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Utilization of Computer-Assisted Translation Tools Among Arab Translators: Scope, Challenges, and Solutions

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***Abstract*—The study aims at investigating the utilization of computer-assisted translation (CAT) tools by Arab translators with a particular focus on the challenges that they face. It also suggests potential solutions that can help Arab translators increase their translation efficiency and productivity. The author followed the quantitative and qualitative methods with an analytical descriptive approach in conducting the current study. To achieve the objectives of the study, a questionnaire consisting of 67 items was designed to identify the utilization of CAT tools, the scope of their use, and the challenges that Arab translators encounter while using CAT tools. The questionnaire was given to 104 Arab translators from various Arab countries. An interview was also used to achieve the objectives of this study; it aimed to collect data about finding solutions to the challenges that Arab translators face while using CAT tools from the perspective of 20 translators. Additionally, the SPSS program and other statistical tests were used for data analysis purposes. The findings showed that only a few types of CAT tools were used by Arab translators and even those they used were not utilized very much. The results indicated that only 19.03% of the total number of participants used CAT tools. That means Arab translators confronted many challenges while using CAT tools from the viewpoints of the participants. These challenges were related to translators, CAT tools, translation memory (TM), and technical issues. Additionally, a list of solutions was proposed to overcome the challenges that Arab translators face while using CAT tools from the perspectives of those interviewed.**

***Index Terms*—computer-assisted translation tools, translators, challenges, scope, translation memory**

I. Introduction

At present, due to the rapid advancements of technology in various fields, the volume of translation is rapidly increasing. As a result, fast-growing markets demand quick translation which places enormous pressure on translators and translation services as well. Consequently, since translators are not always able to cope with the sheer volume of materials, this has created an urgent need to use translation technology (TT) as an appropriate solution for increasing the amount of translation being performed. Recently, there has been a remarkable advancement in TT which has drastically improved translation speed and efficiency while also bringing significant changes to the practice and industry of translation. Therefore, in the digital age, new skills such as the use of computer-assisted translation (CAT) tools, a quick adeptness in using computers, and a good command of the website are required for a good translator. Alotaibi (2020) considers CAT tools to be very helpful tools that improve productivity while also producing high-quality translation services. CAT tools are highly useful for translators, professors, students, businesses, and others. In contrast, their use of these tools comes with challenges that many translators (and especially Arab translators) experience. For this reason, the current study aims to shed light on the challenges that Arab translators may face while using CAT tools with a particular focus on the most commonly used tools. It also suggests possible solutions that can help Arab translators overcome the challenges of using CAT tools.

Questions and Hypotheses

The study tries to answer the following questions:

1. What are the CAT tools being utilized by Arab translators?
2. To which extent do Arab translators use CAT tools?
3. What are the scopes that Arab translators almost utilize CAT tools within?
4. What are the challenges that Arab translators face while utilizing CAT tools?
5. What are the potential solutions that can help Arab translators in increasing translation efficiency and productivity regarding the utilization of CAT tools?
6. Are there any statistically significant differences in the demographic information of Arab translators while utilizing CAT tools?
7. Are there any statistically significant differences in the demographic information of Arab translators in respect of challenges while using CAT tools?

The last two questions will be answered by testing the following hypotheses:

H01. Null hypothesis: there are no statistical significance differences in the demographic information of Arab translators while using CAT tools.

H02. Null hypothesis: there are no statistical significance differences in the demographic information of Arab translators in respect of challenges that Arab translators may face while using CAT tools.

II. Literature Review

This section presents the literature review which is divided into two parts. The first part presents CAT tools as the main topic of the study. In the second part, the previous studies will be discussed with a comparison to this study.

Computer-Assisted Translation Tools

Technology is an amazing and successful component that helps move the translation circle forward. Gil and Pym (2006) considered technology to be what helps extend human capacities. Nowadays, using technology in the translation field is not only important but a must. As a result, the computer is a valuable technological device that aids in translation and can provide much help in facilitating the tasks of translators when it comes to achieving effective and efficient translation. Bowker (2002) has defined translation technology as various types of technologies used in human translation, computer translation, and CAT tools including word processors and other electronic resources and software used in translating such as corpus-analysis tools and terminology management systems. Similarly, Seljan (2011) has defined translation technologies as CAT tools and machine translation (MT). However, Quah (2006) divided TT into two divisions of the translation studies field: automatic translation tools and computer-aided translation tools. The researcher focused on CAT tools as the main topic of the current study.

The abbreviation "CAT" stands for “computer-assisted translation”, and that’s exactly what the computer does – it assists the translator rather than performing all the translation on its own. What differentiates CAT tools from MT is that CAT helps human translators complete their work more efficiently and handle their tasks more effectively. Additionally, translation memory (TM) is usually included in CAT resources. Wallis (2006) and Trujillo (2000) defined TM as a type of computer-assisted translation tool that stores previously translated texts alongside their corresponding source texts (ST) and enables translators to re-use these texts (or even sections of them) in new translations. Term bases are also an important component of translation software, as they enable translators to create their bilingual glossaries in their subject areas.

According to PoliLingua (2018), these are the most popular and well-known CAT tools:

1. **Trados**: Trados is translation and documentation software that includes TM. Almutawa (2012) confirmed that TRADOS is also compatible with a wide range of programs used to create content including Microsoft Office, Open Office, RTF, Tab Delimited, HTML, and XML. Moreover, Bowker and Barlow (2008) claimed that Trados may be the most powerful player in the CAT tool business. It is a full translation software solution that allows us to translate, handle terminology, edit, and run tests.
2. **MemoQ**: Perhaps a little less well-known than Trados, MemoQ is a full-size CAT tool with many of the same features as other programs but also includes some extras like a translation preview window which allows us to see the segment we are translating in detail. This tool is required for translation agencies that also use other translation tools because MemoQ accepts Trados and other formats as well.
3. **Wordfast**: It includes both terminology and TM management. Moreover, it also includes more project management features and supports additional file formats such as Java, Quark, Xliff, SDL Trados and editable PDFs.
4. **Across**: Across includes TM, terminology management, and project management, among other features. The basic edition is only available free to use online, while the premium edition can be used standalone and costs a monthly fee.

There are some free CAT tools as follows:

1. **OmegaT:** This is the most popular tool currently available for free. It also can read and write Trados data.
2. **Matecat:** Matecat is another free online CAT tool with several useful features. It focuses on providing users with access to MT databases to increase their productivity.
3. **Smartcat:** A CAT tool that also acts as a networking platform for translators and clients, Smartcat also manages compensation and offers ranking systems. However, it is important to note that it charges a commission on top of the freelancers' prices.

Previous Studies

This part contains a brief review of the major studies related to computer-assisted translation. According to the researcher's knowledge, the present study may be considered one of the newest studies to be conducted on the subject, particularly in Yemen. That is because most studies have not shed light on the challenges of using CAT tools, the reasons behind these challenges, the tools themselves, and the solutions to overcoming these challenges. The present study, however, presents the challenges, tools, and solutions that translators could happen upon while using CAT tools and the percentage of use for each kind while also reaping the benefits of previous studies. Some related studies will be summarized in chronological order from latest to oldest as follows:

Abdi (2022) conducted a study to determine student familiarity with computer-assisted translation tools. The study aimed to investigate the familiarity of MA translation students with CAT tools used to support CAT-related activities

included in the translator's workstation. To do so, a questionnaire was prepared for data collection purposes. The result indicated that students were mostly familiar with general-purpose applications such as word processing software and machine translations and not very familiar with specific-purpose software such as web publishing software and accounting packages. They were also in full agreement with the effectiveness of CAT tools in their productivity and efficiency.

Mohammed (2021) devoted his study to investigating the opportunities and challenges of CAT tools in translating cultural terms from English into Arabic and vice versa. It discussed the reasons for the CAT tool deficiency in translating Arabic cultural terms. A questionnaire and a test were used for collecting data. The results indicated that CAT tools suffer from a deficiency in translating Arabic cultural terms into English and vice versa. This was due to the diversity in the cultures of English and Arabic. The study explored the opportunities and challenges of CAT in translating cultural terms from Arabic into English and vice versa. Translating cultural terms poses many difficulties with CAT tools and the study shed light on the need for and the value of analyzing translating cultural terms as done by computer software without the assistance of specialists to underline the main threats and risks generated by this type of translation. The study suggested some pedagogical implications for universities and institutes to teach CAT tools in Yemen.

Alotaibi (2020) conducted a study titled *Computer-Assisted Translation Tools: An Evaluation of Their Usability among Arab Translators*. The study aimed to evaluate the usability of the CAT tool from the translators' perspective. The software usability measurement inventory (SUMI) survey was used to evaluate the system based on its efficiency, affect, usefulness, control, and learnability attributes. The population was 42 participants. The results showed that the global usability of these tools is above average. Additionally, the results for all usability subscales were also above average wherein the highest scores were obtained for effect and efficiency and the lowest scores were attributed to helpfulness and learnability. Thus, the study concluded that CAT tool developers need to work further on the enhancement of the tool's helpfulness and learnability to improve the translator's experience and satisfaction levels. Further improvements are still required to increase Arabic language support to meet the needs of Arab translators.

On the other hand, Mahdy et al. (2020) investigated the attitudes of professional translators and translation students toward CAT tools in Yemen. A questionnaire was composed of 27 statements distributed to collect data related to Yemeni translators' attitudes. The results showed that translators and translation students showed a positive attitude. Unexpectedly, the profiles of the participants do not play any role in their attitudes toward CAT tools.

Technology has a significant role in every human aspect including translation. Computer-assisted translation tools are developed to help translators complete their job and increase their productivity. However, such tools are not only helpful for translators but also beneficial for students as well. Alfarisy and Reswari (2019) conducted a study titled *Applied English Students' Perceptions on Computer Assisted Translation (CAT) Tools*. Their study was based on the premise that students usually use all available technologies to complete their assignments since they spend most of their time online on their computers and phones. A questionnaire and interview were used for collecting data. The study showed that the students realize the advantages of the CAT Tools, but they never rely on those tools. They still check the quality of the translations based on their knowledge. Finally, the study recommends introducing and integrating technology into translation curricula to maximize translation skills - a recommendation that can be also found as one of the outcomes of the current study.

Alotaibi (2014) conducted a study titled *Teaching CAT to Translation Students: An Examination of Their Expectations and Attitudes*. The study was conducted among 103 female translation students enrolled at King Saud University in Riyadh, Saudi Arabia. The paper included pre- and post-questionnaires along with semi-structured interviews and classroom observations. The study aimed to assess the students' degree of knowledge regarding CAT tools and their attitudes toward utilizing such tools. The findings showed a relationship between the increase in the knowledge of CAT tools by the end of the course and the change in the attitudes of students towards discipline. In the end, the attitudes of students became much less biased and, in general, positive.

Moreover, Mikuličková (2010) conducted a study titled *Computer-Assisted Technology-Comparison of Programs*. The study compared different translation technology, especially CAT programs. It consisted of two parts: theoretical and practical. In the theoretical part, the study focused on computer-assisted translation itself as the core of the study. However, the second part focused on a comparison of CAT tools from several points of view such as price, support of file formats, user interfaces, and so on.

Reviewing the previous studies was very important. These studies provided the current research with theoretical background and practical guidelines to conduct the study and develop the study tools. It also assisted in utilizing statistical methods to analyze the data and discuss the results. Some studies confirmed that there has been an increase in interest in machine translation and CAT tools in the Arab world, but is still wishful thinking at this time. Thus, they recommend introducing and integrating technology into translation curricula to maximize their translation skill. The previous studies were very beneficial, but there is a gap in the literature which should be filled by the current research related to the utilization of CAT tools, the level of use, their scope, the challenges, and the role of such tools in increasing the efficiency and proficiency of Arab translators.

III. Methodology

The study followed the quantitative and qualitative methods and an analytical descriptive approach in collecting data. The population was Arab translators. The sample was taken from seven Arab countries: Egypt, Saudi Arabia, Palestine, Syria, Iraq, Libya, and Yemen. The respondents were either reached by phone or met in person, whilst the other respondents were simply contacted via Facebook or WhatsApp because the researcher has communicated with them through several online events, sessions, or webinars. To collect data and achieve the objectives of the study a questionnaire was given to 104 Arab translators to identify the CAT tools they use, the extent to which they use them, and the challenges that using such tools can bring from the perspectives of the participants. The questionnaire included two sections on CAT tools and their challenges consisting of 67 items. Interviews were also used to collect data about the solutions used to overcome the challenges that Arab translators face while using such tools from the perspectives of 20 translators.

IV. Results and Data Analysis

Some important information related to the statistical analysis of the data collocation instruments will be presented below to help in answering questions and testing the hypotheses:

Normality Assessment

Two types of test should be administered to identify the type of distribution of data before adopting any statistical test for the data analysis (i.e., Skewness, Shapiro-Wilk, and Kolmogorov). Consequently, if the distribution seems normal, it is recommended to apply parametric tests such as a t-test or ANOVA; however, if the data seem abnormally distributed, it is recommended to apply non-parametric tests such as a Mann-Whitney test, a Wilcoxon Signed-Rank test, a chi-square test, and so on.

Table 1
The Normality Assessment of Questionnaire Items

Factors	**Skewness**	**Kurtosis**
Challenges related to translators themselves	0.378	0.128
Challenges Related to CAT Tools	0.464	0.187
Challenges Related to Translation Memory	0.311	0.353
Challenges related to technical issues	-0.363	-0.697
The Overall of challenges	0.626	-0.138
Using CAT tools	2.288	6.561

As shown in the above table, Kurtosis and skewness were measured, and it was found that the challenges have a Kurtosis between -1 and +1 which indicates that they are normally distributed. Therefore, parametric tests will be used. On the other hand, it was found that the use of CAT tools has a Kurtosis greater than 1 which indicates that it is abnormally distributed since this part of the questionnaire is ordinarily related to the use of CAT tools. Therefore, it is recommended to apply non-parametric tests such as a Mann-Whitney test, a Wilcoxon Signed-Rank test, a chi-square test, and so on.

Validity and Reliability

The following table shows the correlation and the validation of the data collection instrument.

Table 2
Correlation and Validation

Factors	Correlations with Overall Challenges	P. Value
Challenges related to translators themselves	.710**	.000
Challenges Related to CAT Tools	.782**	.000
Challenges Related to Translation Memory	.531**	.000
Challenges related to technical issues	.751**	.000

The table above shows that the dimensions are statistically correlated with the overall challenges ($R>0.500$, $p<0.001$) indicating that there is a convergent validity and that items measure what they are supposed to measure. Furthermore, the questionnaire was given to five experts in translation and linguistics to check the validation of instrument items concerning the study's objectives. After the validation, the questionnaire was distributed to 25 translators to carry out a pilot study to ensure reliability. The pilot study was conducted in March 2023. Reliability analysis was also carried out using Cronbach's Alpha scale to test the internal consistency of the questionnaire items. Results showed that the study dimensions are reliable and internally consistent among the items of the questionnaire (Alpha > 0.700). This confirms interrelatedness among items.

Demographic Data

TABLE 3
GENDER OF PARTICIPANTS

	Frequency	Percent
Male	58	55.8
Female	46	44.2
Total	104	100.0

Table 3 shows that 55.8% of the respondents are male while 44.2% are female.

TABLE 4
TRANSLATION EXPERIENCE OF PARTICIPANTS

	Frequency	Percent
Nil	8	7.7
5 years or less	21	20.2
6-10 years	37	35.6
11-15 years	18	17.3
Above 15 years	20	19.2
Total	104	100.0

As shown in Table 4, 7.7% of participants do not have any experience in translation, 20.2% of the respondents have 5 years of experience or less, 35.6 % have 6-10 years of experience, 17.3% have 11-15 years of experience, and 19.2% have more than 15 years of experience.

TABLE 5
QUALIFICATION OF PARTICIPANTS

	Frequency	Percent
Courses	10	9.6
Diploma	12	11.5
B. A	43	41.3
M.A	24	23.1
Ph.D.	15	14.4
Total	104	100.0

As shown in Table 5, 9.6% of participants have taken some courses in translation, 11.5% have a diploma, 41.3% have a B.A., 23.1% have an M.A., and 14.4% have a Ph.D.

TABLE 6
NATIONALITY OF PARTICIPANTS

Country	Frequency	Percent
Egypt	20	19.2
Iraq	15	14.4
Libya	5	4.8
Palestine	10	9.6
Saudi Arabia	15	14.4
Syria	10	9.6
Yemen	29	27.9
Total	104	100.0

Descriptive Analysis

A close-ended questionnaire was given to the participants related to the study's questions which are about the utilization of CAT tools, the extent of use, the scope of their use, and the challenges that Arab translators might face when using such tools. The data collected through the questionnaire were coded and entered SPSS program for the sake of statistical analysis based on a 5 Point-Likert Scale, as follows:

TABLE 7
MEASUREMENT OF VARIABLES

Challenges and Degree of Use CAT tools	**Strongly Agree (Never)**	**Agree (Rarely)**	**Undecided (Sometimes)**	**Disagree (Often)**	**Strongly Disagree (Always)**
Mean Range	Less than 1.80	1.80-2.59	2.60-3.39	3.40-4.19	4.20-5
Percentage Range	0%- 36%	37%-51%	52%-67%	68%-83%	84%-100%

The values shown in Table 7 help in quantifying and reading the analysis of the data and interpreting the achieved results as the following:

Results and Discussion Related to the First and Second Questions

1. What could be the computer-assisted translation tools that are used by Arab translators?
2. To which extent do Arab translators use CAT tools?

The following table shows the result related to the participants' utilization of CAT tools.

TABLE 8
THE PARTICIPANTS' UTILIZATION OF CAT TOOLS

	Never	Rarely	Sometimes	Often	Always	Total		
	No		Yes					
	F	%				F	%	Result
Trados	37	35.6%	19.2%	21.2%	12.5%	11.5%	67	64.4%	1
MemoQ	52	50.0%	25.0%	12.5%	11.5%	1.0%	52	50.0%	2
Wordfast	57	54.8%	29.8%	9.6%	4.8%	1.0%	47	45.2%	3
Across	90	86.5	10.6	2.9	0.0	0.0	14	13.5%	8
Memsource	71	68.3	15.4	11.5	4.8	0.0	33	31.7	4
OmegaT	82	78.8	17.3	2.9	1.0	0.0	22	21.2	6
Smart CAT	82	78.8	14.4	5.8	1.0	0.0	22	21.2	6
MateCat	85	81.7	9.6	5.8	1.9	1.0	19	18.3	7
My Memory	78	75.0	8.7	10.6	1.0	4.8	26	25.0	5
SDL XV	99	95.2	2.9	1.9	0.0	0.0	5	4.8	15
QT Linguist	96	92.3	3.8	3.8	0.0	0.0	8	7.7	11
Passolo	95	91.3	4.8	3.8	0.0	0.0	9	8.7	10
Phoenix	94	90.4	4.8	4.8	0.0	0.0	10	9.6	9
TransCafe	96	92.3	4.8	2.9	0.0	0.0	8	7.7	11
Déjà Vu	97	93.3	2.9	3.8	0.0	0.0	7	6.7	12
Star Transit	97	93.3	3.8	2.9	0.0	0.0	7	6.7	12
Fluency Now	97	93.3	2.9	3.8	0.0	0.0	7	6.7	12
Zanata	98	94.2	2.9	2.9	0.0	0.0	6	5.8	14
MetaTexis	97	93.3	3.8	2.9	0.0	0.0	7	6.7	13
	1600	**80.97%**					**376**	**19.03%**	

Table 8 shows that only about 19.03% of the participants were able to use CAT tools whereas 80.97% never use any of the above tools. That means the utilization of CAT tools was somewhat poor as reflected by the frequency and percentage. That means all CAT tools were only used by 19.03% of the participants. Therefore, the use of CAT tools is still low and rare among Arab translators. The findings confirmed that not only is using such tools difficult for most of the participants, but they are also hard to acquire. The results above concluded that there are a few reasons that may stand behind the low use of such tools. Previous studies like Mohammed (2021) confirmed that technical and educational factors may play a negative role in using CAT tools.

For more clarification, the following figure reflects the level of use of each CAT tool.

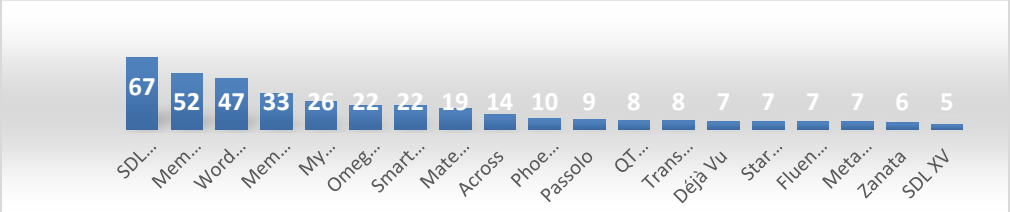

Figure 1. The Level of Utilization of Each CAT Tool

For more details and to identify to which extent CAT tools were used by Arab translators, the researcher summarized the results of using such tools in respect of each country as the following:

TABLE 9
THE PARTICIPANTS' USE OF CAT TOOLS IN RESPECT TO EACH COUNTRY

			Total		
	No		Yes		
	F	%	F	%	Result
Yemen	521	94.56	30	5.44%	7
Syria	156	82.00%	34	18.00%	4
Saudi Arabia	210	73.68%	75	26.32%	3
Palestine	127	67.00	63	33. %	2
Libya	79	83.15	16	16.85	5
Iraq	253	88.77	32	11.23	6
Egypt	253	66.58	127	33.42	1
	1600	**80.97%**	**376**	**19.03%**	

It is clear from the above table that the level of use of CAT tools by Arab translators is generally low. However, the level of use of translation tools is different from one county to another. The above findings show that Egypt, Palestine, and Saudi Arabia were the countries in which CAT tools were used more than other countries. Consequently, the challenges of using CAT tools in these countries are less than in others. On the other hand, Yemen, Iraq, Libya, and Syria were the countries in which CAT tools were the least used. That means the unstable situation and economic factors in these countries may affect all aspects of human life in general, including the field of translation.

Results and Discussion Related to the Third Question

3. What are the fields in that Arab translators almost use CAT tools within?

Alabbasi (2015) mentioned several fields of translation such as legal, business, religious, literary, media, and specialized and technical scopes. Consequently, the current study tries to shed light on this division by talking about the scope of translation that CAT tools almost use. The same questionnaire, including a part related to the scope of translation tools, was given to participants to answer the above question as shown in Table 10.

TABLE 10
FIELDS OF USING CAT TOOLS

	No		Yes						
	Never		Rarely	Sometimes	Often	Always	Total	%	Result
Scope/field	F	%	%	%	%	%	F		
Legal field	26	25.0%	6. 7%	32.7%	17.3%	18.3%	78	75%	1
Religious	39	37.5%	15.4%	26.9%	17.3%	2.9%	65	62.5%	6
Political	35	33.7%	14.4%	29.8%	14.4%	7.7%	69	66.3%	4
Military	47	45.2%	15.4%	24.0%	12.5%	2.9%	57	54.8%	8
Media	36	34.6%	13.5%	26.0%	22.1%	3.8%	68	65.4%	5
Technical	33	31.7%	10.6%	27.9%	15.4%	14.4%	71	68.3%	3
Literary	50	48.1%	17.3%	23.1%	8.7%	2.9%	54	51.9	9
Economic	35	33.7%	18.3%	27.9%	17.3%	2.9%	69	66.3%	4
Medical	33	31.7%	9.6%	29.8%	20.2%	8.7%	71	68.3%	3
Scientific	32	30.8%	10.6%	26.9%	17.3%	14.4%	72	69.2%	2
commercial	42	40.4%	13.5%	21.2%	18.3%	6.7%	62	59.6%	7
Administrative	53	51.0%	19.2%	20.2%	5.8%	3.8%	51	49.0%	10

The findings in Table 10 show that the legal field was the field in which CAT tools were used most often (frequency =78, Percentage: 75%); however, CAT tools were used less frequently in other fields. The legal translation scope as commonly used can be defined as a part of technical translation which deals with legal texts such as contracts, agreements, laws, and regulations. The translator is required to have a deep knowledge of the SL and TL legal systems or at least they should consult a legal specialist to proofread and review their translation (Alabbasi, 2012, p. 12). Although the legal field is sensitive to translators, it can be translated by CAT tools easily due to the availability of TMs. The above findings show that legal, scientific, technical and medical fields were the fields in which CAT tools were mostly used. Therefore, transition tools are helpful for those who are interested in legal, scientific, technical, and medical translation. Conversely, the administrative, literary, and military fields were the least used fields for CAT tools.

Results and Discussion Related to the Fourth Question

4. What are the challenges that Arab translators encounter while using CAT tools in translation?

To answer the fourth question, a questionnaire was given to the participants. The questionnaire included 36 items within the challenges section. These challenges are classified into four sets related to translators, CAT tools, translation memory(TM), and technical issues challenges. Below, Table 11 shows the participants' responses related to the overall average of challenge dimensions showing the level of such challenges.

TABLE 11
OVERALL AVERAGE DIMENSIONS OF CHALLENGES

Rank	Challenges Related To :	Items	Mean	S.D	Level of Challenges
4	Translators themselves	10	3.2000	0.59251	Moderate
3	CAT Tools	12	3.5937	0.53856	High
2	TM	7	3.7486	0.49587	High
1	Technical Issues	7	3.7521	0.83833	High
The Overall Challenges		36	3.5731	0.61631	High

As shown in Table 11, most of the participants agree that the stated challenges play a role in using CAT tools. Furthermore, the stated challenges generally seem to achieve almost an identical degree of importance. From the participants' perspectives, these challenges represent the most important challenges while using CAT tools. The table clarifies that technical issues were the highest level of the challenges faced by translators (Mean =3.7521, SD=0.83833) indicating that the majority of the respondents agree that the technical issues are the most challenging for them. However, challenges related to translators were the lowest level of challenges faced by Arab translators (Mean=3.2000, SD=0.59251). Generally, as shown in the above table, the level of challenges that Arab translators face while using CAT tools is high. That means Arab translators face real challenges at various levels. This result shows that the high price of CAT tools plays a crucial role in implementing them. That means, in poor or unstable countries such as Yemen, Iraq, and Libya, translators cannot afford the cost to purchase these tools. Consequently, translation institutions and concerned people must work on solutions to avoid such challenges or at least reduce their volume.

Therefore, the high cost of CAT tools is considered the biggest challenge for Arab translators. Along this line, Wallis (2006) confirmed that there are challenges in using CAT tools, and there has not yet been a significant amount of research into the challenges of using such tools nor have there been introduced any potential ways to solve such difficulties and better obtain the benefits of such tools. Note below the most important challenges according to their

highest means:

1. Most CAT tools are very costly (Mean=4.13).
2. Lack of financial support to activate the movement of modern translation technology generally (M=3.99).
3. Inability to update some ICT devices (laptops, etc.) when using CAT tools (M=3.97).
4. CAT tools depend on the input of TM and if the memory is poor, it will negatively effect on the outcomes of translation. (M=3.89).
5. The rapid of technology creates new tools, therefore it is difficult for a translator to keep pace with it easily (M=3.88).
6. Most ordinary memories do not include new developments in various fields (M=3.85).
7. Shortage of use or practice of the various versions of CAT tools (M=3.81).
8. Programs and workshops which provide translation with skills in translation tools are rare (M=3.692).

Results and Discussion Related to the Fifth Question

5. What are the solutions that can help Arab translators in increasing translation efficiency and productivity regarding the utilization of CAT tools?

To answer the fifth question, the researcher interviewed 20 translators from various Arab countries. The interview consisted of an open-ended question asking the translators to suggest solutions to the challenges that Arab translators face while utilizing CAT tools. It is assumed that such solutions will reduce the challenges that Arab translators face. Interviewees suggested twenty-six solutions to overcoming the challenges. These solutions were analyzed by using thematic analysis and classified into five themes related to technical, training, CAT tools and TM, curricula solutions, and the roles of governments and translation institutions. The following solutions achieved high degrees of agreement among the interviewees:

- Including translation technology as part of the curriculum of translation students.
- Finding a solution to the weakness of the Internet by improving network services.
- Holding frequent special training courses and workshops on CAT tools.
- Training translators to install available free tools on their PCs to avoid their high cost.
- Updating curricula regularly to match the development of translation technology.
- Using uninterruptible power supplies and cloud servers to avoid the loss of data in case of frequent electricity cuts.
- Benefitting from free online courses on YouTube and other platforms to have enough background in using such translation tools.
- Finding a solution to the problem of poor electricity by using alternative energy like solar energy for the countries that are suffering from such problems.
- Supporting translation by both the public and private sectors to reduce the cost, especially for CAT tools
- Supporting researchers in field translation in the Arab world by both private and public sectors to improve the quality of translation to meet the age requirements.
- Supplementing individual translators by institutions in using translation technology in Arab countries efforts as it is a job that exceeds the individual translator's ability and capability.

Results and Discussion Related to the Sixth and Seventh Questions.

6. Are there any statistically significant differences in the demographic information of Arab translators while utilizing CAT tools?

7. Are there any statistically significant differences in the demographic information of Arab translators in respect of challenges while using CAT tools?

Testing of the Hypotheses

To answer the 6 and 7 questions, the hypotheses should be tested by using statistical tests. For two variables such as male and female, we can use one sample t-test whereas in the case of two or more variables such as a group of experience or qualifications, a One-Way ANOVA Test will be used. The researcher tries in the following to ascertain whether there are statistically significant differences among demographic information while using CAT tools or not.

H01. Null Hypothesis: there are no statistically significance differences in the demographic information of Arab translators while using CAT tools.

Sub-Hypotheses

H01: There is no significant difference between translator genders regarding the use of CAT tools.
H02: There is no statistically significant difference between translators' qualifications while using CAT tools.
H03: There is no statistically significant difference between translators' experience while using CAT tools.
H04: There is no statistically significant difference between translators' countries while using CAT tools.

TABLE 12
MANN WHITNEY TEST FOR THE DIFFERENCE BETWEEN GENDER GROUP CONCERNING USING CAT TOOLS

Gender	Mean Rank	Z	P-value	Result
Male	47.52	-1.906	0.057	Accept
Female	58.78			

It is clear from the above table that there is no significant difference between male and female translators with respect to using CAT tools since the P value is greater than 0.05. Hence the null hypothesis is accepted at a 5% level concerning the use of such tools. On the other hand, the Kruskal Test was used for the other differences related to nationality, qualifications, and experience.

TABLE 13
KRUSKAL TEST FOR THE DIFFERENCES RELATED TO TRANSLATOR NATIONALITY, QUALIFICATION, AND EXPERIENCE CONCERNING CAT TOOLS

	Groups	Mean Rank	Chi-square	P-value	Result
Country	Yemen	27.14	34.698	<0.001**	Reject the null hypo.
	Syria	48.85			
	Saudi Arabia	65.10			
	Palestine	71.90			
	Libya	54.20			
	Iraq	49.63			
	Egypt	73.68			
Qualifications	Courses	13.55	36.806	<0.001**	Reject.
	Diploma	29.79			
	B. A	54.13			
	M.A	61.31			
	Ph.D.	77.87			
Experience	Nil	48.63	11.706	0.02*	Reject
	5 and less	52.40			
	From 6 to 10	57.96			
	From 11 to 15	63.83			
	above 15 years	33.85			

As shown in Table 13, P- values are less than 0.05, so the null hypotheses are rejected regarding the use of CAT tools. Hence, there are significant differences between translator nationality, qualification, and experience concerning the use of CAT tools. We noticed earlier in Table 9 that the use of CAT tools is low with Yemen being the lowest when it came to using such tools. That means the war and unstable situations in some countries may affect all aspects of human life and especially educational and economic aspects.

H02. Null Hypothesis: there are no statistical significance differences in the demographic information of Arab translators in respect of challenges that Arab translators face while using CAT tools.

1. Difference Related to Gender

H02a: There is no significant difference between males and females with respect to dimensions of challenges.

TABLE 14
THE DIFFERENCE BETWEEN GENDER GROUP WITH RESPECT TO CHALLENGES

Challenges Factors related to	Gender	Mean	Std. Deviation	t-test	P-value
Translators	Male	3.1707	0.56133	-0.565	0.574
	Female	3.2370	0.63399		
CAT Tools	Male	3.6801	0.48342	1.860	0.066
	Female	3.4847	0.58829		
TM	Male	3.6675	0.50730	-1.897	0.061
	Female	3.8509	0.46653		
Technical issues	Male	3.8079	0.77950	0.747	0.457
	Female	3.6817	0.91097		
The Overall Challenges	Male	3.5815	0.40543	0.209	0.835
	Female	3.5636	0.47136		

Since the P value is greater than 0.05, the null hypothesis is accepted at level 5 concerning all of Challenges. There is no significant difference between male and female translators with respect to dimensions of challenges.

2. Differences Related to Countries

H02b: There is no significant difference between translators' countries with respect to dimensions of challenges.

TABLE 15
THE DIFFERENCE BETWEEN COUNTRIES GROUP CONCERNING CHALLENGES

Challenges related to:		Countries							F	P-value
		Yemen	Syria	Saudi Arabia	Palestine	Libya	Iraq	Egypt		
Translators	Mean	3.28	3.44	2.93	3.26	2.90	3.19	3.23	1.130	0.351
	S. D	0.62	0.51	0.66	0.70	0.35	0.52	0.55		
CAT Tools	Mean	3.72	3.68	3.34	3.56	3.12	3.72	3.59	1.734	0.121
	S.D	0.63	0.52	0.58	0.54	0.17	0.31	0.50		
TM	Mean	3.54	3.89	3.66	3.96	3.63	3.64	4.06	3.302	0.005**
	S.D	0.51	0.49	0.59	0.44	0.39	0.37	0.35		
Technical Issues	Mean	4.28	4.51	2.70	3.30	3.77	4.09	3.37	17.222	<0.001**
	S.D	0.49	0.92	0.55	0.84	0.52	0.42	0.59		
Overall Challenges	Mean	3.70	3.88	3.15	3.52	3.36	3.66	3.56	4.820	<0.001**
	S.D	0.39	0.38	0.51	0.55	0.10	0.20	0.35		

*** denotes significance at a 1% level*
** Denotes significance at a 5% level*

Since the P value is less than 0.01, the null hypothesis is rejected at level 1 regarding TM, technical issues, and overall challenges. As a result, there is a significant difference among the translators' countries concerning TM, technical issues, and overall challenges. As the result of the Scheffe Multiple Comparisons Test, the Yemeni translators are significantly different from Egypt translators at a 5% level of significance, but there is no significant difference between Yemeni translators and other countries with respect to challenges related to TM. In challenges related to technical issues, the Yemeni translators are significantly different from Saudi, Palestinian, and Egyptian translators at a 1% level of significance. Nevertheless, there is no significant difference between Yemeni translators and Syrian, Libyan, and Iraqi translators.

In Overall Challenges, the Yemeni translators are significantly different from Saudi at a 1% level of significance, and the Syrian translators are significantly different from Saudi translators at a 1% level of significance. However, there is no significant difference between Palestinian, Libyan, Iraqi, and Egyptian translators. There is no significant difference among the translators' countries group concerning the challenges related to translators themselves, or challenges related to CAT since the P value is greater than 0.05. Hence the null hypothesis is accepted at a 5% level regarding dimensions of challenges related to translators themselves, and challenges related to CAT Tools. That means the challenges related to CAT tools and TM achieved agreement among all Arab translators concerning the technical issues, and only some unstable countries are still suffering from such problems.

3. Difference Related to Qualification

H02c: There is no significant difference between the mean of translators' qualifications concerning dimensions of challenges.

TABLE 16
THE DIFFERENCE AMONG THE QUALIFICATIONS GROUP WITH RESPECT TO CHALLENGES

Factors of challenges related to:		Qualification					F	P-value
		Courses	Diploma	B.A	M.A	Ph.D.		
Translators	Mean	3.50	2.93	3.16	3.26	3.24	1.45	0.22
	S.D.	0.54	0.67	0.50	0.58	0.77		
CAT Tools	Mean	3.82	3.27	3.51	3.63	3.88	3.07	0.02*
	S.D.	0.44	0.47	0.51	0.55	0.56		
TM	Mean	3.40	3.43	3.77	3.77	4.12	5.49	<0.001**
	S.D.	0.35	0.51	0.45	0.49	0.44		
Technical Issues	Mean	4.26	3.46	3.74	3.73	3.72	1.29	0.28
	S.D.	0.53	0.77	0.83	0.92	0.88		
The Overall Challenges	Mean	3.74	3.27	3.55	3.60	3.74	2.62	0.04*
	S.D.	0.33	0.35	0.38	0.47	0.54		

*** Denotes significance at a 1% level*
** Denotes significance at a 5% level*

First, since the P value is less than 0.01, the null hypothesis is rejected at a 1% level concerning dimensions of challenges related to TM. Hence there is a significant difference among the qualifications group of translators concerning the dimensions of challenges related to TM. As the result of the Scheffe Multiple Comparisons Test, the translators who have taken courses are significantly different from those who have earned a Ph.D. at a 1% level of significance and there is a significant difference between those who earn a Diploma and those who earned a Ph.D. at a 1% level of significance. However, there is no significant difference between a B.A and other qualifications. Also, there is no significant difference between an M.A. and other qualifications for challenges related to TM.

Second, since the P value is less than 0.05, the null hypothesis is rejected at a 5% level concerning challenges related to CAT Tools and the overall challenges. Hence, there is a significant difference among the qualification group related to CAT and the overall challenges. According to the Scheffe Test, the participants who have diplomas are significantly different from those who have PhDs at a 5% level of significance but there is no significant difference between the diploma and other qualifications. Finally, since the P value is greater than 0.05, the null hypothesis is accepted

regarding dimensions related to translators, and technical issues. Thus, there is no significant difference among the qualification regarding the dimensions related to translators, and technical issues challenges.

4. Difference related to Experience

H02d: There is no significant difference between the mean of translators' experience concerning dimensions of challenges.

TABLE 17
THE DIFFERENCE BETWEEN THE EXPERIENCE GROUP CONCERNING CHALLENGES

Factors related to		Experience					F	P-value
		Nil	5 and less	From 6 to 10	From 11 to 15	above 15 years		
Translators	Mean	3.51	3.24	3.14	3.13	3.21	0.737	0.569
	S.D.	0.88	0.79	0.47	0.58	0.43		
CAT Tools	Mean	3.74	3.55	3.58	3.64	3.56	0.226	0.923
	S.D.	0.71	0.73	0.47	0.53	0.39		
TM	Mean	4.04	3.73	3.80	3.85	3.46	2.804	0.060
	S.D.	0.51	0.53	0.40	0.46	0.56		
Technical issues	Mean	4.21	3.84	3.68	3.67	3.68	0.798	0.529
	S.D.	0.76	0.86	0.95	0.75	0.71		
The Overall	Mean	3.88	3.59	3.55	3.57	3.48	1.263	0.290
	S.D.	0.47	0.58	0.38	0.41	0.32		

Since the P value is greater than 0.05. Hence the null hypothesis is accepted at a 5% level concerning all Factors of Challenges. There is no significant difference between the mean of translators' experience concerning challenges.

To sum up, concerning the first hypothesis, since P Values are > 0.05, the study indicated that there are statistical significances among demographic information while using CAT tools related to the translators' nationality, qualifications, and experience, except for the gender where the P Value < 0.05. Therefore, the first main and sub-null hypotheses are rejected. Only the null hypotheses related to gender and age are accepted. On the other hand, since P Values are > 0.05, the study indicated that there are statistical significances among demographic information concerning challenges related to nationality and qualification, except for the gender and translators' experience which have a P Value < 0.05. Therefore, the second main and sub-null hypotheses are rejected, and only the null hypotheses related to gender and experience are accepted.

V. CONCLUSION

There is no doubt that technology has become an essential part of our daily lives. Today, CAT tools represent a significant component of the development in the field of translation. Consequently, the study attempted to shed light on the utilization of CAT tools and the challenges that Arab translators face while using such tools and suggesting possible solutions that enable Arab translators in improving their translation efficiency and productivity. The findings indicated that only 19 % of the total number of participants use CAT tools at various levels of use depending on the stability, economic, and educational factors of each country. That means, from the viewpoints of the participants, Arab translators confront many challenges while using CAT tools. Therefore, the study concluded that Arab translators encountered real challenges and obstacles in using CAT tools or in their ease of use. These challenges were classified into four categories related to translators themselves, CAT tools, translation memories, and technical issues. The results also showed that legal, medical, and scientific fields are the fields in which CAT tools are almost used. A list of solutions from the perspectives of the interviewees has been proposed to overcome the challenges that translators encounter while using CAT tools. The study suggested that Arab translators have to be familiar with such tools to increase their efficiency and productivity in translation not only to meet the rapid and increased demand of translation work but also for saving time and effort. Finally, for making the best use of CAT tools and achieving ideal translation quality, translation institutes, universities, and concerned entities should adopt very special training on how to use such tools for translators or users and help them make the right choices concerning selecting appropriate translation tools

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REFERENCES

[1] Alabbasi, A. (2012). *Introduction to Translation.A theoretical and practical course Book* (3rd ed.). AL-Ameen Publishing & Distribution.

[2] Alfarisy, F. & Reswari, G. (2019). *Applied English Students 'Perceptions on Computer Assisted Translation).* Seminar Nasional Industry Bahasa 2019, Prosiding SNIB 2019, Politeknik Negeri Malang. ISSN: 2541-5654.

[3] Abdi, H. (2022). Inquiry into students' familiarity with computer-assisted translation tools. *International Journal of New Trends in Social Sciences, 6*(2), 53–63.

[4] Almutawa, F. (2012). *Machine translation in Saudi Arabia*. (Unpublished Master Thesis), Faculty of Arts and Sciences, University of Sharjah. Sharjah,United Arab Emirates.
[5] Alotaibi, H. (2020). Computer-assisted translation tools: An evaluation of their usability among Arab translators. *Applied Sciences*, *10*(18), 6295- 6305.
[6] Abotaibi, H. (2014). Teaching CAT Tools to Translation Students: An Examination of Their Expectations and Attitudes. *Arab World English Journal (AWEJ), Special Issue on Translation, (3)*, 65 – 74.
[7] Bowker, L., & Barlow, M. (2008). A comparative evaluation of bilingual concordances and translation memories. *In E. Yuste Rodrigue (Ed.), Topics in Language Resources for Translation and Localisation (pp. 1-22)*, *4*(1), 125–128.
[8] Bowker, L. (2002). *Computer-Aided Translation Technology : A Practical Introduction,* (Vol. 48, Issue 3). Ottawa, the University of Ottawa Press.
[9] Gil, J., & Pym, A. (2006). Technology and translation (a pedagogical overview). *Intercultural Studies Group Universitat Rovira i Virgli Tarragona, Spain*. Retrieved March 12, 2023, from https://doi.org/10.4324/9780203879450-14.
[10] Mahdy et al. (2020). The attitudes of professional translators and translation students towards computer-assisted translation tools in Yemen. *Journal of Language and Linguistic Studies*, *16*(2), 1084-1095.
[11] Mohammed, O. (2021). *Computer-Assisted Translation of Arabic Cultural Terms: Opportunities and Challenges*. (Unpublished Doctoral Dissertation). Dr. Babasaheb Ambedkar Maathwada Univerty, Aurangabad, India.
[12] Mikuličková, E. (2010). *Computer-assisted technology - comparison of programs*. Tomas Bata University in Zlin, Faculty of Humanities.
[13] PoliLingua. (2018). *The full list of CAT tools on the market. From translators to translators*. Retrieved May 3, 2023, from. https://www.polilingua.com/blog/post/cat_tools.htm.
[14] Quah, C. (2006). *Translation and Technology*. Palgrave Macmillan UK. Retrieved February 10, 2023, from https://doi.org/10.1057/9780230287105.
[15] Seljan, S. (2011). Translation technology as a challenge in education and business. *Informatologia*, *44*(4), 279–286.
[16] Trujillo, A. (2000). Translation Engines: Techniques for Machine Translation. *Speech Communication Journal*, *369*(32(2)), 1689–1699.
[17] Wallis, J. (2006). *Interactive translation vs pre-translation in the context of translation memory systems: Investigating the effects of translation method on productivity, quality and translator satisfaction* (Unpublished Doctoral dissertation). University of Ottawa, Canada.

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