Arab World English Journal

INTERNATIONAL PEER REVIEWED JOURNAL ISSN: 2229-9327

Exploring Undergraduate Students' Perspectives toward Computer-aided Translation Tools and Machine Translation: A Case Study of Students of the English Department

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Abstract
Computer-aided Translation (CAT) tools have attracted the attention of scholars who practice translation in various disciplines. The current study investigated undergraduate students' Perspectives on CAT tools and Machine Translation (MT). More specifically, it investigates to what extent CAT tools improve productivity and translation quality. Finally, it also explores the other merits of using CAT tools. The present study used a qualitative analysis and semi-structured interviews to answer the research questions. The findings indicate that most of the students have a positive attitude toward using CAT tools. Furthermore, the findings show that lexical, syntactic, and special use of expressions as well as collocations and words that have cultural connotations were the most challenging that the students encountered when using MT. in addition. Improving productivity, enhancing quality, scalability, and connectivity are the four concepts mentioned by the subjects of the study as merits that made them use the CAT tool for translation other than using machine translation.

Keywords: Computer-aided translation tools, machine translation, productivity, quality, scalability undergraduate students

Introduction

Nowadays, the development of technology in the last half of the 21st century and the emergence of the web as a supportive, informative tool have influenced how we study and practice translation (AbuSa'aleek, 2016). Therefore, it has been seen that many teachers, students, translators, and scholars in educational institutions and even in the business environment, use machine translation to facilitate the translation process. Hutchins (1986) defined machine translation as "the application of computers in the translation of texts, from one natural language into another" (p.15). Even though machine translation, like other technology, is improving all the time, it's impossible to picture it ever having the features of a skilled translator. Translators consider the knowledge of grammar, syntax, idioms, and the capacity to comprehend what is being stated in the text.

Furthermore, translators frequently specialize in specific fields of translation, allowing them to concentrate on their areas of expertise. However, machine translation may be advantageous for a considerable amount of translation. In more critical instances, though, it is just untrustworthy. It saves time and money, but it usually results in fragmented translations with lexical, syntactic, and semantic errors that a human translator never makes. Therefore, there must be a distinction between machine translation (MT) and Computer-assisted Translation (CAT) tools, which are the focus of the current study. These software tools assist translators by providing numerous translation options, making the process interactive between a human and a computer. However, some research on machine translation, such as by Gupta (2014) and Shuttleworth and Cowie (2014), focused on machine translation. Therefore, this study needs to explore students' attitudes toward computer-assisted translation vs. machine translation and find out the merits of CAT tools over MT among undergraduate translation students at Majmaah university students, who have already studied a CAT tool course in their bachelor's degree program.

Purpose of the study

The overarching goal of this qualitative case study was to explore students' attitudes toward computer-aided translation merits over machine translation.

Objectives of the Study

This study is valuable for students who seek to translate many pages and enrich their knowledge of the recently used CAT tools software such as *Matecat*, Smartcat, and Memo. The translation memory software is the most well-known CAT tool that helps the students and translators. Moreover, this study also provides students with a wide range of computer skills and resources for novice translators, covering several translation-related Information technology (IT) topics from word processing to developing the Translation Memory (TM) system. Students will also learn computer-assisted terminology management (e.g., Software and Documentation Localization SDL Trados Studio 2017) and develop the functionality and impact of various desktop translation memory tools Land cloud-based translation memory systems. This study is the perfect introduction to modern electronic translation environments, providing students with practical advice on how information research, terminology management, and translation memory systems can best be integrated into the translation process. The study will also explore some new trends in the CAT tool.

Research Questions

The current study aims to answer the following questions:
1. To what extent do CAT tools improve productivity?
2. Does a CAT tool improve translation quality?
3. What are the other merits of using CAT tools?

Literature review

What is a CAT tool?

To access the influence of CAT tools on human creativity, it is, first and foremost, necessary to define what CAT tools are and give some background knowledge of their essential functions. A common misconception is that computer-aided translation tools are synonymous with machine translation systems, such as Google Translate (Koehn, 2009). However, whereas computers perform machine translation to replace human translators, computer-aided translation is done by human translators who use specialized software (CAT tools) such as Matecat and Memoq to increase their productivity. CAT tools have many features, including integrating dictionaries and performing quality assurance checks. Nonetheless, its four essential functions are the following: text segmentation, formation of translation units, usage of translation memory, and usage of termbases (Bruns, 2008:12-13). Below is a brief overview of these essential functions and their role. I came to know that The "CAT" in the CAT tool stands for "Computer Aided Translation" or "Computer-Assisted Translation," but, as you might already know, it doesn't mean that a computer is completing the translation for you. CAT tools are different from "machine translation" – they assist a human translator in doing their work more quickly and managing their translation projects. CAT tools typically contain a translation memory, storing previous source and target translations for easy reference while working. Term bases are also an integral part of translation tools, giving translators the ability to develop bilingual glossaries in their subject areas.

CAT tools can include a wide range of different features. For example, some can work with different documents, such as PowerPoint presentations, without converting the text to a different file format. Some provide access to online terminology databases or help the translator manage translation memories better. Some are software-based, and some operate entirely in the cloud.

CAT tools work by segmenting the source text (usually in sentences) and presenting each segment so that the translator can enter the translation either below or next to the corresponding segment. The following are samples of CAT tools interfaces.

Table 1. *The CAT tools interfaces*

A CAT tool	Features
Trados	It is the biggest of all the big players in the CAT tool market. It is a complete translation software solution for translating, managing terminology, editing, and running LQA.
MemoQ	It is one of the essential CAT tools with some valuable extras features, such as the translation preview pane that allows you to see the segment you are translating in context.

MateCat	It is a free online CAT tool that offers users a variety of features.
Across	It is another fully-featured CAT tool that ticks all the boxes. It offers a complete translation environment, including translation memory and terminology management.
OmegaT	It might be the most popular free CAT tool out there. It is an open-source program that offers a full range of features and runs on Windows, Mac, and Linux.
Wordfast Anywhere	It is another fully-featured yet free CAT tool. It must be used online but allows users to create private TMs, TBs, etc. It also offers a connection to public translation databases.
SmartCAT	A CAT tool provides a platform for translators and clients to find each other.
CafeTran Espresso	It is a unique translation tool that can be used on Windows, Mac, or Linux. It handles most major file formats and is compatible with other major translation programs.
Déjà Vu	It is another popular CAT tool that offers an entire host of terminology management and translation memory features.
Virtual	It is a simple, free translation tool written in Python.
Pootle	It is a free translation management tool and interface. Unlike most CAT tools, it is designed explicitly for translating apps rather than documents.
Lokalize	It is a CAT tool focused on productivity and quality assurance. It is designed especially for software translation.
G-translator	It is a specialized translation tool for translating software that uses the gettext system.

Source: www.polilingua.com

As (Hutchins, 1986) opines, machine translators are "the software associated with computer systems in interpreting text messaging, from one normal language straight into another. "Moreover, a machine translator can translate texts; thus, it cannot convey the sense and implications. A machine or a piece of software cannot interpret the sense of anything and, more so, will not translate if it does not understand the meaning of the text.

For (Hutchins, 1986). However, suppose machine translators are considered translation tools or communication aids rather than a replacement for an individual translator. In that case, it will be discovered that they are significant and often are widely underestimated (Hovy et. al., 2002). Researchers want to stratify their concepts to discover the dissimilarities made by machine translators. Doing so will make it easier for designers to identify the most challenging issues and enhancements to the machine translators. (Shaalan, 2000) said that translating Arabic sentences into the English language was a problematic task. The difficulty comes from various sources: sentences in the Arabic language are too long. Another challenge is the sentence structure. An Arabic phrase is syntactically unclear and complex due to the usage of many grammatical relationships, order of words, content, and conjunctions. Therefore, most of the studies in Arabic Machine Translator primarily focus on the translation from English to Arabic.

Also, Alawneh et al. (2011) reiterated the need to deal with the arrangement and the order of words in a machine translation from the English language to the Arabic language. Also, it offered a hybrid-based strategy to handle those problems. Moreover, Alawneh et al., (2011) stated a couple of characteristics that impacted the ordering issue that was derived from the fact that various languages have different text orientations. Also, Soudi et. al., (2012) claimed that remarkable differences between the Syntax of the Arabic language and that of the English language are another source of the difficulty. Next, (Izwaini, 2006) said that an essential feature of Machine Translation is to maximize the meaning of the text so that minimum attempts and fewer times are

needed to comprehend the output. Therefore, the operator should not put upwards too much effort to join the various elements of the translation. Moreover, Izwaini, (2006) said that an excellent Machine Transaction should try to go for an additional step away from the essence level. Therefore, procedures must be developed and improved so that the output can touch the excellent product possible with slight editing needed.

Methodology
The present study used a qualitative approach to answer the research questions.

Population of study
The study population consists of all the students who study translation and English Language at the Department of English, College of Education at Majmaah University.

Sample of the study
The study sample consisted of 25 Undergraduate English and Translation students at the Department of English, College of Education at Majmaah University. English is their foreign language, whereas Arabic is their native language. Their ages range from 20 to 23. All the samples were male students. The sample of the study was third and fourth-year students. Only 22 students participated in this study, twelve students from Third-year and ten from fourth-year.

Data Collection and Data Analysis
This research used various data-gathering techniques, including interviews and focus groups. The interview data was primarily examined and discussed to determine the students' attitudes toward CAT tools and MT. In addition, moderately structured interviews with 22 students were performed to learn more about their experiences of using computer-assisted translation (CAT) and Machine Translation (MT). What is their perception of a CAT and   MT and the challenges they faced? Which types of tools do they prefer and why? What are the merits the respondents find?

Findings
 The findings of the study are discussed under the following three headings:
The first is the undergraduate's previous experiences in various translation tools. The second is the undergraduate students' changes while using CAT tools and MT. The third heading is the merits of CAT tools and MT.

- Undergraduate perception towards using CAT tools and MT.
  The findings show that most students have a positive attitude toward using CAT tools. The following are (excerpts) from the students' interviews:
  S1 said, "I find the CAT tool more interactive than MT."S3 adds that a CAT tool gives more matches than MT. S6 supports the idea that the CAT tool is more appropriate for specialized translation. One of the interesting findings is that S5 said, "I don't prefer to use CAT tools; instead, I prefer MT because it is faster and easy to use."
- Challenges that undergraduate students encounter while using the CAT tool and MT
  Most of the students' challenges when using MT are related to the lexical, syntactic, and particular use of expressions and collocations and words with cultural connotations. The following examples from the interview indicate that:

S12 said, "I come across this expression 'brain drain' instead of immigration of mind." Also, other students trigger the same examples that support the idea of syntactic problems when translating the following sentences 'United Nations educational, scientific and cultural organization' in Arabic with the same grammatical pattern, which is different from English patterns ' منظمة الامم المتحدة للتربية والعلوم و الثقافة 'the underlined words in Arabic are nouns whereas, in English are adjectives respectively educational, scientific and cultural.

- The Merits of using CAT Tool and MT

Improving productivity, enhancing quality, scalability, and connectivity are the four concepts mentioned by the study subjects as merits that made them use the CAT tool for translation other than using machine translation. The following examples from the results of the structured interview are as follows:

Productivity stands for the large number of texts translated using the CAT tool. Such category of CAT tool merits expressed by some students as in the following response:

"I think CAT tool is better than traditional machine translation because it is more productive "(S3)
"To my opinion, quality and productivity are the most remarkable merits of CAT tool." (S20)
"I believe that connectivity and productivity are distinguishing merits of CAT tool" (S2)
"I think scalability and productivity are the obvious merit of CAT tool"(S5)

The interview data revealed that productivity was discussed numerous times. Then comes quality. The quality of translation in terms of similarity and equivalence between the source and target languages is highly considered in the following examples from the interview (Students from now on are referred to as "S").
"I think quality and productivity are significant merits in CAT tool" (S4)
"To me, quality is best merit of CAT tool" (S1)
"Quality and connectivity, I guess" (S6)
"I experience that quality is one of the merits of using CAT tool" (S7)
"Translation looks perfect with a CAT tool" S9
When we look closely at the results of students1 4, 6, 9, and 7, one acknowledges that the quality merit is considerably used in the data.
Connectivity is one of the benefits of a CAT tool is that you can work alone or with a group of translators sharing termbases, terminologies, and translations.

The following are samples from the interview.
"I guess connecting with colleagues while translating is useful to me" S17
"I find it helpful in improving my translation" S18
"Connecting difficult phrases and words with others helps me" S8
"I connect my translation with my friends and other "S10

"Connecting with peers in doing the translation is helpful." S11

When we look closely at the results of students S8, S10, S11, S17, and S18, one acknowledged that the connectivity merit is considerably used in the data.

Of course, the topic of scalability means whatever the amount of content that needs to be translated by people, companies, organizations, or governments who are struggling to translate all the content they created into all the languages they want, a CAT tool can make a significant difference in how much a person or a company can translate.

These are some responses offered by students under examination:

"How huge is the content? A CAT tool can make the difference" S16

"One can scale the content and languages while translating using A CAT tool." S14

"How big is the content to be translated? It is ok with a CAT tool." S 13

"A CAT tool is helpful in case of translating to different languages" S12

Some of the students also paid attention to scalability as one of the CAT tool merits, particularly (S12, S13, S14, and S16) who run the structured interview.

Discussion

The current study's main results concern the students' attitudes towards the advantages of the CAT tools compared with traditional machine translation. As we can see from the study findings discussed above, most undergraduate students prefer using the CAT tool. They support their arguments with objective concepts such as the interactive aspect of the CAT tools. This aspect of interactivity of the CAT tools is supported by O'Brien (2012). The types of challenges encountered by the subjects are lexical and syntactic. This is also witnessed in Nida (1984). The merits of the various CAT tools can be categorized into four concepts: increasing productivity, quality, connectivity, and scalability. The majority of the student believed that productivity is the main merit of using a CAT tool compared to machine translation.

From the perspective of productivity, the current study accord with Todorova, (2020). The impact of CAT tools on the creativity of students of Translation and Interpreting**.** Moreover, this study addressed the idea of connectivity as shown in what O'Brien (2012) calls the 'translator-computer interaction. Still, some of the subject's answers focus on quality as remarkable merit of a CAT tool which shows that a CAT tool can produce a quality translation because of the translator-computer interaction in translating segment by segment instead of a whole text in the case of machine translation as stated by O'Brien (2012) and Todorova (2020). As shown from the data, some responses indicate that productivity and scalability are unique; a CAT tool merit over machine translation such as google translate. However, there are some crucial merits of the CAT tools that the subjects of study don't mention, such as the translation memory, termbase, and dictionaries that make the CAT tool faster and more authentic in terms of its quality in translation. Another feature of CAT is the translation memory tool which is not the same as the terminology tool.

Translation memory is a database that constantly captures your translations as you do your work and stores them for future use. It stores larger pieces of text. Translations are stored

in so-called translation units (source and target language). This allows a translator to save time by never translating the same sentence twice. Garcia (2015). The more you translate, the larger your translation memory will become, making it easier to do larger projects and increase efficiency. This tool is handy when working on long projects containing repetitive portions of text. Still, some researchers' justifications of the CAT tool merits over traditional machine translation supported by my results such as Çetiner (2018) and Bundgaard et al. (2016); Granell-Zafra (2006) and Ehrensberger-Dow & Massey (2014) And also it is great that you know that every next project similar to the previous will have a better pre-translation, meaning they will be of better quality. As a result, you will spend less time translating them. With these options, your terminology and writing style remains consistent. Your database is constantly expanding, and it is always available for any future project.

Moreover, a termbase can help you deliver a more accurate and high-quality translation, after all, because it can remind you how some things are translated in a specific way. In addition to the dictionaries that give the exact meaning of any term. So all these features of the CAT tool entail its quality over machine translation.

Conclusion
The study explores undergraduate students' perspectives on CAT tools and MT at the English Department, Majmaah University, Saudi Arabia. This research offers insight into the merits of the CAT tools as used to help translators improve and support their translation process. The study results indicate the CAT tools are more appropriate for undergraduate students and translators than MT for several reasons: productivity, accuracy, connectivity, scalability, and quality. It saves time and helps you to produce good-quality translations. On the other hand, MT is widely used today, but its accuracy levels are low, and it is very often unacceptable, particularly for specialized translation. In addition, it required meticulous editing and improvement.

Acknowledgment

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References
AbuSa'aleek, A. O. (2016). The Adequacy and Acceptability of Machine Translation in Translating the Islamic Texts. *Int. J. Engl. Linguist*, *6*, 185-193.

Alawneh, A., Yasin, H., Khirfan, G., Qayas, B. A., Ammar, K., Rimawi, D., & Klepstad, P. (2016). Psychometric properties of the Arabic version of EORTC QLQ-C15-PAL among cancer patients in Jordan. *Supportive care in cancer*, *24*(6), 2455-2462.

Bruns, A. (2008). *Blogs, Wikipedia, Second Life, and Beyond: From production to produsage* (Vol. 45). Peter Lang.

Bundgaard, K., Christensen, T. P. & Schjoldager, A. (2016) 'Translator-computer interaction in action: An observational process study of computer-aided translation,' *Journal of Specialised Translation, 25*, pp. 106-130.

Çetiner, C. (2018). 'Analyzing the attitudes of translation students towards cat (computer-aided translation) tools,' Journal of Language and Linguistic Studies, 14, pp. 153-

Garcia, I. (2015). Computer-aided translation: systems. Routledge Encyclopedia of Translation Technology, 68-87.

Garcia, I. (2015). Computer-aided translation: systems. *Routledge Encyclopedia of Translation Technology*, 68-87.

Gupta, R., & Orăsan, C. (2014). Incorporating paraphrasing in translation memory matching and retrieval. In *Proceedings of the 17th Annual Conference of the European Association for Machine Translation* (pp. 3-10).

Hovy, E., King, M., & Popescu-Belis, A. (2002). Principles of context-based machine translation evaluation. *Machine Translation*, *17*(1), 43-75.

Hutchins, W. J. (1986). *Machine translation: past, present, future* (p. 66). Chichester: Ellis Horwood.

Izwaini, S. (2006). Problems of Arabic machine translation: evaluation of three systems. In *Proceedings of the International Conference on the Challenge of Arabic for NLP/MT*.

Koehn, P. (2009). A process study of computer-aided translation. *Machine Translation*, *23*(4), 241-263.

Massey, G., & Ehrensberger-Dow, M. (2017). Machine learning: Implications for translator education. Lebende Sprachen, 62(2), 300-312.

O'Brien, S. (2012). Translation as human-computer interaction. Translation Spaces, 1(1), 101-122.

Shaalan, K., Rafea, A., Moneim, A. A., & Baraka, H. (2004). Machine translation of English noun phrases into Arabic. *International Journal of Computer Processing of Oriental Languages*, *17*(02), 121-134.

Shuttleworth, M., & Cowie, M. (2014). Translation. *M. Shuttleworth, & M. Cowie, Dictionary of translation studies*, 181-182.

Todorova, E. T. (2020). The impact of CAT tools on the creativity of students of Translation and Interpreting**.**