

Influence of Modern Machine Translation on Vocabulary Learning among Yemeni EFL Learners

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ABSTRACT

Vocabulary is looked as a foundational building block upon which all other language skills are constructed. The present study aimed to investigate the influence of modern machine translation on vocabulary learning among Yemeni English as a foreign language (hereafter, EFL) learners. The two main questions in the study were: (1) How common is machine translation used for vocabulary learning in EFL classes? (2) What is the influence of modern machine translation on vocabulary learning? The study adopted the quantitative correlational explanatory design. The population of this study were Yemeni EFL learners in the English Language Department, Faculty of Education, Thamar University in the academic year 2024-2025. The sample of this study consisted of 50 students of second, third, and fourth levels, the study used a questionnaire to collect data and the design was a close-ended questionnaire. The questionnaire was analyzed through the Statistical Package for Social Sciences (SPSS) programme. The findings of this study revealed that the participants heavily utilized machine translation for quick vocabulary comprehension and contextual learning, often trying independent strategies first. While they found machine translation useful for idioms and complex texts, and generally trust its accuracy, participants worried that machine translation might lead to inaccurate knowledge, over-reliance, and rote memorization.

Introduction

Technology has always been an important part of tutoring and literacy terrain. It is an essential part of the preceptors' profession through which they can use it to grease learners' literacy. In today's world, machine translation plays an important role in learning a language, especially when it comes to vocabulary acquisition. It is considered as a fundamental source that supports EFL learners in their studying journey through providing several aspects of the meaning of a word, a sentence, or even a whole context. According to (Abimbola, 2023), the incorporation of technology in language education has

transformed how individuals acquire and interact with languages. Conventional methods of language learning have been supplanted by digital platforms, mobile apps, and other technological resources. Among the numerous tech tools accessible, machine translation has significantly influenced language learning. Machine Translation has led the way, granting users the capability to effortlessly translate among various languages.

Machine Translation is a widely used machine translation tool that enables users to convert text or speech from one language into another. The tool has gained popularity among language learners because of its convenience and

user-friendliness. Nonetheless, the effect of Machine Translation on language learning has sparked discussions, with certain studies indicating that it can improve language learning results, while other studies contend that it might impede language proficiency and the growth of language skills ((Creswell, 2011, p. 142))

In EFL instruction, vocabulary acquisition serves as a core foundation upon which proficiency and fluency are established. Nevertheless, conventional techniques for vocabulary teaching frequently do not succeed in effectively engaging students and promoting enduring retention. Acknowledging the essential importance of engagement and contextualization in education, teachers have sought innovative pedagogical strategies to enhance the vocabulary acquisition experience. Among these strategies, storytelling stands out as an engaging and promising technique, merging language learning with narrative involvement. (Bežilová, 2024)

Acquiring vocabulary constitutes one of the most essential skills needed for teaching and learning a second or foreign language from early childhood. It serves as a foundation for the advancement of all other vital skills such as writing, reading, listening, pronunciation, and spelling. More importantly, vocabulary development is a significant resource for learners during early childhood in their efforts to use the English language proficiently. Due to its role, vocabulary development tends to support other areas, including cognitive, social, and literacy advancement. It is suggested that parents should consistently focus on these developments, as they establish the groundwork for language learning processes. Among all the forms of communication, spoken communication is the most effective form, as it contributes to vocabulary development to a sustainable extent. (Narayan & Goundar, 2024)

Introducing new vocabulary to students is not always a simple endeavor. Because of the music and films that adolescents encounter today, vocabulary learning is frequently not prioritized. Young individuals can sing along or recite lines from a film that fascinates them and

believe they can converse in a foreign language. Within an academic setting, you come to understand that every new vocabulary term is akin to a brick required to construct an entire wall; it represents a small advancement that assists in enhancing your capabilities to communicate, write, and comprehend all the English you may require at a particular moment in your professional life. (Pateşan, Balagui & Zechia, 2019).

Statement of the Problem

Machine translation is a widely available and commonly used tool among many (EFL) learners to facilitate the learning process. However, excessive reliance on these tools can lead to a range of issues that negatively affect vocabulary learning and language comprehension. Such process results in translations with many errors and outputs that cannot be rendered as correct translation of the required texts. This can lead to misunderstanding and diversion of the real meaning in the original text. Several studies explored the role of machine translation on the learners' outcomes. However, such studies indicated that excessive reliance on these tools can lead to a range of issues that negatively affect vocabulary acquisition and language comprehension (Abimbola, 2023). For instance, learners use Google Translate to transfer many texts from one language into another. While machine translation tools have become increasingly accessible, their effectiveness in enhancing vocabulary learning among EFL learners remains unexplored. This study seeks to investigate whether these tools facilitate or hinder the vocabulary learning process. A notable drawback of machine translation when it comes to vocabulary learning is its capacity to impede profound learning and analytical thinking. Although machine translation can offer fast and convenient translations, it frequently fails to capture the subtleties and context that human translators excel at providing. This could result in a limited grasp of vocabulary since students might not encounter the complete spectrum of word definitions, applications, and cultural implications. Therefore, the present study aims to investigate the influence of modern machine translation

on vocabulary learning among Yemeni EFL learners in the English Department, Faculty of Education, Tamar University.

Objectives of the Study

This study attempts to answer the following questions:

1. How common is machine translation used for vocabulary learning in EFL classes in the English Language Department, Faculty of Education, Tamar University?
2. What is the influence of modern machine translation on vocabulary learning?

Research Questions

The primary question of this study is “What is the role of pronunciation in the journey of learning English among learners of the English Department in the Faculty of Education, Tamar University?” This question is sub-divided as follows:

1. What specific phonetic and phonological challenges do Yemeni EFL learners at Tamar University face?
2. How effective are technology-based tools, including pronunciation apps, tongue twister exercises, and phonetic transcription, in addressing and mitigating phonetic and phonological difficulties among Arabic-speaking learners?

Significance of the Study

This study is significant as it aims to investigate the influence of modern machine translation on vocabulary learning among EFL learners in today's technologically advanced environment. As machine translation empowers students to independently discover and comprehend new vocabulary fostering autonomy and self-directed learning, this study seeks how machine translation tools expose learners to vocabulary in diverse contexts, aiding in their understanding of nuances and various usage scenarios. By providing rapid translations and explanations, machine translation can assist teachers in shifting their focus from rote translation to more interactive and engaging activities. Therefore, by understanding machine translation tools and their applications in language learning is a crucial aspect of professional development

for educators. The findings of this study will provide insights into how machine translation can transform vocabulary learning for EFL students and enhance teaching methodologies, ultimately contributing to more effective language education in the modern era.

Scope and Limitation of the Study

The present study was limited to the topic: Influence of modern machine translation on vocabulary learning among Yemeni English as a foreign language (hereafter, EFL) learners. The study target was 50 students of second, third and fourth levels undergraduate students in the English Department, Faculty of Education, Tamar University., Yemen in the academic year 2024/2025.

Types of Machine Translation

Rule-based machine translation

Rule-based Machine Translation (RBMT) is defined as a traditional approach to mechanize translation that depends on clear linguistic rules, inclusive dictionaries and exhaustive grammars. According to Sghaier, et al. (2020). RBMT relies on clear language rules and procedures to perform translation. Grammarians create these rules, which include grammar and syntax patterns, word maps, and inflectional rules. RBMT systems analyze the keyword, apply predefined rules, and produce a translation that matches the target language. One of the advantages of RBMT is grammar and syntax checking, which is suitable for specific domains and languages. However, RBMT has limitations in handling idioms, language differences and many lexical resources. RBMT works on a frame of intensive knowledge, so linguists carefully formulate rules to control the transformation of source text into target text. The process of translation in RBMT is step-by-step procedure. At first, the source text undergoes on overall analysis to distinguish its grammatical and semantic characteristics, then covert rules to show how the linguistic structures are changed between languages, are applied to transfer the analyzed source text into a target text. Manipulating word order, verb conjugations and other grammatical elements involve based on predefined rules. For instant, transformation of

active to passive voice. At the end, the system generates the target text based on the transformed structure, ensuring adherence to the target language's grammatical conventions. As (Sghaier, et al. 2020) mentioned one advantage of this approach, however, there is a problem in the way of translating. It needs all the rules to be done by a hand, which takes a lot of time. So, by following those rules, it causes struggling with the tricky parts of how we speak. Things like idioms, or when words change meaning depending on the situation. It cannot handle all the ways we bend and twist language.

Statistical machine translation

Statistical Machine Translation (SMT) is one of the types of machine translation. It works on the principles of translating by eventuality, using a lot of translated texts to create translations and language models. These models that are derived from parallel sentences give probabilities to word or phrase identity and assess the fluency of target language sequences. For example, in translating this sentence "The cat sleeps" to "Le Chat Dort" statistical machine translation of the article "The", "chat" for "cat", and "Dort" for "sleeps". Modern statistical machine translation, primarily first-based, handles multi-word units, as demonstrated in the translation of this sentence "I am going to the store" to "Je vais au magasin", in which the system translates and recognizes the entire phrases. Furthermore, through contextual probabilities statistical machine translation aims to solve ambiguities, like when choosing between "Banque" and "rive" for the English word "bank", depends on the text. To know more about SMT (Irfan, 2017) mentioned that "approach is based on a statistical model. These two statistical models are possible: language model and translation model with large parallel sets of source and target languages. The advantage of the SMT system is that no language skills are required to build it. The problem with the SMT system creates huge parallel bodies. There are two examples in SMT, one is Verbal and the other is Picture-based. In word-based MT, sentences are treated as a set of single words, ignoring the structural relationship between words,

but in a phrase-based model, sentences are called sets of sentences or parts. At SMT relies on probability. Among the possible translations generated from parallel, human-translated data, the one with the highest probability score is chosen as the final translation. This probability is calculated using language models and translation models".

Hybrid machine translation

Hybrid Machine Translation is a procedure that gather different approaches of machine translation to benefit the strength of each approach. It seeks to fill the gap between rule-based machine translation, statistical machine translation, and neural machine translation. It considers as a try to relieve the weakness of hidden points in any single approach by using a collocation of techniques. The way that hybrid machine translation works is by doing mix of the previous types of machine translation starting with rule-based to analyze the source text to identify grammatical structures, moving to statistical models to translate common idioms or phrases. Ending with using neural networks to refine the translation, including contextual accuracy and fluency. According to (Antony, 2013), Using statistical and rule-based machine translation methods, a new approach called the hybrid approach was developed, which has been shown to perform better in MT systems. Currently, many public and private sectors are using this hybrid approach to develop source-to-target language translation based on rules and statistics. The hybrid approach can be used in different ways. In some cases, translations are first made using a legal approach, followed by correction or editing of the output using statistical information. Basically, rules are used to pre-process the input data and post-process the statistical output from the statistical-interpretation system. This method is more efficient than the previous method and provides more power, flexibility and control over translation.

Neural machine translation

Neural Machine Translation is considered as a modern approach of automated language translation. It uses deep

learning to decode the complex relationships between languages. Neural Machine Translation systems learn from overall datasets, instead of observing to difficult rules or phrase-based approaches, enabling them to understand the contextual nuances of languages. This achieves through artificial neural networks which inspired by human brain, process information through interconnected nodes. These networks first encode the source text, analyze it, and then decode it into the target text. So, what makes this approach distinctive from older methods is deep learning, which resulting in more natural and exact translations. According to (Zhang & Zong, 2020), Neural machine translation (NMT) represents a paradigm shift in machine translation that uses artificial neural networks to model the translation process. NMT models, especially those based on the switch architecture, have become popular due to their impressive performance. These models include encoder and decoder units, as well as attention mechanisms that can capture context constraints. NMT students learn to produce end-to-end translations without relying on statistics or legal rules. The advantage of NMT is its ability to handle long-term dependencies, get context, and create smooth translations. NMT models are effective in handling spoken language and show good results in a variety of language pairs.

Therefore, examples of AI-based translation software have become widespread, and now include Google Translate, Bing, Microsoft Translator, DeepL, Reverso, Systran Translate, and Amazon Translate. Several computer-aided translation (CAT) tools are also available, such as Memoq, Trados, Smartcat, Lokalise, Smartling, Crowdin, Text United and Memsource. Recently, AI has been used in the development of programmes such as ChatGPT, Chat Sonic, GPT-3 Playground, Chat GPT 4, and YouChat that compares conversational responses to researchers' questions and fully simulating human interaction. (Moneus & Sahari, 2024).

Research Methodology

Context of the study

The context of the study was the English Language Department, Faculty of education at Tamar University, Yemen, in which the English language is the language of learning and teaching.

Study design and approach

“Research design is a plan or blue print which specifies how data relating to a given problem should be collected and analyzed” (Creswell, 2011, 20). The design of the present study was a correlational explanatory design aimed to explain numerical data through the use of a questionnaire to investigate the influence of modern machine translation on vocabulary learning among EFL learners in the Faculty of Education, Tamar University, Yemen. This study applied quantitative approach to analyze the data collected through questionnaire test.

Participants and sampling

“A population is a group of individuals who have the same characteristics. For example, all teachers would make up the population of teachers, and all high school administrators in a school district would comprise the population of administrators. As these examples illustrate, populations can be small or large” ((Creswell, 2011, p. , 142). Cresswell further defined a sample as “a subgroup of the target population that the researchers plan to study for generalizing about the target population. In an ideal situation you can select a sample of individuals who are representative of the entire population”. The population of the present study was English language students in the English Department Faculty of Education, Tamar University, Yemen. The population of this research was limited to students majoring in the English language. This study selected a group of individuals as a sample who represented the whole population. Therefore, the representative sample pertained to the choice of the individuals who shared similar traits for the population study to ascertain the total population. This study was employed to select 50 participants of second, third and fourth levels (see table 1) at the above-mentioned institution.

Table 1: Level of study of Participants

	Level	Frequency	Percent
Valid	Second	21	42.0
	Third	19	38.0
	Fourth	10	20.0
	Total	50	100.0

Data collection instrument

“Research instrument is a tool for measuring, observing, or documenting quantitative data. Identified before the researchers collect data, the instrument may be a test, questionnaire, tally sheet, log, observational checklist, inventory, or assessment instrument. Researchers use instrument to measure achievement, assess individual ability, observe behavior, develop a psychological profile of an individual, or interview a person”. ((Creswell, 2011, p, 151). The researchers developed a close-ended questionnaire to answer the research questions. The questionnaire was in a five-point on the Likert Scale: Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree, it consisted of two parts A and B: Part A collected personal information of the students, and part B consisted of 26 questions. Questions from 1-9 addressed question one of this study on how common was machine translation used for vocabulary learning in EFL classes? 10-26 questions addressed the second question of this study on what the influence of modern machine translation was on vocabulary learning? The study used this type of instrument to validate the data and get enough information about the influence of modern machine translation on vocabulary learning among EFL learners and prevalence of machine translation usage among EFL learners.

Validity and reliability of the instrument

“Validity is the development of sound evidence to demonstrate that the test interpretation (of scores about the concept or construct that the test is assumed to measure) matches its proposed use” ((Creswell, 2011, p, 630). The content validity of the questionnaire was assessed through the first and second researchers'

evaluation to ensure that the questionnaire's content is aligned with the study goals, and to determine if the questions represented the study issue effectively. “Reliability means that scores from an instrument are stable and consistent. Scores should be nearly the same when researchers administer the instrument multiple times at different times. In addition, scores need to be consistent. When an individual answers certain questions one way, the individual should consistently answer closely related questions in the same way” ((Creswell, 2011, p, 159). The questionnaire's reliability was checked using Cronbach's Alpha, which resulted in a high value of 0.99, showing that the questionnaire was very reliable for the study.

Data collection and analysis

“Collecting data means identifying and selecting individuals for study, obtaining their permission to study them, and gathering information by asking people question or observing”. ((Creswell, 2011, p.618). The study investigated the influence of modern machine translation on vocabulary learning among Yemeni EFL learners in the English Department, Faculty of Education, Tamar University. Prior to administering the questionnaire, informed consent was obtained from each participant, ensuring they understood the study's objectives, their rights as participants, and the voluntary nature of their participation. Clear instructions were provided to guide participants through the questionnaire, and researchers were available to address any questions that arouse. The data were analyzed by using The Statistical Package of Social Sciences (SPSS) programme.

Literature Review

Machine translation is a way of using artificial intelligence to transform texts and words meanings from one language to another. It has built on complex algorithms to break down words meanings and sentences structures, aims to provide fast and functional translations. According to (Abimbola, 2023, 80) "Machine Translation is a free online language translation

service that uses machine-learning technology to translate text, information, images and web pages from one language to another in real time. It is available in 100 languages and has over 500 million active users worldwide. Machine translation was developed for general use, but has become a popular tool for language learners and teachers". In language learning, machine translation is considering as a widespread tool, where learners can use it to help them understand and comprehend unknown words and complex texts. By using machine translation tools teachers can build multilingual educational materials and they can expand immediate translations for learners who have difficulties in understanding the language. However, they must guide learners to use this technology in an appropriate way and avoiding full dependence on it. Machine translation does not only translate difficult words, it considers as a tool that contribute to ease communication between people from different cultures and languages. Furthermore, the widespread of online machine translation tools, anyone can access information in different languages, which has participated in promoting global knowledge and understanding.

The study of Hamouda, et al. (2024) emphasized the importance of not solely depending on MT because doing so might reduce students' willingness to actively search for the most appropriate translations on their own. The participants in the study were given 60 minutes to translate twenty English collocations (ten adjective-noun and ten verb-noun) in their contextual sentences into Arabic. The task was restricted to adjective-noun and verb-noun collocations since these two combinations are assumed to be the most common types and also challenging to translate. The students were then asked to translate these English collocations into Arabic, using online MT systems. Most of the students have reported that they made use of Google Translate. The students were able to generate correct translations for some collocations when using MT, but they also made mistakes while translating other collocations. The results showed that the

student translators faced problems in translating the English collocations into Arabic, despite using MT, (mostly using literal translation). 69% of respondents were able to provide the proper Arabic collocations for English verb noun, whereas only 53% were able to do so for English adjective noun (average score of both is 61%). The purpose of Albaqami (2024) study was to compare the impact of a pushed email class, a pushed class, and a non-pushed class on the learning of English vocabulary by intermediate Saudi university undergraduates majoring in English. Data were collected using diverse approaches. The research questions were answered using vocabulary proficiency and productivity ratings. A total of 54 third-year adult Saudi EFL students at Albaha University participated. The participants were taught with no pushed output, with pushed output, and with email-pushed output in three groups, in three contexts, and using three target lexical item sets. Students who completed vocabulary instruction with required output performed better on the Vocabulary Knowledge Scales (VKS) and productive assessments, both in the short and long term. Outside of the classroom, the email and push output were more effective. The study found that the pushed class conditions resulted in higher productivity and higher VKS test scores in both the short and long terms compared to non- Pushed classes, indicating that learners benefited more from exercises with pushed output. The pushed email condition also yielded superior outcomes vis-à-vis the pushed class without email, suggesting that engaging in vocabulary exercises via email was particularly effective. The findings urge further research into long-term technology-enhanced vocabulary learning exercises for speaking skills utilizing the pushed output technique. The study of Abimbola (2023) investigated the impact of using machine translation on vocabulary acquisition and reading comprehension in English as a Second Language (ESL) learners. The study employed a quantitative research design to investigate the effects of Machine Translation on language learning. A total of 60 undergraduate students enrolled in an ESL course were

randomly assigned to an experimental group that used Machine Translation during language learning activities and a control group that did not use Machine Translation. The results showed that the experimental group outperformed the control group in terms of vocabulary acquisition and reading comprehension. However, the experimental group also experienced a higher cognitive load than the control group. The findings of the study provided an evidence for the effectiveness of Machine Translation as a tool for language learning. The study highlighted the potential of technology to enhance language learning outcomes, particularly in terms of vocabulary acquisition and reading comprehension. Additionally, the study raised important questions about the impact of cognitive load on language learning, which has implications for the design and implementation of language learning activities.

Young (2023) carried out a study which aimed to compare teacher and EFL learner perspectives on MT use, and to measure the capacity of MT to promote learning in a task-based environment, compared to an online dictionary. To gain further insight into how students and teachers perceive its use, two surveys were carried out, one involving 20 university instructors (10 native English teachers and 10 non-native English teachers) and the other involving 139 EFL learners. A comparative study was conducted using two translation tasks, a post-test, and a post-questionnaire to evaluate MT's capacity to increase language awareness in others. An online dictionary was used for the comparative study. The first survey results revealed disparities in how learners and educators perceived text-based machine translation as a valuable tool for language learning and in the degree to which they thought students should be permitted to use it in educational settings. The post-test study corroborated the findings of the post-questionnaire, showing that the online dictionary and the DeepL (MT network) had very different capacities for promoting language awareness. The initial survey results found that most of the EFL learners felt MT was a good learning tool. However, when

provided with an opportunity to use DeepL to translate a task in a classroom environment, most of the learners who participated ended up producing little of their own output. The study of Zhang and Qian (2023) aimed to explore the impact of MT and Post Editing (PE) on the quality of undergraduate translation students' translations in the early stages of their translator training by comparing their from-scratch translations and their PEMT-assisted translations. The students' (n = 10) translations generated by post-editing machine translation (PEMT) and from scratch were compared using a methodological technique. The translation's quality was assessed using a variety of approaches, including rubric-based scoring and error analysis. It was found that the quality of students' translations was compromised in comparison to the quality of their from-scratch translations. In addition, errors were more homogenized in the PEMT-based translations.

The purpose of Hasan, et al (2022) study was to examine the effect of mobile learning, specifically the use of WhatsApp, on the development of vocabulary learning of Bangladeshi tertiary level EFL learners. All of the 64 EFL learners in the study, all of whom had an intermediate level of English competence. The students' vocabulary knowledge (i.e., synonyms and antonyms) was assessed. The learners' homogeneity was assessed using the vocabulary test. In the 14-session treatment regimen, the experimental group learned new terminology via WhatsApp, while the control group got the standard traditional treatment. A vocabulary posttest for the both classes was conducted after the completion of the course. In addition, both groups were given an attitude questionnaire to see how they felt about the traditional vocabulary acquisition method and utilizing the WhatsApp approach. The usage of WhatsApp, according to the current research, promotes vocabulary development more effectively than traditional education. This study supports the constructivist viewpoint since WhatsApp allowed students to improve their vocabulary. In light of the findings of the current study, it is advised that teachers

who teach English language think about incorporating WhatsApp into their curriculum and using it to teach vocabulary in English-instructed classrooms. Because English language instructors may not have enough time in class to teach all the vocabulary words, WhatsApp enables them to cover more of them with their pupils.

The study of Deng and Yu (2022) aimed to present a systematic review of literature on MT-assisted language learning in terms of main users, theoretical frameworks, users' attitudes, and the ways in which MT tools are integrated with language teaching and learning. The study screened the retrieved studies based on inclusion and exclusion criteria. The study also identified the included studies by using a quality assessment questionnaire. To this end, relevant peer reviewed articles ($n = 26$) were selected through the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocol (PRISMA-P) for further analysis. The study revealed that undergraduates and graduate students were the main users of MT. Both students and teachers had opposing perspectives for a number of reasons. Furthermore, MT integration was found to have four phases: introduction, demonstration, assignment of tasks, and reflection. The study suggested that future MT integration methods may be enhanced and improved by adding more features.

The goal of Omar's study (2021) was to determine the worth and effects of using machine translation in language instruction. The study investigated a neglected area of second language instruction: the role of machine translation in vocabulary acquisition. Using a mixed qualitative and quantitative methodology, students' ability to employ online translators to respond to vocabulary problems in context was empirically evaluated. The evaluation included 47 volunteers, all of whom were fourth-year students preparing to graduate from a private Omani institution. The findings confirmed earlier research on the challenges that ESL students face in learning vocabulary, such as issues with using vocabulary well and understanding sequential lexical patterns. The results further revealed that online translators do not

provide an optimal solution to overcome obstacles in using vocabulary unless accompanied by higher metacognitive skills such as critical thinking and using words in context.

Ahmed, Ali and Sipra (2017) conducted a study to evaluate how a model created with computers and smartphones impacted the language learning of students in a public university's preparatory year programme. The study used a quasi-experimental pretest posttest control group design. The participants were 122 first-year students at a public university. The six-week course, which included language learning activities conducted via computers in the language lab and multi-glossed vocabulary cards transmitted to mobile phones via the WhatsApp social networking app, resulted in the treatment group doing better than the control group on the achievement post-test. The treatment's impacts were shown to be gender-neutral as it benefited both men and women equally. The finding of the study was encouraging and in line with a growing body of evidence that such interventions have potential to help learners learn EFL vocabulary and thereby remove a huge stumbling block out of their way in the reading process.

Machine translation tools are considered as an important and quick way to learn a language. The influence of machine translation especially in the digital age on vocabulary learning and even communication is dominant, due to this many researches and studies highlights the pervasive influence of machine translation on vocabulary acquisition. From Saudi Arabia to Bangladesh, Oman and now Yemen, studies demonstrate a shared interest in understanding the impact of machine translation on vocabulary and how learners engage with it.

Results

The table below presents the results abstained from the sample of the study on the influence of modern machine translation on vocabulary learning among Yemeni EFL Learners in the English Language Department, Faculty of Education, Thamar University, Yemen.

Item No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
The Extent of Machine Translation Usage							
1.	I think machine translation should not be permitted in EFL classes.	0	7	3	21	19	100 %
2.	I always use machine translation tools when I get stuck with difficult words.	29	18	1	0	2	100 %
3.	I use machine translation almost daily when I'm studying English vocabulary.	12	25	7	6	0	100 %
4.	I use machine translation immediately when I'm unsure of a word's meaning.	17	22	7	4	0	100 %
5.	I use machine translation only after I have tried to figure out the meanings of a word by myself.	10	29	8	3	0	100 %
6.	I use machine translation to see how a word is used in a sentence.	22	16	9	1	2	100 %
7.	I use machine translation as a valuable tool for vocabulary learning.	14	22	10	4	0	100 %

8.	I use machine translation as a supplementary tool in my vocabulary learning.	12	27	7	4	0	100 %
9.	I rarely use machine translation for vocabulary learning.	2	10	7	19	12	100 %
The Influence of Modern Machine Translation on Vocabulary Learning							
10.	Using machine translation in EFL classes can help me as a student learn in a way that matches my level.	24	20	4	2	0	100 %
11.	Using machine translation tools can help me improve my retention and comprehension of words with a wide range of semantic meanings.	23	20	0	4	3	100 %
12.	The influence of machine translation on vocabulary learning is often beneficial when these tools are used effectively.	20	25	4	1	0	100 %
13.	By providing different meanings of words, machine translation can	33	12	4	1	0	100 %

	help learners understand a wide range of meanings for an individual word.						
14	Machine translation can help learners develop a deeper understanding of word formation.	19	23	7	1	0	100%
15	Machine translation can facilitate vocabulary learning by providing instant access to definitions and synonyms.	28	18	3	1	0	100%
16	Exposure to diverse machine translation outputs can broaden vocabulary knowledge.	15	28	4	2	1	100%
17	Machine translation can help learners identify and learn new vocabulary in context.	23	18	3	5	1	100%
18	Machine translation can be used to explore the nuances of vocabulary.	17	26	3	2	2	100%
19	Machine translation can be used to adapt vocabulary learning,	17	20	9	2	2	100%

	making exercises fit the learner's needs or level.						
20	Machine translation can be a beneficial tool for providing peer feedback and making edits to text.	28	13	6	2	1	100%
21	Machine translation can be a valuable tool for learning idiomatic expressions and collocations.	17	17	9	5	2	100%
22	Modern machine translation systems are accurate enough to be relied upon for vocabulary learning.	16	16	10	5	3	100%
23	Machine translation tools can effectively translate complex technical texts.	17	19	11	1	2	100%
24	Using machine translation for vocabulary learning can lead to inaccurate or incomplete word knowledge.	9	23	11	5	2	100%
25	Using machine translation for vocabulary learning can hinder vocabulary	19	21	5	2	3	100%

	y learning by making learners depend too much on easy translations.						
26	Machine translation can cause memorizing translations rather than deep learning.	19	19	7	2	3	100%

The survey data from EFL learners at Tamar University revealed that machine translation (MT) tools are deeply embedded in contemporary vocabulary acquisition practices. A substantial majority of learners (78%) resort to MT immediately upon encountering unfamiliar lexical items, and nearly three-quarters report using it on a near-daily basis, illustrating its role as an integral and routine academic resource. Significantly, these tools are not used indiscriminately: the same proportion of respondents (78%) indicated that they first attempt independent comprehension before consulting MT, reflecting a purposeful and self-regulated learning strategy. Furthermore, (72%) regard MT as a supplementary rather than primary learning aid, underscoring a balanced and intentional approach to technology integration.

Learners widely recognize the pedagogical value of MT, with 88% affirming its utility in supporting personalized, proficiency-aligned learning. High percentages also noted its effectiveness in aiding retention of semantically complex vocabulary (86%) and in clarifying polysemous word meanings (90%). Additionally, MT was viewed favorably for navigating technical texts (72%) and mastering idiomatic expressions and collocations (68%). Despite these acknowledged benefits, learners exhibited a critical and reflective stance toward potential drawbacks. Concerns included the risk of incomplete lexical understanding (64%), overreliance on simplified translations that could impede deeper learning (80%), and

the tendency toward memorization rather than meaningful acquisition (76%).

The results of the first statement in the above table reveal varying opinions among the participants. A significant portion, comprising 42% of the respondents, disagreed with the statement, while 38% strongly disagreed. On the other hand, 14% agreed with the statement, and 6% remained neutral. This distribution suggests a considerable level of opposition towards the idea of allowing machine translation in EFL classes among the participants.

The analysis of the second statement indicates a strong inclination among the participants to utilize machine translation tools in such situations. A majority of 58% strongly agreed with the statement, while 36% agreed. Only a small percentage, 4%, strongly disagreed, and 2% remained neutral. The high percentage of strong agreement suggests that a significant number of participants rely on machine translation tools when encountering challenging vocabulary, highlighting the prevalent use of these tools for language learning support among the respondents.

The results of the third statement in the above table reveal that a significant majority of the participants rely on machine translation tools regularly for studying English vocabulary. Half of the respondents, accounting for 50%, agreed with the statement, while 24% strongly agreed. Additionally, 14% remained neutral, and 12% disagreed. Notably, there were no respondents who strongly disagreed with the statement. This data indicates a prevalent and frequent use of machine translation tools by participants in their daily English vocabulary study routines, underscoring the importance of these tools in their learning processes.

The analysis of the fourth item highlights a prevalent trend among the participants to resort to machine translation promptly when faced with unfamiliar words. A significant portion, comprising 44% of the respondents, agreed with the statement, while 34% strongly agreed. Additionally, 14% remained neutral, and 8% disagreed. Notably, there

were no participants who strongly disagreed with the statement. This data suggests that a considerable number of participants rely on machine translation tools as an immediate resource when encountering unfamiliar words, indicating the quick and frequent integration of these tools into their language learning processes.

The analysis of the fifth statement above indicates a predominant tendency among the participants to first attempt to understand word meanings independently before turning to machine translation tools. A significant majority, representing 58% of the respondents, agreed with the statement, while 20% strongly agreed. Additionally, 16% remained neutral, and 6% disagreed. Notably, none of the participants strongly disagreed with the statement. This data suggests that most participants prefer to rely on their own efforts to decipher word meanings before utilizing machine translation tools, showcasing a self-directed approach to vocabulary comprehension among the respondents.

The analysis of the sixth item reveals a prevalent practice among the participants of utilizing machine translation tools to explore how words are employed within sentences. A substantial portion, constituting 44% of the respondents, strongly agreed with the statement, while 32% agreed. Furthermore, 18% remained neutral, 2% disagreed, and 4% strongly disagreed. This data indicates a strong inclination among participants to leverage machine translation tools for contextual understanding, emphasizing the significance of observing word usage within sentences as part of their language learning process.

The analysis of the seventh item demonstrates a positive perception among the participants regarding the utility of machine translation tools in the process of vocabulary acquisition. A significant majority, with 44% agreeing and 28% strongly agreeing with the statement, acknowledges the value of machine translation for vocabulary learning. Additionally, 20% remained neutral, while only 8% disagreed. Notably, there were no participants who strongly disagreed with the statement.

This data underscores the participants' recognition of machine translation as a beneficial resource for enhancing vocabulary skills, indicating a favorable attitude towards incorporating technology into their language learning endeavors for improved proficiency.

The analysis of the eighth statement above indicates a prevalent mindset among the participants regarding the role of machine translation as an additional resource in their vocabulary learning processes. A substantial majority, comprising 54% who agreed and 24% who strongly agreed with the statement, recognize machine translation as a supplementary tool for vocabulary acquisition. Moreover, 14% remained neutral on the topic, while only 8% disagreed. Noteworthy is the absence of participants who strongly disagreed with the statement. This data suggests that a significant number of participants view machine translation as a valuable aid that complements their vocabulary learning efforts, highlighting the tool's supportive role in enhancing their language proficiency.

The analysis of the ninth item of the questionnaire unveils varying perspectives among the participants regarding the frequency of employing machine translation tools in their vocabulary learning endeavors. A notable portion, accounting for 38% of respondents, disagreed with the statement, indicating a regular utilization of machine translation for vocabulary acquisition. Conversely, 24% strongly disagreed, further emphasizing a significant reliance on machine translation tools for this purpose. On the other hand, 20% agreed and 4% strongly agreed with the statement, suggesting a less frequent use of machine translation in vocabulary learning. Additionally, 14% remained neutral on the topic. This data underscores a divergence in participant behaviors, with a substantial subset incorporating machine translation tools extensively into their vocabulary learning practices while others exhibit more restraint in their usage.

The analysis of the tenth statement above reveals a strong consensus among participants regarding the potential benefits of integrating machine translation into EFL

classes. A significant majority, comprising 88% of respondents who either strongly agreed or agreed with the statement, acknowledges the utility of machine translation in facilitating personalized learning experiences that align with individual proficiency levels. Additionally, 8% of participants remained neutral on the topic, indicating a moderate stance, while only 4% disagreed with the statement. Notably, no participants strongly disagreed with the assertion, underscoring a prevailing sentiment among the majority in favor of leveraging machine translation to cater to students' varying learning levels within the EFL classroom setting.

The analysis of the eleventh item illuminates a prevailing sentiment among participants regarding the efficacy of machine translation tools in enhancing vocabulary retention and comprehension. A substantial majority, comprising 86% of respondents who either strongly agreed or agreed with the statement, attests to the potential of machine translation tools in bolstering their understanding of words encompassing diverse semantic nuances. Conversely, a minor fraction, constituting 14% of participants who either disagreed or strongly disagreed with the assertion, expressed skepticism about the role of machine translation tools in improving retention and comprehension of words with varied semantic meanings. Notably, no participants remained neutral on this topic. These findings underscore a predominant belief among the majority of participants in the beneficial impact of utilizing machine translation tools to navigate the complexities of words with extensive semantic connotations.

The analysis of the twelfth item underscores a widespread consensus among participants regarding the positive impact of machine translation on vocabulary acquisition when employed judiciously. A significant majority, comprising 90% of respondents who either strongly agreed or agreed with the statement, recognize the potential benefits of machine translation in enhancing vocabulary learning outcomes when utilized effectively. Additionally, 8% of participants maintained a neutral

stance on the subject, indicating a moderate position, while only 2% disagreed with the assertion. Notably, no participants strongly disagreed with the statement, suggesting a prevailing belief among the majority in the advantageous role of machine translation in fostering effective vocabulary learning practices when applied appropriately.

The analysis of the thirteenth statement above reveals a strong consensus among participants regarding the potential of machine translation in facilitating a comprehensive understanding of the multifaceted meanings of words. The majority of respondents, constituting 90% who either strongly agreed or agreed with the statement, acknowledge the efficacy of machine translation in elucidating diverse meanings associated with individual words, thereby enriching learners' comprehension. Additionally, 8% of participants adopted a neutral position on the topic, suggesting a degree of ambivalence, while only 2% disagreed with the assertion. Importantly, no participants strongly disagreed with the statement, indicating a prevalent belief among the majority in the capacity of machine translation to provide valuable insights into the varied interpretations of words, thereby enhancing learners' grasp of vocabulary breadth and depth.

The analysis of the fourteenth item demonstrates above highlights a prevalent sentiment among participants regarding the role of machine translation in fostering a more profound comprehension of word structure and formation. A substantial majority, comprising 84% of respondents who either strongly agreed or agreed with the statement, recognize the potential of machine translation in aiding learners in gaining insights into the formation of words. Additionally, 14% of participants maintained a neutral stance on the topic, suggesting a degree of uncertainty, while only 2% disagreed with the assertion. Notably, no participants strongly disagreed with the statement, underscoring a prevailing belief among the majority in the utility of machine translation as a tool for

enhancing learners' understanding of word construction intricacies.

The analysis of the fifteenth item elucidates a prevailing consensus among participants regarding the facilitative role of machine translation in enhancing vocabulary acquisition through immediate access to definitions and synonyms. A significant majority, comprising 92% of respondents who either strongly agreed or agreed with the statement, acknowledges the efficacy of machine translation in expediting vocabulary learning by offering instantaneous access to essential linguistic information. Additionally, 6% of participants remained neutral on the topic, indicating a moderate stance, while only 2% disagreed with the assertion. Notably, no participants strongly disagreed with the statement, underscoring a predominant belief among the majority in the value of machine translation as a tool for streamlining the process of vocabulary learning through prompt access to definitions and synonyms.

The analysis of the sixteenth item reveals that many people think that seeing different machine translation results can help them learn more words. 86% of the participants agreed or strongly agreed with this idea. 8% were neutral, neither agreeing nor disagreeing, and only 6% disagreed with the statement. This shows that a majority of people believe that being exposed to various machine translation outputs can expand their vocabulary knowledge, making it easier for them to learn new words and phrases.

This analysis of the seventeenth item shows that many people believe that machine translation can assist in recognizing and learning new words within a context. A significant majority, representing 82% of the participants who either strongly agreed or agreed with the statement, support this idea. Only 10% of participants disagreed with the statement, and 6% remained neutral. This suggests that most individuals see the value in using machine translation to identify and comprehend new vocabulary within specific contexts, aiding in their language learning process.

This analysis of the eighteenth item shows a majority of the participants, making up 86% of the total, either strongly agreed or agreed that machine translation is a useful tool for delving into the subtle distinctions of vocabulary. Only a small percentage, 8%, either disagreed or strongly disagreed with this notion. Additionally, 6% remained neutral on the topic. This suggests that most people recognize the potential of machine translation in helping them explore and understand the finer nuances of vocabulary, indicating its value as a tool for language learning and comprehension.

The analysis of the nineteenth item suggests that a significant portion of participants, totaling 74%, either strongly agreed or agreed that machine translation can be effectively utilized to tailor vocabulary learning exercises to match the needs and proficiency levels of learners. A considerable proportion, 18%, remained neutral on this idea, indicating a degree of uncertainty, while only a small percentage, 8%, disagreed with the statement. This indicates a prevailing belief among the majority that machine translation can be instrumental in customizing vocabulary learning activities to suit individual learner requirements, thereby enhancing the effectiveness and efficiency of language learning processes.

The analysis of the twentieth item indicates that a majority of participants, accounting for 82% of the total, either strongly agreed or agreed that machine translation can serve as a valuable tool for offering peer feedback and assisting in editing text. A smaller percentage, 12%, remained neutral on this idea, suggesting a level of indecision, while only 6% disagreed with the statement. This implies that most people see the potential benefits of using machine translation for providing feedback from peers and making edits to written text, showcasing its utility in enhancing collaborative work and refining written content.

The analysis of the twenty-first item of the questionnaire above reveals that a significant portion of participants, totaling 68%, either strongly agreed or agreed that machine translation can be a beneficial tool for acquiring

idiomatic expressions and collocations. Additionally, 18% remained neutral on this idea, suggesting a level of uncertainty, while only 14% either disagreed or strongly disagreed with the statement. This indicates that a majority of individuals recognize the potential value of using machine translation to learn and understand idiomatic expressions and collocations, highlighting its usefulness in grasping the nuances of language and enhancing language proficiency.

The analysis of the twenty-second item indicates that a significant number of participants, totaling 64%, either strongly agreed or agreed that modern machine translation systems are sufficiently accurate to be trusted for vocabulary learning purposes. Moreover, 20% of participants remained neutral on this topic, showcasing a level of uncertainty, while only 16% disagreed with the statement, with 6% strongly disagreeing. This suggests that a majority of individuals believe in the reliability of contemporary machine translation systems for vocabulary acquisition, emphasizing their potential as effective tools for language learning and comprehension.

The analysis of the twenty-third item above shows that a significant majority of participants, comprising 72% of the total, either strongly agreed or agreed that machine translation tools can proficiently translate intricate technical texts. Additionally, 22% remained neutral on this assertion, indicating a degree of uncertainty, while only a small percentage, 6%, disagreed with the statement. This suggests that most people believe in the effectiveness of machine translation tools in accurately translating complex technical content, highlighting their potential utility in facilitating the understanding and communication of specialized information across different languages.

The analysis of the twenty-fourth item suggests that a significant portion of participants, totaling 64%, either strongly agreed or agreed that utilizing machine translation for vocabulary learning might result in inaccurate or incomplete understanding of words. Furthermore, 22% remained neutral on this idea,

indicating a level of uncertainty, while only 14% disagreed with the statement, with 4% strongly disagreeing. This indicates a prevalent concern among the majority regarding the potential for inaccuracies or gaps in word knowledge when using machine translation for vocabulary learning, underscoring the importance of caution and supplementary learning methods to ensure comprehensive understanding.

The analysis of the twenty-fifth item above indicates that a significant majority of participants, totaling 80%, either strongly agreed or agreed that employing machine translation for vocabulary learning could impede learning by encouraging learners to rely excessively on simple translations. Additionally, 10% remained neutral on this issue, suggesting a level of uncertainty, while only 10% disagreed with the statement, with 6% strongly disagreeing. This highlights a widespread belief among most individuals that excessive dependence on easy translations facilitated by machine tools might hinder the effectiveness of vocabulary learning, emphasizing the importance of promoting active learning strategies to enhance language proficiency.

The analysis of the last item reveals that a significant majority of participants, totaling 76%, either strongly agreed or agreed that machine translation has the potential to lead to memorizing translations instead of fostering deep learning. Additionally, 14% remained neutral on this matter, indicating some uncertainty, while only 10% disagreed with the statement, with 6% strongly disagreeing. This indicates a prevalent concern among most individuals regarding the risk of relying on memorization of translations rather than engaging in profound learning when utilizing machine translation tools, emphasizing the importance of employing diverse learning approaches to promote a deeper understanding of the language.

To put into a nutshell, the findings illustrate that EFL learners engage with machine translation in a discerning and metacognitively aware manner. They perceive it not as a replacement for autonomous learning, but as a

strategic support mechanism. For MT to fulfill its potential in enhancing vocabulary development, these results suggest the importance of guided, reflective use—where technology complements rather than supplants learners' cognitive and contextual engagement with the target language.

Discussion

The findings of this study illuminate the complex and reflective ways in which EFL learners engage with machine translation as part of their vocabulary development. Far from being passive or overly dependent, the learners demonstrate a strategic and self-aware approach. They show a strong preference for attempting to understand words independently before turning to translation tools, indicating a desire for genuine comprehension over convenience. At the same time, they recognize the practical value of machine translation for gaining quick access to meanings, seeing words used in context, and unpacking challenging idiomatic or technical language.

This balanced perspective reveals a critical understanding among learners: they see machine translation as a supplementary aid, not a substitute for their own cognitive effort. Their expressed concerns—about the risks of shallow memorization, incomplete knowledge, and overreliance on simplified translations—further highlight their metacognitive awareness of the learning process itself. These insights suggest that students are not merely using a tool, but are actively negotiating its role in their own development. Consequently, the key task for educators is not to prohibit these technologies, but to build upon this existing learner awareness. The goal should be to guide students in refining their already strategic use, helping them harness the efficiency of machine translation while continually deepening their autonomous, critical, and contextual engagement with the English language.

Comparison with previous studies

The experiences and perspectives of Tamar University students contribute meaningfully to the ongoing academic

conversation about machine translation in language learning, offering points of both confirmation and refinement to existing research.

The findings in the present study reinforce the constructive role of MT suggested by earlier studies. The high level of reliance our participants place on translation for immediate vocabulary support aligns with the work of scholars such as Abimbola (2023), who documented measurable improvements in vocabulary acquisition among learners using these tools. This study adds a relatable dimension to that finding, showing *how* students integrate that support into their daily practice. Similarly, it echoes the nuanced understanding presented by researchers like Yasser and colleagues, who in 2024 noted persistent challenges with translation accuracy, particularly for phrases and collocations. The caution voiced by our own students—who value the tool yet worry about incomplete understanding—reflects this same, critical awareness of the technology's limitations.

At the same time, the data from this study provides a complementary, often more agentic, perspective. For example, Young (2023) observed that machine translation could sometimes reduce students' own language production, the learners in this context reported using it strategically to *build* deeper contextual understanding. This active, analytical approach resonates with the emphasis placed by scholars like Omar (2021) on the higher-order thinking skills required for effective technology use. It suggests that the impact of the tool is deeply intertwined with the learner's purpose and strategy. Ultimately, this research situates itself within a balanced scholarly consensus. It affirms, alongside studies by researchers such as Albaqami (2024)) and Hasan, et al. (2022) that digital tools can be powerful facilitators in the learning process. Concurrently, it upholds the tempered and prudent outlook advised by other scholars, including Zhang and Qian (2023) and Deng and Yu (2022), by capturing learners' own conscious balancing of convenience against the risks of overreliance. The students' thoughtful engagement demonstrates that the

most productive path forward lies not in simple acceptance or rejection of the technology, but in fostering the reflective practices that allow it to serve genuine, deep learning.

Conclusions

This study revealed how EFL learners thoughtfully incorporate machine translation into their learning. They use it regularly for quick help but see it as a support, not a substitute, for their own effort. Students appreciate its ability to personalize learning and clarify complex language, yet they remain cautious about overreliance, which they fear may lead to superficial memorization rather than deep understanding.

The findings suggest that machine translation is most effective when used with intention and awareness. The future of language learning lies in guiding students to harness these tools not just for answers, but as a way to deepen their own engagement with and curiosity about the language. Pedagogically, this calls for the structured integration of MT into the curriculum through activities such as translation comparison, post-editing, and critical evaluation of output. Educators should foster a classroom culture that promotes metacognitive reflection and digital discernment.

Institutional support through teacher training and curriculum development is also essential to equip both instructors and learners with the skills to use MT responsibly. By embracing machine translation as a supplementary pedagogical tool—rather than resisting it as an academic threats—EFL programmes can enhance vocabulary acquisition, support learner autonomy, and prepare students for effective communication in a technology-mediated global context.-mediated world where digital literacy and autonomous learning are indispensable.

Recommendations

Based on the findings of the study, several recommendations can be proposed to optimize the use of machine translation tools in language learning. Firstly, it is essential to encourage learners to adopt a balanced

approach when utilizing machine translation tools. While these tools can provide quick word comprehension and aid in understanding idiomatic expressions and technical content, learners should also prioritize independent efforts to decipher word meanings. By engaging in self-directed learning strategies before resorting to machine translation, learners can deepen their understanding of vocabulary and enhance their language skills effectively.

Secondly, educators should emphasize the importance of using machine translation tools as supplementary aids rather than sole sources of learning. Learners should be encouraged to leverage these tools for contextual understanding and to observe word usage in sentences, facilitating a more comprehensive grasp of vocabulary. However, it is crucial to caution against excessive dependence on machine translations, which may hinder vocabulary learning by promoting memorization of translations over deep comprehension.

Lastly, to mitigate the risks associated with using machine translation for language learning, learners should be guided on how to effectively integrate these tools into their study routines. Educators can provide guidance on when and how to use machine translation judiciously, ensuring that learners strike a balance between utilizing these tools for assistance and engaging in independent learning activities. By fostering a strategic and mindful approach to the use of machine translation tools, learners can maximize their benefits in enhancing vocabulary learning while mitigating potential drawbacks.

Suggestions for further studies

Based on the findings and conclusions of this study, several clear paths for future investigation emerge. Researchers are recommended to explore how learners can best balance the use of machine translation tools with independent learning strategies to maximize vocabulary acquisition. This includes investigating the specific point at which a learner should transition from trying to decode a word independently to seeking assistance from translation technology. Furthermore, studies should focus on developing and evaluating targeted training

programmes that teach students how to use machine translation tools strategically and judiciously, guiding them on when and how to use these aids effectively. It is also crucial for future work to directly address the learners' expressed concerns, such as the risk of gaining incomplete word knowledge and the potential for these tools to hinder vocabulary retention by encouraging an overreliance on easy translations. Investigating these areas will help in designing more nuanced and effective language learning approaches that harness the support of technology while firmly promoting the autonomous skills necessary for long-term proficiency.

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