

## Machine Translation as an Educational Tool: Opportunities and Challenges for Learning Arabic as a Foreign Language

Khadija Bedraoui <sup>1</sup>, Hamama Belkacem <sup>2</sup>

<sup>1,2</sup> École Normale Supérieure Taleb Abderahmane of Laghouat, Laboratory of Linguistic Sciences,

<sup>1</sup>Email: [K.badraoui@ens-lagh.dz](mailto:K.badraoui@ens-lagh.dz)

<sup>2</sup>Email: [b.hamama@ens-lagh.dz](mailto:b.hamama@ens-lagh.dz)

Received: 21/07/2025; Accepted: 17/01/2026; Published: 23/03/2026

### Abstract:

In this research paper, we seek to shed light on one of the modern educational tools that learners of foreign languages in this era have come to refer to in their language acquisition journey, namely machine translation, by addressing it as an aid in promoting the learning of foreign languages in general and the Arabic language for non-Arabs in particular, by identifying and monitoring the extent of its potential to be an aid to learning the Arabic language with its unique characteristics, as well as monitoring the challenges that non-Arab learners may face when learning Arabic language through this tool, hence the central issue: to what extent can machine translation be relied upon in teaching languages in general and the Arabic language in particular? What are the possibilities that users of machine translation take advantage of for the purpose of learning Arabic and what challenges they face when doing so?

**KEYWORDS:** MACHINE TRANSLATION - TEACHING ARABIC- MACHINE TRANSLATION TOOLS - POSSIBILITIES - CHALLENGES.

“To have another language is to possess a second soul”- Charlemagne.

### 1. Introduction :

Modern technology has played a significant role in influencing many parts of human life as well as changing some of them due to the possibilities it has created, which have helped humans and overcome many difficulties, making it impossible to do without it without falling behind in progress and development. Translation is one of the human activities that has been known since ancient times, and technology and scientific research have played a role in creating another type alongside the human type, which is machine translation performed by computers. Its continuous development has played a major role in replacing human translation, which was the only way for translating all linguistic content, thanks to the unique features of this type (machine translation). If this type of translation represents a qualitative shift in the world of translation, it undoubtedly represents the same shift in the field of education, as the features that distinguish this type have helped students of various specializations to translate foreign texts into the languages they want. Moreover, it is an effective tool in the field of language teaching, as it is a field that requires translation. For this reason, machine translation has become not only a means of transfer but also an educational tool used by learners in their acquisition of a foreign language while all human languages share many characteristics; they differ in other features that distinguish them from their counterparts. Arabic is one of the most distinctive and unique languages, with features not found in many other languages. Therefore,

using machine translation for the purpose of learning this language is not the same as it's using in other languages such as English or French, despite the many possibilities and new benefits offered by machine translation programs. This is because learners face a number of challenges related to the relationship between the Arabic language and the limitations of these programs in this language.

This approach leads us to formulate the following key questions:

- To what extent can machine translation be relied upon as a means of learning foreign languages in general and Arabic in particular?
- What are the advantages for users of machine translation for the purpose of learning Arabic, and what challenges do they face in doing so?

To answer these two questions and related ones, we adopted a comparative analytical approach by presenting the potential of machine translation tools in language learning contexts and the corresponding challenges that limit their effectiveness. The paper also discusses examples of common translation tools and compares them in the context of teaching Arabic to non-native speakers. The article concludes with a general overview of the reality of these tools in light of what has been reviewed.

## **2. Theoretical and technical foundations of machine translation:**

All electronic activities focus on multiple theoretical and technical foundations that form the very basis of how such activities develop and operate. Machine translation, as one of these activities, is based on a combination of theoretical and technical foundations, knowledge of which is essential for a proper understanding of this modern technology. For this reason, we will first discuss these foundations before examining them as an educational tool which are:

### **2-1 Computational Linguistics:**

It is a branch of applied linguistics, and although its definitions are as numerous as its names, making it difficult to provide a comprehensive definition, linguist David Crystal has provided a comprehensive definition of this science, saying: It is a branch of linguistic studies that employs computational techniques and concepts to elucidate linguistic and phonetic problems. Many areas have developed, including the production of speech sounds by artificial means through the generation of sound waves with the necessary frequencies, speech recognition, machine translation, indexing alphabets, and conducting grammatical tests, in addition to other areas that require statistics and analysis" (Issam al-Din Abu Zallal, 2016, p. 13). What unites the multiple definitions of this branch of linguistics is that it is the scientific study of natural language from a computational perspective. Among the areas of application of computational linguistics are: documentation, electronic dictionary creation, linguistic statistics, morphological analysis, spelling and grammar checking, language teaching, and machine translation, which are the subjects of our discussion.

Computational linguistics is an applied science that focuses on the teaching and learning of languages and cultures. For this reason, it has used the computer as one of the most important media for combining sound, image, and writing. The main goal of this process is to move beyond traditional teaching methods based on rote learning, memorization, and listening, which are The main goal of this process is to go beyond traditional teaching methods based on rote learning, memorization, and listening as the primary means of transferring knowledge

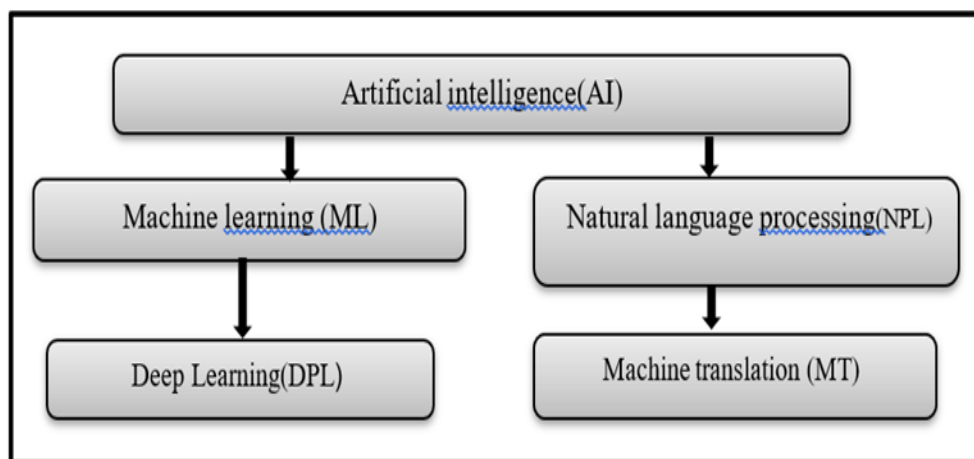
(Nasser Badash, 2024, pp. 70-71). From this came machine translation, a branch of computational linguistics that serves language through computers.

**2-2 Artificial intelligence (AI) and natural language processing(NPL):**

Artificial intelligence (AI) is defined as an advanced branch of computer science whose goal is to create systems and software that mimic human intelligence in its skills. The first problems it addressed was "the attempt to use natural languages directly in machines, without resorting to the artificial languages that computer scientists are accustomed to using, which are languages that computers understand. The early stages of attempts to use natural languages – specifically in the field of machine translation – by their inability to understand the semantic meaning of a sentence, so translation was done by matching words only, name to name and verb to verb, i.e., by manipulating words without representing the meaning of the sentence." (Alain Bonnet, 1992, p. 35). For this reason, it was called natural language processing rather than natural language understanding, as processing is a continuous process in which language is still being analysed and processed, rather than understood, which is the end result of processing.

Natural Language Processing (NLP) began as part of the field of artificial intelligence, and with the introduction of linguistics, its scope expanded and it became an interdisciplinary field that combines artificial intelligence and linguistics, and focuses on understanding deeply human language with analysing its system and how it is produced. The goal of NLP is to make computers able to handle text in the same way that humans usually do, relying on artificial intelligence and its algorithms represented in machine learning and deep learning.

Machine translation is one of the most important applications of artificial intelligence, as it relies entirely on natural language processing technologies to understand texts and then analyse them to transform them into another language. These technologies help improve the quality of translation by incorporating context into the process, which makes the translated texts easy to understand and clear in meaning.



**Figure 1: Conceptual architecture for integrating artificial intelligence and natural language processing in machine translation development**

Based on what has been said, we can say that machine translation is based on theoretical and technical foundations, where computational linguistics, artificial intelligence, and natural

language processing play an important role in developing its performance and improving its quality, especially with the continuous progress in these fields, which heralds – according to experts– a more advanced future for this technology.

### **3-Machine Translation:**

#### **3-1 Definition:**

Translation is linguistically defined as the transfer of speech from one language to another. While this is the most common definition of translation, it is not the only one. An examination of the definitions given for this activity reveals that it has different linguistic meanings in addition to the well-known definition. It means transformation, as in translating poetry into prose, or interpretation, as in saying that a letter was translated to make it clearer or to explain its content. As a technical term, it is defined as the process of transferring speech from one language to another in accordance with the intended purpose, while preserving the style and adhering to accuracy in the transfer. The translator undertakes this transfer, which requires mastery of both languages and familiarity with their respective cultures.

The term machine translation (MT) refers to the standard and traditional name agreed upon to describe such computer systems responsible for producing translations of texts from one natural language to another, whether with or without human assistance (Abdullah bin Hamad Hamidan, 2001, p. 9), It is also "a concept that refers to the rapid and immediate translation of a given text from the source language to the target language, using artificial intelligence and machine learning (Grag & Agarwal, 2019).

it is also defined as: the intervention of artificial intelligence through computer assistance to perform the act of translation using linguistic and cognitive patterns stored in the form of structures and terms retrieved from the source language (Saleh Belayid, 2003, p. 202).

Thus, we can conceptualize translation as a modern type of translation that comes from the field of computational linguistics and is based on the translation of spoken or written texts by a machine through retrieved stored data. It is also known as computer translation, computer-assisted translation, automatic translation, electronic translation, etc., all of which refer to the same process of translating texts by machine.

#### **3-2 Why machine translation?**

The emergence of this type of translation has had a significant impact on making the communication between languages very advanced, thanks to its unique characteristics, which have made machine translation an important tool for transferring knowledge and facilitating communication between cultures in numerous fields. These characteristics have led to greater efforts to develop this type of translation into a comprehensive system that provides its users with a fully integrated service. These characteristics are as follows:

- Speed:** Machine translation is known for its speed, as it is capable of converting texts at an extremely fast rate. “The methods and mechanisms used in machine translation can reduce the time required for machine translation by 25% to 50% compared to human translation” (Mohammed Bashir, 2015, p. 4).
- Diversity:** Machine translation is characterized by its ability to translate all types of texts (medical, legal, literary, religious, etc.) into other languages, unlike human translators who need to specialize in a particular field to translate texts.

•**Multiple language options:** Most machine translation programs provide translation services for a large number of languages, which is impossible to find in human translation.

However, despite these distinctive characteristics that human translation cannot equal because of its dependence on quick machines the results of analysing machine-translated texts and comparing them with human translations show that machine translation may reach the highest levels, but it is unable surpass human translation in terms of accuracy. This explains why translators are still used in many contexts despite the availability of machine translation, especially in translating cultural content, as translation necessitates proficiency in the language and understanding of its culture. The question of whether machine translation can replace human translation remains one that is hard to answer conclusively, the looking at the reality of translation today, which sees these two forms -human and machine translation- merging together without one replacing or dominating the other.

#### **4 Machine translation and language learning:**

Translation was one of the first methods used to teach foreign languages. This method was known as the “grammar-translation method,” which is one of the traditional methods of teaching foreign languages and is based primarily on teaching the language by translating texts between the first language and the foreign language. Despite the wave of criticism it has received for focusing only on reading and writing skills in the second language and ignoring communication skills listening and speaking, and despite the criticism that has been and continues to be directed at translation in every chapter in which it is mentioned as one of the tools of language teaching, its use in language teaching continues. Duff summed up his rejection of criticism of translation as a means of language learning by saying:

“Translation happens everywhere, all the time, so why not in the classroom?” (Maryam Sahebi, 2019, p. 158)

This statement is an explicit condemnation of those who refuse it and advocate for it in the field of language education. Despite this criticism and urgent calls for direct teaching and avoiding linguistic comparisons between the mother tongue and the target language when teaching the latter, the presence of translation as a linguistic tool remained a necessity. Despite the methods that followed, including the direct method, which strongly rejected the grammar and translation method, but this never undermined the status and presence of translation in the field of foreign language teaching and learning. This is because learning a language outside its environment requires translation, especially in the early stages of learning. This explains why it continues to be used in many language teaching centres around the world, if not as method, as a quick tool. Moreover, even though teachers and language teaching specialists reject it, learners still rely on it and it remains one of the most widely used methods.

With the advent of machine translation and the spread of its effective tools, it has become an important educational tool that learners use to translate sentences and texts and break down structures to understand meanings and how speech is constructed, which helps them in improving their language skills, especially in the context of what is known as autonomous learning, which is currently widely used thanks to technological tools that help individuals achieve self-improvement in learning without resorting to formal education, especially in the

field of foreign language learning, which is experiencing a great demand. Among the well-known electronic translation tools are:

- **Google Translate:** The most popular machine translation website, which is used by many students for academic purposes, including language learning. As a result of recently added features such as live translation and language practice using artificial intelligence, it has become more effective than ever in supporting language learning. Although it still faces some difficulties when translating certain texts, especially literary and cultural texts with precise terminology.
- **DeepL:** Another machine translator that is considered more accurate than Google Translate, it uses artificial intelligence to provide more accurate and contextual translations. It is considered an effective tool for improving writing skills and language learning, and it is also one of the platforms that best support the Arabic language.
- **Yandex.Translate:** An automated website that supports more than 100 languages and is particularly accurate in Slavic languages. However, its Arabic translations are not as accurate as those in other languages. It has similar features to DeepL, and although it may be helpful in language acquisition, it is not the best option for learners because it makes mistakes due to neglecting context and providing overly literal translations.
- **Reverso Context:** Considered one of the best translation tools currently available on the market, this website offers translation services for many languages, including Arabic. It is known for providing AI-powered translations with contextual examples, enabling users to learn the correct usage of vocabulary in different contexts.
- **QuilBot:** A versatile AI-powered tool that supports Arabic and more than 45 other languages, providing translation and many other services.
- **ChatGPT:** Considered one of the most powerful learning aids thanks to the many features it offers, including translation, which makes it a go-to tool for learners looking to develop their language skills. It is an effective language learning tool because it: It provides natural, non-literal translations and explanations of grammar rules during translation when needed by the learner. It provides examples of the linguistic uses of words and sentences in different contexts.

Although learners often use machine translation tools as a helping tool to learn foreign languages and consider them an effective support tool for language acquisition, language teaching experts have different points of view; thus, they have not paid a lot of attention to them because they consider them a restrictive tool that prevents learners from thinking in the foreign language without going through their mother tongue. They consider that this linguistic bridge makes “the matter confusing due to the psychological resistance caused by the mother tongue itself and the loss of means of expression in that language, and that translation exercises simultaneously lead to a disruption of linguistic ability in the mother tongue itself and a loss of means of expression in that language.” (Naima Rouabah, 2023, p. 82). In other words, by using translation alone for the purpose of language learning, learners lose over time the ability to produce language, which is regarded as the strongest indicator of true linguistic competence. They believe that this affects not only the target language but also extends to the mother tongue.

### **5 Developing language skills through machine translation:**

Language learning basically depends on strengthening the four language skills: listening, reading, speaking, and writing, so that learners can properly control the language in terms of pronunciation, composition, and production. Reaching this level requires a lot of effort, but the current tools have saved language learners a lot of effort. The use of machine translation for language learning has proven this through the learners' own use of this tool. With regard to their perceptions, "systematic research shows that, as expected, students enjoy using machine translation apps, while most teachers consider their use unproductive and disruptive, and even often a form of academic dishonesty. In this context, we would like to highlight a frequently cited survey conducted at Duke University among more than 900 undergraduate students. The data shows that learners frequently use online translators both in the context of their everyday life and in academic settings" (Per Urlaub and Eva Dessein, 2022, P02).

Studies by some educational linguists on evaluating student interaction with electronic translators have also highlighted the contribution of these translators in enhancing learners' linguistic awareness by providing immediate feedback on writing and pronunciation. In terms of writing, they can provide written corrections to students by offering suggestions or replacing words with more appropriate ones that fit the context. However, this requires continuous interaction to improve writing skills in the target language. A study entitled "Effects of Machine Translation on L2 Writing Proficiency: The Complexity, Accuracy, Lexical Diversity, and Fluency" showed that students' writing practice was limited at first, but with the help of machine translation, they were able to expand their writing in the second language, which in turn increased their confidence in writing in the second language. Fredholm pointed out that "one of the most important aspects of using machine translation is that it increases students' confidence in themselves as writers in the second language" (see Sangmin-Michelle Lee, 2024, p. 12).

In addition to enhancing writing skills, machine translation is a tool that helps learners develop their reading skills. A study by Cliord, Merschel, Munné, and Reisinger in 2013 on the use of machine translation in language learning, it was found that "Machine translation is not only used by the language learner in completing writing tasks but also helps them to comprehend text in reading class. It gives some directions while they are reading" (Rizka Mahardika, p. 55).

Machine translation is a tool that helps learners develop their reading skills by translating texts into the target language, especially since learners tend to learn a language by translating texts that match their interests. They also often use it when they find difficulties in reading texts, especially when they cannot understand the meanings. Machine translation is a means of enhancing this skill and becomes another form of bilingual books.

When it comes to speaking, however it is a more complex skill than writing, MT can help learners improve their speaking skills to some extent, especially as it relies on artificial intelligence applications, which are known for providing accurate translations and the interactive nature that speaking requires. However, overuse of this tool can make learners unable to think in the target language. For this reason, experts recommend that MT be used just as an aid not to replace direct learning, no matter how advanced it may be.

Studies show that improvement in language skills, including writing, reading, listening, and speaking in a foreign language, requires two things: First, a reasonable level of proficiency in

the foreign language, and second, a sound knowledge of machine translation and also a set of skills now often referred to as 'machine translation literacy'. The first condition can only be achieved through repeated practice." (Alice Careé, 2022, p. 195), the second can be achieved through a good knowledge of machine translation systems and by consulting linguists and foreign language teachers.

## **6 Machine translation and the Arabic language:**

Arabic is one of the most widely spoken languages in the world, with over 450 million speakers worldwide. It stands alongside English, French, Chinese, Russian, and Spanish as of the world's major languages. As a result, more and more non-native speakers are learning Arabic for religious, political, economic, and cultural purposes. However, the most prominent of these purposes are political and religious. No matter why people learn Arabic, "if we look at the world in general, we will find that there is hardly a country in the West or the East that is not interested in teaching Arabic, as evidenced by language institutes, Oriental studies, and departments of Oriental studies and Arabic language in universities." (Mahmoud Kamel Al-Naqa, 1985, p. 21).

The use of computers in language clearly shows the close relationship between the Arabic language and computers, this is due to features of the Arabic language that make it suitable for automatic processing, such as its phonetic regularity, rich morphological system, and the relationship between pronunciation and writing... etc. The automatic processing of the Arabic language, which began to be researched in the 1970s, has now become a global requirement, not just a national one, due to the important status of this language. This research has expanded over many years to include machine translation of the Arabic language.

There can be no doubt that Artificial intelligence technologies have had a significant impact on the development of machine translation systems, contributing to improving their quality and accuracy and making them very capable in dealing with different languages, including Arabic. Although the nature of the Arabic language -in particular- makes it somewhat difficult for machine translation systems to process its precise structures, complex morphological system, contextual meanings, and changing meanings with different inflections, etc., etc., and other characteristics that are considered a thorny issue which make translation more challenging, especially when compared to the remarkable progress achieved in machine translation for other languages.

This technological development pushed education in general to keep up with modern technology, which has encouraged learners themselves to take advantage of the applications, tools, and systems it has produced. These technological changes have entered the field of Arabic language learning, and non-native learners have turned to these modern tools to facilitate their acquisition of the language. In this context, MT has become one of the most important tools.

## **7 Comparison of machine translators:**

### **7-1 Accuracy:**

The tables below show the results of translating a number of simple sentences using three different translation programs, in order to demonstrate the ability of a sample of translation programs to accurately convey meaning:

|                         |   |
|-------------------------|---|
| The Sentence→           | “If you can’t explain it to a six-year-old, you don’t understand it yourself” |
| Machine translator↓     |   |
| <b>Google translate</b> | إذا لم تتمكن من شرح الأمر لطفل يبلغ من العمر ست سنوات، فأنت لا تفهمه بنفسك.   |
| <b>Deepl</b>            | إذا كنت لا تستطيع شرحها لطفل في السادسة من عمره فأنت لا تفهمها بنفسك.         |
| <b>Yandex Translat</b>  | إذا كنت لا تستطيع شرح ذلك لطفل عمره ست سنوات، فأنت لا تفهم نفسك.              |

|                        |   |
|------------------------|---|
| The Sentence→          | “Knowledge is the key to unlocking new opportunities in life” |
| Machine translator↓    |   |
| <b>Reverso Context</b> | المعرفة هي المفتاح لإطلاق فرص جديدة في الحياة                 |
| <b>QuilBot</b>         | المعرفة هي المفتاح لفتح فرص جديدة في الحياة                   |
| <b>ChatGPT</b>         | المعرفة هي المفتاح لفتح آفاق جديدة في الحياة.                 |

Because the two sentences are so simple and do not contain implicit meanings or cultural references, it can be seen that the translations do not differ greatly and reflect the right meaning of the sentence. Most machine translation programs usually handle well with simple sentences and clear texts. However, issues arise- that make the translation unnatural- when dealing with complex sentences and texts with cultural contexts especially. There is no doubt that these complexities create challenges even for human translators, both linguists and computer scientists emphasize that existing MT programs are only aids and cannot completely replace human translation, especially when translating from or into Arabic.

To show the problems that users usually face when translating sentences with implied meanings, we take the following sentence and apply the same tools: “What goes around comes around,” which in English-speaking cultures means “you reap what you sow.”

|                         |                                      |
|-------------------------|--------------------------------------|
| <b>Google translate</b> | ما يدور حولها ويأتي حولها            |
| <b>Deepl</b>            | ما يدور في الجوار يأتيك ما يدور حولك |
| <b>Yandex Translate</b> | ما يدور حولها يأتي حولها             |

|                 |  |
|-----------------|--|
| Reverso Context | كما تُدين تُدان- لا تحصد إلا ما زرعتَه |
|-----------------|--|

It should be noted that the translations provided by (Reverso Context) and (ChatGPT) were accurate and natural for the first sentence, while the translations provided by the other websites were literal (unnatural) and did not reflect the true meaning of the given proverb. The first website also provided more illustrative contextual examples alongside the possible translations of the phrase, showing how context influences meaning. Arabic is one of the languages whose meanings are most affected by the different contexts in which they appear. Such machine translations are therefore an effective tool when learning the language

Context | Reverso

☆ Be careful how you treat others; what goes around comes around in unexpected ways.  
 «» له كن حذراً في كيفية معاملتك للآخرين؛ كما تدين تُدان بطرق غير متوقعة.

☆ Sarah helped me when I was in need; what goes around comes around.  
 «» له ساعدتني سارة عندما كنت في حاجة؛ الدنيا دَوارة.

☆ His kindness was repaid tenfold, proving that what goes around comes around.  
 «» له تم رد لطفه عشرة أضعاف، مما يثبت أن الدنيا دَوارة.

☆ The politician's corrupt practices caught up with him; what goes around comes around, indeed.  
 «» له لحقت بالسياسي ممارساته الفاسدة؛ حقاً، من حفر حفرة لأخيه وقع فيها.

☆ He tried to sabotage his colleague's project, but what goes around comes around, and it backfired.  
 «» له حاول تخريب مشروع زميله، لكن من حفر حفرة لأخيه وقع فيها، وارتد الأمر عليه.

☆ Remember, what goes around comes around, so always treat others with kindness and respect.  
 «» له تذكر، كما تدين تُدان، لذا عامل الآخرين دائماً بلطف واحترام.



Figure (2): Contextual examples of the phrase “what goes around comes around” as found on the Roverso Context website - Source: <http://context.reverso.net>

### 7-2 Diacritics:

Diacritics have great importance in determining meaning in the Arabic language, and this is one of the main difficulties faced by machine translation systems." Although there have been attempts to develop automatic text-diacritization systems, their accuracy remains limited compared to what a humans can achieve. This limitation exposes the computer to significant problems related to understanding the intended meaning of an unvoveled word or sentence, which may even lead to distorting or completely changing the meaning". (Nasira Idir, p. 23) For example, words derived from the root 'a-b-r (عبر) can be read in several ways without diacritics: 'abara (عَبَرَ), 'ibarun (عَبْرٌ), or 'abbara (عَبَّرَ).

To observe how translators handle such words in different positions within a sentence, we translated them using (Google Translate) and (ChatGPT) Translator:

| chatGPT                                       | GT                                | The sentence |
|---|-----------------------------------|--------------|
| In the story, there are <b><u>lessons</u></b> | In the story <b><u>across</u></b> | في القصة عبر |

The GT translation was “across,” which means “to cross” or “to cut,” and is an incorrect translation given the sentence in which it appears, while the other tool translated it as “lessons,” which is the correct translation for this context.

In summary, from this simple comparison between machine translation tools, through which we wanted to show how some of the most popular machine translators deal with the Arabic

language, which cannot be said to cover all aspects of the comparison, we can conclude that these tools are similar in their ability to interact with Arabic sentences, with slight differences in how context is translated. Overall, these tools are more useful as educational aids for those with an advanced level of the language, while beginners or even intermediate learners cannot rely on them to a significant extent in their acquisition of the language.

## 8 Opportunities and challenges:

### 8-1 Possibilities:

Machine translation offers a lot of services that non-native Arabic language learners can use to develop their skills. Computers have contributed greatly to language learning by providing learners with attractive and interesting methods that facilitate the learning process, including:

- Instant translation of texts and reading enhancement: through translating texts from their native language into Arabic, learners can improve their reading skills, especially since reading is an important skill for understanding the linguistic features of the target language.
- Increasing vocabulary: Translation is an important tool for expanding vocabulary; thus, by using machine translation programs, language learners can develop their vocabulary by translating words and sentences.
- Improving pronunciation and listening: Using the automatic speech feature available in many machine translation applications, Arabic language learners can familiarize themselves with Arabic sounds and learn to pronounce them correctly. This feature is particularly useful for sounds that are unique to Arabic, such as (ض-ظ-ق-ع-غ).
- Spell check: The tools provide spell correction for mistakes made by the learner by offering suggestions for correction, such as Google Translate. When we enter the following two sentences:  
 "يتعلم الطفل اللغة" (The child learns the language), the program suggests the correction: "يتعلم" (The child learns the language).  
 "مأسف جداً أن ترا" (It is very sad to see), the program suggests the correct spelling: "مؤسف" (It is very sad to see).
- AI-powered tools can provide explanations of conjugation rules, enabling learners to understand verb conjugation rules according to the contexts in which they appear. For example, when entering the verb "سمع" the conjugations may appear: present tense (يسمع) – imperative (اسمع), and its root may also appear (س م ع)
- Understanding contextual meanings: Through machine translation, learners can understand words with multiple meanings, enabling them to differentiate between them in different contexts. For example, when translating "وضع" (DeepL) in different contexts, the learner learns that the meaning of this word (وضع) changes with the context and situation. This is the case for many Arabic words:

| The sentence           | (DeepL)                          | The meaning  |
|------------------------|----------------------------------|--|
| وضع الجريدة على المكتب | He put the newspaper on the desk | وضع = وضع شيئاً في مكان ما<br>To place something somewhere |
| وضعت المرأة مولودها    | The woman gave birth             | وضعت = أنجبت   |

|                       |  |                                 |
|-----------------------|--|---------------------------------|
|                       |  | Gave birth to                   |
| أساليب وضع الدستور    | Constitution –making methods               | وضع = سنّ<br>Drafting or making |
| كان في وضع لا يسمح له | He was in situation that did not allow him | وضع = حال أو موقف<br>situation  |

### 8-2 Challenges:

Before pointing out the challenges faced by learners of Arabic as a foreign language , let us take a closer look at the problems faced by machine translation of Arabic, which are the main responsible for the poor quality of machine translation of this language. Despite the significant progress made in machine translation achieved through the efforts of researchers and specialists in this field, including linguists and computer scientists, Arabic remains one of the languages that faces many problems, the main causes of these problems can be summarized as follows:

- The lack of a computerized Arabic dictionary
- The scarcity of translated texts between Arabic and other languages that could be used to build a useful linguistic corpus for statistical machine translation
- Lack of linguistic research related to machine translation from and into Arabic and lack of sufficient support for research in this field, including research on statistical analysis, speech recognition, the problem of polysemy, the problem of phonetically similar morphological analysis, the problem of understanding meaning from context, the problem of parsing and syntax, and the problem of morphology
- The lack of collaboration between researchers in the field of Arabic language processing and researchers in other Eastern languages such as Turkish, Persian, Urdu, Bengali, Malay, and Swahili. (Mohammed Zaki, p. 442)

Looking at these problems, which summarize the reality of the Arabic language in the context of machine translation, reveals that Arabic is still far from producing accurate translations, that truly represent the natural form of the language, with its wide range of vocabulary and diverse contexts, and is unable to reflect the true nature of the language in its linguistic form (sentence, text, poetry, etc.). Therefore, the imbalances we encounter when we want to convert a speech or text into Arabic are logical given the lack of efforts to promote and upgrade the system in a world now ruled by digitization.

If we were to attribute these problems to a single cause and summarize them, it would undoubtedly be the scarcity of Arabic linguistic resources in machine translation systems, which makes it very difficult for learners to use this tool, unless they have a good command of the language, enabling them to distinguish between strange and correct, natural and literal translations. However, if the language is unfamiliar to them, they will inevitably become confused, which will prevent them from understanding what they intended to translate, believing that they would find what they were looking for in machine translation.

Perhaps a suitable way to conclude our discussion of the challenges facing foreign learners of Arabic is to talk about translation itself as a means of learning foreign languages, as this method has long been criticized since the days of the “grammar-translation method.” and the

use of translation in foreign language learning continues to be criticized, as it is seen as a method that does not expose the learner sufficiently to the target language by relying on its translation into the learner's native language, which may prevent them from thinking in that language. In the (Berlitz) method of language teaching, three arguments are presented for avoiding translation:

“Translation wastes valuable learning time which should be devoted entirely to the foreign language; translation encourages mother-tongue interference; all languages are different ( every language has its peculiarities, its idiomatic expressions and turns, which cannot possibly be rendered by translation” ( Pavan Elisabetta,2011,P132-133)

## 9 Conclusion:

In light of what has been discussed, we can say that machine translation is a modern means of bringing languages and cultures closer together and one of the most important learning tools, especially in the field of foreign language education. This technology has therefore been widely embraced by those seeking to acquire a second language and has become their go-to tool for enhancing their language skills in that foreign language, given that its tools have developed to such an extent that they largely meet the needs of learners. To provide a better understanding of the results we have reached through this brief research, especially in the context of learning Arabic to non-Arabs, we summarize them in the following points:

- Machine translation is an aid to learning foreign languages and is preferred by learners over other methods.
- The use of machine translation has an impact on learners' language skills, as it provides them with capabilities that reduce the difficulties of acquiring a second language.
- Machine translation tools help Arabic language learners improve their skills.
- Machine translation is not a sufficient means for non-Arabs to learn Arabic.
- Machine translation offers considerable potential for learners of Arabic.
- Machine translation programs have shortcomings, especially when dealing with Arabic, which affect their quality as an educational tool.

Despite the flaws that plague most existing machine translation programs and their inability to meet all the demands of learners who rely on them as aids, the shift of learners this time towards them increases their importance and makes them a serious research topic. Therefore, examining this development in depth has become a necessity, as their importance has gone beyond the field of language translation to the field of education.

## 10 References:

- Abdullah bin Hamad Hamidan (2001), Introduction to Machine Translation, Al-Obeikan Library, Riyadh
- Abu Zalal Issam al-Din (2016), Introduction to Computational Linguistics, Dar al-Wafa Publishing House, Alexandria
- Alan Bonnet, Artificial Intelligence: Its Reality and Future (1992), translated by Ali Sabri Farghali, World of Knowledge, Kuwait.
- Al-Bawab Marwan, Machine Translation, Arabic Language Academy, Damascus
- Alice Careé(2022),” Machine Translation for language learners”, Université Grenoble-Alpes.

- Al-Naqa Kamel Mahmoud (1985), Teaching Arabic to Speakers of Other Languages: Foundations and Teaching Methods, Arabic Language Institute, Umm al-Qura University.
- Badash Nasser (2024), Computerization of the Arabic Language: Between Theory and Practice, Academic Book Center.
- Bashir Muhammad (2015), Conference Book (1): Arabic Language and Literature: A Contemporary View, Kerala University, India
- Grag A,& Agarwal M, Machine translation: a literature review , arXiv preprint arXiv:1901.01122
- Khader Zaki Muhammad, Machine Translation and the Arabic Language: Problems and Solutions.
- Maryam Sahebi , “The importance of Translation in language learning”, International Journal of Applied Research 5, 10(2019)
- Pavan Elisabetta(2011), “The simpsons: Translation and language teaching in an EFL class”,Studies in second language learning and teaching 1,no.
- Per Urlaub and Eva Dessen(2022),” Machine Translation and Foreign Language Education “(Frontiers in Artificial Intelligence
- Rawabh Naima (2023), Muhammad Ayesh, “Neural Machine Translation and Its Impact on the Educational Process in the Context of Multilingualism,” Journal of Literature, Languages, and Humanities, Emir Abdelkader University of Islamic Sciences, Vol. 6
- Rizka Mahardika, The Use of Translation Tool in EFL learning:Do Machine Translation give positive impact in language learnin?,Uneversitas Negeri Malang, Journal of English Language Teaching.
- Saleh Belayad, Lessons in Applied Linguistics (2003) Dar Houma, Algeria.
- see Sangmin-Michelle Lee(2024),“ Effects of Machine Translation on L2 writing proficiency:The Complexity, Accuracy,Lexical Diversity, and Fluency”, Language Learning & Technolog.