine translation, MT systems are intended to be quick and efficient tools “ensuring more consistency and comprehensibility than manual translation.” In other words, unlike MT, human translators vary in their linguistic abilities, meaning time and efficiency varies as well.

That being said, there are also some problems impacting the accuracy of MT that do not concern human translators. First of all, online dictionaries vary in quality. In the case of the Arabic language, Al Shaikhli (2022) observed that some companies began to compile dictionaries and devices for speech recognition based on colloquial speech samples. While it would be beneficial for foreign language learners to hear their target language spoken in “real

world” contexts, there is a possibility that learners would pick up words or phrases from less common regional dialects, rather than Standard Arabic.

Additionally, online language translators have a tendency to provide word-for-word iterations of the input (Al Shaikhli, 2022). And, as previously stated, MT systems are somewhat likely to focus on literal meaning. Especially during speech, it is common for individuals to use figurative language or words with multiple meanings, and it is up to the listener to use context to determine meaning. Therefore, it is likely not surprising to learn that rhetorical devices such as alliteration and metaphors that are common in Arabic are difficult for MT systems to translate (Al Shaikhli, 2022). Human translators, on the other hand, will have an easier time learning how to find an alternative in the target language.

Furthermore, human translators with high proficiency are trained to find the closest possible meaning for what the original speaker or text had intended. In contrast, many MT systems may provide a general term that is less specific (Al Shaikhli, 2022). While the general term may be easier for learners to recognize and comprehend, the translation is looser and may be confusing or incoherent to speakers of the target language. There may also be terminology from one language that cannot carry the same significance in any other language (Al Shaikhli, 2022). An example of this may be how a male would address an older male friend in Korean using the honorifics previously discussed.

A study was conducted to evaluate the overall accuracy and intelligibility scores for machine translation in comparison to human translation based on a set of criteria for content and language determining the comprehensibility, coherence, and “wellformedness.” From highest to lowest, Yusof et al. (2017) calculated that human translation was expected to meet the criteria for “wellformedness,” coherence, and comprehensibility. In comparison, machine translation was

expected to meet the criteria for comprehensibility, “wellformedness,” and coherence, in that order (Yusof et al., 2017). Overall, the range of criteria was expected to be higher for human translation than for MT, and comprehensibility was regarded as more important than coherence for the language of both MT and human translation (Yusof et al., 2017).

A relevant study was recently performed to evaluate ChatGPT-3 as an online language translator in comparison to Google Translate and human translation. As Alkhawaja (2024) stated, “MT surpasses humans in at least two key aspects of translation: its ability to work much more swiftly and cost-effectively.” While using MT platforms like Google Translate and AI systems like ChatGPT-3 for translation purposes has been praised time and time again for being quick and efficient, their ultimate purpose and function serves to provide a brief overview of the input text from the source language (Alkhawaja, 2024). While ChatGPT-3 seemed to surpass Google Translate in terms of producing accurate translations and even provided slightly more context, it did not reach the level of nuanced, quality content provided by human translators (Alkhawaja, 2024). Once again, machine translation post-editing (MTPE) was recommended to facilitate language translation, meaning human translators would go through translations from platforms like ChatGPT-3 to cross-check and proofread the content (Alkhawaja, 2024).

Whether or not post-editing is the next step following the use of MT systems, Jia and Sun (2023) claimed that the quality of the MT system as well as the level of complexity of the source text don't seem to be given credit for their impact on the translation of the source text. There is a possibility that these factors, in conjunction, may make machine translation post-editing more difficult or less efficient than simply using human translation. Jia and Sun (2023) described a study in which neural machine translation post-editing was compared with human translation for English to Chinese, while taking those factors into account.

The results of the study implied that when MT systems of high quality were used on more complex source texts, post-editing was determined to be easier than human translation (Jia & Sun, 2023). Additional factors to consider for further investigation are visual attention and how the post-editing process operates in combination with whichever NMT system is used (Jia & Sun, 2023).

In order for MTPE to be considered as a potential solution between machine translation and human translation, it is important to consider the context in which it is used, as well as the users themselves. As Tsuji (2024) claimed, the effectiveness of MTPE depends largely on the skills of the individual using the MT tool. In the context of second language acquisition, a learner with a higher level of proficiency would be able to make more advanced corrections to the MT errors, which some may equate to levels comparable to that of a native speaker (Tsuji, 2024). Learners at beginner and intermediate levels in the target language, on the other hand, may only be able to make less impactful corrections, such as individual words (Tsuji, 2024).

How does the use of online translators impact the performance of second language learners in the classroom and in “real world” contexts? Can they still be utilized to an advantage?

For the purposes of second language acquisition, students may be able to use machine translation and AI platforms to increase proficiency in their target language. The idea that online language translation could help improve students’ grammar skills in a foreign language is supported by a study performed at a university in Korea. Students taking English courses were divided into two groups; one group was assigned a human partner to practice conversing with, while the other group was instructed to practice conversations using a chatbot called Replika (Kim, 2019). Both groups improved their English grammar skills, although the difference in the mean scores was statistically significant, meaning the group that practiced with chatbots

appeared to have made greater improvements than the group that practiced with other people (Kim, 2019).

There is a potential explanation as to how the group with the chatbots scored higher than the group with human partners. As Kim (2019) suggested, when communication “broke down” or when students had difficulty with tasks such as asking questions, the chatbot was unable to use context to piece together what the student had intended to say in order to give a response. Thus, the students were forced to go back through what they had said and fix mistakes, or to say something else that the chatbot would be able to understand. Be that as it may, further research should be conducted, as this study was not replicated to confirm that there is a true pattern in students scoring higher with the use of chatbots as opposed to human conversational partners (Kim, 2019). Additionally, the participants were largely freshman students, so the sample population was relatively small (Kim, 2019).

Another study involving Korean students learning English explored the influence of machine translation post-editing on students’ performances in reading classes at different levels of proficiency. It also involved gaining perspective on the students’ attitudes towards the usage of MT in their English classes. As could be expected, reading comprehension in the group with low proficiency significantly improved with MTPE (Kim & Cha, 2023). There was also some improvement in the group of students with high proficiency (Kim & Cha, 2023).

Kim and Cha (2023) concluded that “English proficiency level significantly influences post-reading test outcomes when utilizing post-editing with machine translators.” MTPE appears to have the ability to help language learners at different levels of proficiency. Beginning students with lower proficiency levels may need more assistance understanding readings, so they would find it useful to find larger mistakes they are learning how to avoid. More proficient learners, on

the other hand, may have experience with larger concepts and rules in the language, but may make smaller mistakes in reading comprehension, aiding them in locating smaller errors to make their reading more fluent. According to Kim and Cha (2023), “both groups exhibited predominantly favorable perspectives regarding the utilization of translation tools.”

Zadorozhnyy and Winsy Lai (2024) have contributed to research on MT and AI use in classroom by describing some of the potential benefits of using advanced Generative AI (GenAI) chatbots—namely, ChatGPT) to improve second language proficiency. For instance, GenAI can be used as a tool to simplify difficult texts with unrecognizable tenses or grammatical structures by providing additional assistance or context (Zadorozhnyy & Winsy Lai, 2024). ChatGPT, for one, can analyze and provide feedback on syntax and spelling concerns in students’ writing (Zadorozhnyy & Winsy Lai, 2024). GenAI programs like ChatGPT also have the ability to provide additional support for reading comprehension and speaking and writing skills to enhance fluency (Zadorozhnyy & Winsy Lai, 2024).

AbdAlgane et al. (2023) investigated the utilization of AI technology in English language classes in Saudi Arabia. The study concluded that using AI software helped students improve their critical thinking skills and helped them in debates and arguments (AbdAlgane et al., 2023). English teachers could use AI to engage students in various activities to improve their proficiency, such as to practice speaking (AbdAlgane et al., 2023). Although, as previously stated, English is a language with many widely available resources for online translation systems to add to their databases. For low-resource languages, some improvements may need to be made. An additional study claimed that AI chatbots could be effective tools for Arabic learners to focus on errors in pronunciation when they do not have many other resources, such as individuals with financial disadvantages and lack of human tutors or translators (Almelhes, 2023).

One possibility that has been explored is incorporating machine translation into human translator training. According to Korošec (2011), it seems as though students have been using MT to create first drafts of their work to save time and effort, so it is recommended for foreign language teachers to consider MT when creating activities for classes. While many students appear to be aware of common errors produced by MT, they can still be advised on the use of MT and taught how to use it to benefit their learning (Korošec, 2011).

Furthermore, some teachers are incorporating the use of MT systems into their classwork by creating assignments for additional practice. For example, Enkin and Mejías-Bikandi (2016) suggested using the inaccurate translations from MT for the students to practice their post-editing skills. According to Enkin and Mejías-Bikandi (2016), “Student comments further indicated that the post-editing experience helped them to develop language awareness, be more accurate in the L2, and be more fluent in writing.” Overall, the students offered positive feedback concerning MTPE in the classroom, where they learned how to apply MT to their work effectively (Enkin & Mejías-Bikandi, 2016).

In another study, students were tested to determine if the use of online language resources affected their writing performance in their second language. In a questionnaire after taking the test, 84% of the students responded by saying they used online language resources in writing activities outside of academics, or in “real-life” contexts (Shin et al., 2021). 97.8% of the students recorded that they believed the online dictionary should be included on future tests (Shin et al., 2021). With that in mind, it was determined that the students with low and intermediate levels of proficiency demonstrated “significant improvement” whereas the students demonstrating high proficiency did not make significant improvements (Shin et al., 2021).

Overall, the improved scores on the writing test “had a weak positive effect on writing performance” (Shin et al., 2021).

Conclusion

Seeing as technology is a growing influential resource around the world, is important to consider various facets of language and the ability of machine translation (MT) to accurately convert messages from one language to another. In particular, the accuracy of the translation or lack thereof affects individuals that are trying to learn the language, as well as those who intend to interact with native speakers of the language.

Although human translators are trained to find the most accurate equivalent of the input language to the output language, proficiency and experiences may vary between humans, so there is some slight variation in time and efficiency without the use of MT tools. Additionally, one human translator may attempt to transfer some aspect of the input language to the output language that another human translator may not find significant enough to incorporate because they are focusing on conveying some other aspect of the input. That being said, even MT tools vary in quality. Online translation has a tendency to prefer translating literally, which can interfere with the true meaning of messages including figurative language or puns specific to the first language.

Moreover, some of this may depend on the quality of the tool being used, or how the second language learner is using it. Language learners may seek out online resources to assist them or to make corrections to their attempt at the target language, but colloquial speech samples included in the database of the MT tool may provide misleading information. For instance, it may teach the learner a phrase from a dialect that is not commonly spoken rather than the

“standard” version of that language. So, depending on who the learner tries to speak to in the target language, their conversation partner may not understand them.

Another major takeaway is that the languages selected as the input and the output may have an impact on the accuracy of the results from the MT. To demonstrate, how much content in each language that is available online impacts what the MT tool can utilize, and therefore affects the quality of the output. That is, languages such as Chinese or English are widely spoken worldwide and thus there are many resources such as newspapers and social media networks available to pull samples from. Low-resource languages like Kazakh, on the other hand, are much rarer to find outside of their respective regions. Furthermore, if one were to translate from English to German, because the languages are closely related to each other, the MT tool may not have as many difficulties translating as it would when translating from Chinese to English. The morphological and syntactical differences between languages may confuse MT tools.

Even beyond the language selection, the type of MT tool used as well as its quality have a significant effect. Statistical machine translation, which involves pulling the words from a corpus, is limited by that resource. Neural machine translation, on the other hand, uses data searches to predict the potential context of the message to produce an output that is found naturally in speech. It generally makes less significant errors than statistical machine translation, but it ultimately depends on how each tool has been trained for data searches.

As seen from the data previously presented, machine translation post-editing (MTPE) has been deemed by professionals to be easier than relying solely on human translation and more acceptable than relying solely on machine translation. It can be argued that MTPE has the ability to improve the online language translation process and furthermore can be used in environments for second language learning. Also, as previously mentioned, foreign language teachers such as

those from the article by Enkin and Mejías-Bikandi (2016) have assigned MTPE practice tasks to help them identify mistakes made by MT tools and to test their own fluency skills in the target language.

As it currently stands, online translation ultimately does not supersede the potential for human translators. It seems as though the solution for many people is to start out with electronics to hasten the process. Then, they follow it up with post-editing to make the translation more natural and smoother in the secondary language. Neural machine translation has shown some positive results when followed by MTPE, appearing to result in more comprehensible and fluent messages in the target language than statistical machine translation.

Although many of the experiments performed on MT and second language learners involve students in high school or college, many individuals learning another language fall outside of that range. In fact, teachers and speech-language pathologists may be included in the category of second language learners. It would be useful for them to know multiple languages in the event that they come across a student or client that speaks that language. Additionally, speech-language pathologists need to know whether or not the child is using accurate semantics during tests. For example, if they are giving a test to a child on their expressive language, they want to know whether or not they are identifying the picture as the correct object, no matter whether or not they are speaking the same language as the speech-language pathologist or not. They will also need to know if the child is unfamiliar with examples from a test because they don't know the correct word or because the object does not appear in the child's native language or culture.

Because MTPE saves human translators the additional time and effort, more content can be accessed and reviewed in depth. Thus, there is a positive effect of post-editing on machine

translation, and it therefore becomes a more beneficial tool for second language learners, as well as teachers and speech-language pathologists. If the second language learner does not have access to a native speaker of their target language, they still may have the opportunity to use online language translation to their advantage for practicing the language. Educators and speech-language pathologists may come across students and clients who speak a foreign language that they are unfamiliar with, whether or not they are actively learning it. If they do not have easily accessible human translators for that language, with MT tools of high quality, they will still have ways to assist the child that speaks the unfamiliar language.

Realistically, online language translation seems to have been well established as commonplace in modern society. It is widely used by foreign language students outside of the classroom setting as well as by individuals not seeking to learn the target language, such as those scrolling through social media networks trying to read posts that aren't in a language they know. There are some improvements to be made for AI technology and machine translation for language learning purposes, but there are also methods of using technology to correct mistakes and gain additional practice in a second language.

Further Research

The cost effectiveness of online language translation and individual differences amongst learners—including socioeconomic status and grade level—may also need to be taken into account. Further research concerning translation tools on social media for the purposes of language learning as well as for usage by individuals not seeking to learn the other language would be beneficial. Plenty of additional factors have yet to be explored for machine translation, such as accounting for American Sign Language and other unspoken languages.

References

- AbdAlgane, M., & Othman, K. A. J. (2023). Utilizing artificial intelligence technologies in Saudi EFL tertiary level classrooms. *Journal of Intercultural Communication*, (62), 92. <https://doi.org/10.36923/jicc.v23i1.124>
- Al Shaikhli, M. (2022). Problems of machine translation systems in Arabic. *Journal of Language Teaching and Research*, 13(4), 755-762. <https://doi.org/10.17507/jltr.1304.08>
- Al Tenaijy, M., & Al-Batineh, M. (2024). Translating Emirati literature: exploring culture-specific items in Mohammed Al Murr's Dubai Tales. *Humanities & Social Sciences Communications*, 11(1), 37. <https://doi.org/10.1057/s41599-023-02555-4>
- Alkhwaja, L. (2024). Unveiling the new frontier: ChatGPT-3 powered translation for Arabic-English language pairs. *Theory and Practice in Language Studies*, 14(2), 347-357. <https://doi.org/10.17507/tpls.1402.05>
- Almelhes, S. A. (2023). A review of artificial intelligence adoption in second-language learning. *Theory and Practice in Language Studies*, 13(5), 1259-1269. <https://doi.org/10.17507/tpls.1305.21>
- Enkin, E., & Mejías-Bikandi, E. (2016). Using online translators in the second language classroom: Ideas for advanced-level Spanish. *Latin American Journal of Content & Language Integrated Learning*, 9(1), 138-158. <https://doi.org/10.5294/laclil.2016.9.1.6>
- Jamshed, M., Almashy, A., Alam, I., & Banu, S. (2023). Analyzing the emergence of social media as a sustainable tool for learning English in the post-pandemic era. *Theory and Practice in Language Studies*, 13(10), 2697-2704. <https://doi.org/10.17507/tpls.1310.29>

- Jia, Y., & Sun, S. (2023). Man or machine? Comparing the difficulty of human translation versus neural machine translation post-editing. *Perspectives*, 31(5), 950-968.
<https://doi.org/10.1080/0907676X.2022.2129028>
- Jibreel, I. (2023). Online machine translation efficiency in translating fixed expressions between English and Arabic (Proverbs as a case-in-point). *Theory and Practice in Language Studies*, 13(5), 1148-1158. <https://doi.org/10.17507/tpls.1305.07>
- Kim, H., & Cha, Y. (2023). Post-editing of machine translation while reading on English proficiency levels. *Linguistic Research, Suppl. Special Edition*, 40, 89-126.
<https://doi.org/10.17250/khisli.40..202309.004>
- Kim, N. Y. (2019). A study on the use of artificial intelligence chatbots for improving English grammar skills. *Journal of Digital Convergence*, 17(8), 37-46.
<https://doi.org/10.14400/JDC.2019.17.8.037>
- Korošec, M. K. (2011). Applicability and challenges of using machine translation in translator training. *ELOPE; English Language Overseas Perspectives and Enquiries*, 8(2), 7-18.
<https://doi.org/10.4312/elope.8.2.7-18>
- Mehawesh, M. M., Mo'tasim-Bellah, A., Alnawasrah, N. M., & Saadeh, N. N. (2023). Challenges in translating puns in some selections of Arabic poetry into English. *Journal of Language Teaching and Research*, 14(4), 995-1004.
<https://doi.org/10.17507/jltr.1404.17>
- Portner, P., Pak, M., & Zanuttini, R. (2022). Dimensions of honorific meaning in Korean speech style particles. *Glossa*, 7(1), 1-33. <https://doi.org/10.16995/glossa.8182>

- Rakhimova, D., Karibayeva, A., & Turarbek, A. (2024). The task of post-editing machine translation for the low-resource language. *Applied Sciences*, *14*(2), 486.
<https://doi.org/10.3390/app14020486>
- Shin, D., Kwon, S. K., & Lee, Y. (2021). The effect of using online language-support resources on L2 writing performance. *Language Testing in Asia*, *11*(1).
<https://doi.org/10.1186/s40468-021-00119-4>
- Th Ahmed, A.,M., & Lenchuk, I. (2024). The interaction between morphosyntactic features and the performance of machine translation tools: The case of Google Translate, Systran, and Microsoft Bing in English-Arabic translation. *Theory and Practice in Language Studies*, *14*(2), 614-625. <https://doi.org/10.17507/tpls.1402.35>
- Tsuji, K. (2024). Identifying MT errors for higher-quality target language writing. *International Journal of Translation, Interpretation, and Applied Linguistics*, *6*(1), 1-17.
<https://doi.org/10.4018/IJTIAL.335899>
- Yusof, N. M., Darus, S., & Mohd Juzaidin, A. A. (2017). Evaluating intelligibility in human translation and machine translation. *3L, Language, Linguistics, Literature*, *23*(4)<https://doi.org/10.17576/3L-2017-2304-19>
- Zadorozhnyy, A., & Winsy Lai, W. Y. (2024). ChatGPT and L2 written communication: A game-changer or just another tool? *Languages*, *9*(1), 5.
<https://doi.org/10.3390/languages9010005>
- Zhang, B. (2012). On Chinese-English translation of culture-loaded tourism publicities: A perspective of cultural manipulation theory. *Theory and Practice in Language Studies*, *2*(11), 2342-2348. <https://doi.org/10.4304/tpls.2.11.2342-2348>