

Modern Translation Technologies and Their Impact on the Quality of Textual and Interpretation Translation

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تقنيات الترجمة الحديثة وتأثيرها على جودة الترجمة النصية والفورية

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تخصص ترجمة الجامعة المستنصرية

Abstract

This research aims to discuss the importance of translation when using new computer-based methods that facilitate the translation process and make it faster. It also highlights some of the challenges faced by translators when using these methods. The research explores the theoretical aspects of the study from all angles. It then examines 10 diverse sentences translated using both human and machine translation methods. Through analysis of the meanings, vocabulary, and style, the results are drawn. The study concludes that while computer-based translation increased speed, it failed to capture the expressive qualities offered by the other method.

Keywords: Computer translation method – Traditional translation method – Performance

المستخلص

تهدف هذه الدراسة إلى مناقشة أهمية الترجمة عند استخدام أساليب حاسوبية حديثة تُسهّل عملية الترجمة وتجعلها أسرع. كما تُسلط الضوء على بعض التحديات التي يواجهها المترجمون عند استخدام هذه الأساليب. تستكشف الدراسة الجوانب النظرية من جميع جوانبها، ثم تُحلّل عشر جمل متنوعة مترجمة باستخدام كلٍّ من الترجمة البشرية والآلية. ومن خلال تحليل المعاني والمفردات والأسلوب، يتم التوصل إلى النتائج. وتخلص الدراسة إلى أنه على الرغم من أن الترجمة الحاسوبية زادت من سرعة الترجمة، إلا أنها لم تُحقّق نفس مستوى التعبير الذي تُوفّره الترجمة الآلية.

الكلمات المفتاحية: الترجمة الحاسوبية – الترجمة التقليدية – الأداء

Introduction

Understanding the languages of different peoples is of great importance, and this understanding must be clear and expressive.[1] Many modern programming methods have emerged to assist in this matter.[2] The current research aims to explore the subject of study in all its dimensions Let's take advantage of its advantages and combat its disadvantages.

Research Problem:

The need to understand computer translation in all its dimensions Let's take advantage of its advantages and combat its disadvantages.

Research Significance:

Understanding the subject of study in all its dimensions Let's take advantage of its advantages and combat its disadvantages. Its characteristics include improving translation, eliminating errors, and enhancing accuracy. Furthermore, it assists translators in their work. Modern tools are also useful for detecting errors in simultaneous translation, thus minimizing their occurrence.

Research Objectives:

- To detail modern translation tools.
- To define the translator's role in the emergence of modern technologies and their understanding of these tools.
- To study the challenges facing simultaneous translation.

Systematic Review

The study by Nwangoku and Zaki (2024) showed that translators are aware of the extent of the development of translation and its tools to keep pace with it in their translation performance, which led to clear improvements in the accuracy of their work to the fullest extent. However, it is not without difficulties that specialists face due to the difference between cultures from one country to another and the fine details that relate to each country more than the other, which the tools cannot handle [3].

A study by Martikainen et al. (2025) investigated the effects of the GPT-4 language model on the productivity, quality, and user experience of an internal language translation services team within a large district of social services in Finland. Quality was assessed using four measures (human target translation editing rate, bilingual evaluation alternative, explicit order translation evaluation scale, and N-gram character F-score) applied to 1,373 pairs of GAI and human syllables. User experience was investigated through five semi-structured interviews, including one with the team supervisor. The results indicated that machine translations were, on average, 14% faster than translations from scratch (2.75 characters vs. 2.40 characters per second, $P = 0.03$), and up to 37% faster when the number of syllables was equal between the translators.

This article describes an experiment using statistical and neural machine translation systems for literary translation.[4]

(Moorkens et al., 2018). The research was based on translating a set of phrases by a group of translators who were asked to start translating from scratch as the first type of translation, then as the second type of translation they were asked to modify what the computer translated using neural networks, and as the third type of translation they translated what the computer translated using statistical methods. After they finished translating, a questionnaire was distributed to them. The results showed that most of these translators preferred the first type of translation because it gave them freedom of expression without restriction, and a small group of respondents preferred the third and fourth methods, and this group was weak in translation and therefore found assistance from the program [5].

The study by Macken et al. (2022) focuses on literary translations from English to Dutch performed in a professional environment using a machine translation-enhanced workflow. [6]

The added value of this study

The importance of this research lies in studying the quality and accuracy of modern translation from all aspects, the importance of having and training translators capable of handling modern tools, reducing the risks that affect translation, and promoting optimal communication between the cultures of countries.

Research Text

Review of Practical Translation Tools:

Modern applications and quality methods assist translators by increasing speed and accuracy and reducing errors.[7] For example, we mention the CAT method. This method means computer translation, which combines electronic and human performance.[8] It uses memory for saving, storing, and retrieving quickly to reduce effort; that is, it relies on the principle of repetition in translation.[9] As for the NMT translation method, this method is based on the adoption of machine learning and artificial intelligence methods.[10] This helps to delve deeper into the text to develop quality and accuracy by relying on alternative intelligence on the one hand, and reducing errors and improving the quality of translation on the other[١١].

Designing an applied model for using modern translation tools on diverse texts

To create a model for using modern real-time translation by selecting diverse texts in all fields such as politics and literature, applying advanced software tools such as cat and nmt to the texts presented [12], with emphasis on the speed of translation and the required accuracy of translated terms. The main goal of these programs is to measure the ability to keep pace with traditional translation while preventing the difficulties that modern translation tools may encounter.[١٣]

A Comparative Study Between Manual Translation and Translation Supported by Modern Technologies

Through ongoing research comparing human and machine translation, we have found that manual translation is more useful and reliable in terms of accuracy, cultural context, and conveying specific meanings [4]. The well-known method of interpreting words in other languages is more accurate and closer to human understanding. [9] and less expensive. We must combine both methods to ensure translation quality.

Table (1) Comparison between Human and new translation

Aspect	Manual translation:	Translation aided by modern technologies:
Accuracy	High quality with deep cultural understanding	Good, but may lack full cultural context.
Speed	Slower than technical translation	Very fast, suitable for large and urgent texts.
Cost	Higher cost due to time and effort	Lower cost, especially for large projects.
Consistency	Depends on the translator's skill	Improved consistency using translation memory and CAT tools.
Challenges	Stressful and requires high skill levels	Requires high-quality training data and human review.

This allows translators and stakeholders to choose the optimal approach based on the text type, quality requirements, and available resources.

Practical applications

Below is a collection of phrases that have been translated using my translation style.

Climate change is one of the most pressing global challenges, requiring urgent and coordinated international action.	Original text
" . هو أحد أكثر التحديات العالمية إلحاحًا، ويتطلب عملاً دوليًا عاجلاً ومنسقًا تغير المناخ"	Manual translation
" . يعد من أهم التحديات العالمية التي تتطلب تحركًا دوليًا سريعًا ومنسقًا تغير المناخ"	Advanced translation

Machine translation is characterized by its high speed, but it sometimes alters the wording of sentences because it focuses on translation	Manual translation is characterized by accuracy in the choice of terminology and respect for the cultural and
The new technology improves efficiency and reduces costs	Original text
تعزز الكفاءة وتخفض التكاليف بشكل ملحوظ	Manual translation
"تحسن الكفاءة وتقلل التكاليف"	Advanced translation

Advanced translation is faster, but it may lack some subtle details	Manual translation improves the accuracy of word choice and phrasing
Cultural diversity	translation
التنوع الثقافي	Advanced translation
يشري المجتمعات العالمية التنوع الثقافي	

Machine translation is faster and simpler in expression	Manual translation conveys meaning more flexibly
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Education plays a vital role in social development	Original text
" له دور حيوي في التنمية الاجتماعية للتعليم "	Manual translation
. يلعب دورًا هامًا في التنمية الاجتماعية للتعليم	Advanced translation

Renewable energy	Advanced translation delivers the required information without much explanation or cultural .depth	Manual translation reflects a deep understanding of the social .context
الطاقة المتجددة		Manual translation
" .تساعد في تقليل التلوث البيئي مصادر الطاقة المتجددة "		Advanced translation

Government	Advanced translation is .direct and fast	Manual translation relies .on balanced phrasing
تؤثر بشكل كبير على النمو الاقتصادي للسياسات الحكومية		Manual translation
تؤثر تأثيرًا كبيرًا على النمو الاقتصادي للسياسات الحكومية		Advanced translation

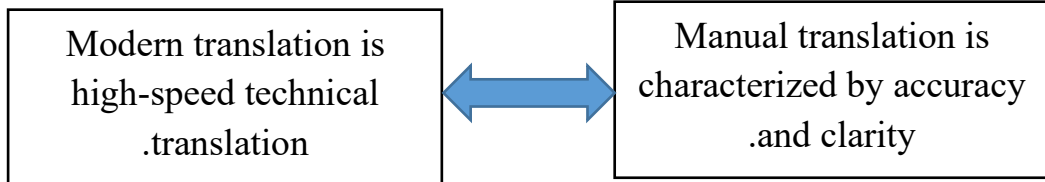
Advancement	Advanced translation techniques tend to be .more literal	Manual translation tends to maintain a balanced .style
توقع التقدم الطبي		Manual translation
تزيد من عمر الحياة المتوقع التطورات في الطب		Advanced translation

Digital communication	Modern literal translation is sometimes less smooth	Manual translation reflects accuracy in vocabulary
تصالات الرقمية		Manual translation
قامت بتحويل التفاعلات العالمية للاتصالات الرقمية		Advanced translation

Sustainable goals	Modern translation is straightforward but less .fluid	Manual translation conveys the idea in .natural language
التنمية المستدامة		Manual translation
تحتاج إلى موازنة الأهداف الاقتصادية والبيئية للتنمية المستدامة		Advanced translation

Modern translation is accurate but less	Manual translation is characterized by high
	expression

Artificial intelligence impacts many industries today	Original text
يؤثر في العديد من الصناعات اليوم الذكاء الاصطناعي	Manual translation
"يؤثر على العديد من الصناعات حاليًا الذكاء الاصطناعي	Advanced translation



Evaluate the two studied approaches to interpreting meanings in other languages through examples:

Table(٢) Assessment

Speech	Traditional	Standard
Faster	Slower	Speed
More repetitive memory	Less	Quantity
Less	Human memory	Memory
Low	More	Clarity
Lower than normal	Large	Expression
Speech	Highly understanding	Understanding Cultural Context

Analysis of the Role of Interpreters Using the Methods in the Study Sample:

1. The translator's role in this case is limited to evaluating, controlling, and managing the process.
2. Interpreters must demonstrate the role of different cultures through the software output provided to them.
3. Correcting translation errors and ambiguities.
4. Collaborating with software developers during the model training phase.

Recommendations:

1. Research and develop more advanced software in the field of study.
2. Develop software that interactively integrates the two methods with the user.
3. Train translators on computer software.
4. Pay close attention to the model training phase.

Conclusion:

Computerized translation has greatly benefited interpreters.

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