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The Memory of Knowledge: An Analytical Study on Translators' Perceptions and Assessment of CAT Tools with Regard to Text Genre

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Abstract
The use of the computer-aided translation (CAT) tools has been skyrocketing over the last two decades in the translation industry. Therefore, it has become necessary to measure user satisfaction based on two dimensions: text genre and years of experience using such tools. The study aims at investigating veteran translators' perceptions about their best practices to get the best out of CAT tools, some solutions to mitigate some issues and suggestions to optimize the functionality of this software. Furthermore, the study aims at highlighting the most frequent advantages and disadvantages and displaying translators' perception of the most highly-ranked linguistic issue in each text genre. It also analyzes translators' perceptions of the most influential factor that determines the effectiveness of CAT tools. This study is significant because it is based on hands-on experience and gives translators a broad overview on the feasibility of this software and brings attention to the functionality needed to be optimized by CAT developers. For the purposes of this descriptive study, a survey was distributed among a sample of English <> Arabic professional translators from different fields of specialization and with different years of experience using CAT tools. The study found out that translators' years of experience using CAT tools does not affect their satisfaction with such tools while the field of specialization has an effect on how translators are satisfied with CAT tools. Years of experience matter when it comes to providing solutions and suggestions. Based on the attained findings, a number of solutions and suggestions are presented.

1. INTRODUCTION

The Digital Age has reshaped the world of translators all over the world. "The modern translation workplace is characterized by intensive human-computer interaction and heavy use of language technology" (Ehrensberger-Dow & Heeb, 2016, p.1). Thus, it is worthy to focus on the actual interaction of translators with translation technology in practical contexts (Krüger, 2016, P.116). The translation market needs competent translators in today's technologically advanced translation market. Translator efficiency is no longer measured by their linguistic capabilities alone, but by a mixture of both linguistic and technological capabilities. The translation market is witnessing significant developments in terms of technology utilization as proved by the ever-increasing usage of Computer-aided Translation (CAT) tools, Machine translation post editing (MTPE) along with other technologies. CAT tools are one of the most significant manifestations of new technologies that have become so striking that they become a prerequisite for joining most of translation companies nowadays.

According to Sun (2005), the idea of developing CAT tools appeared on the mass market in the 1990s. Since then, they have gained a foothold in the translation community (p.45). That is because "CAT tools support translators by helping them to work more efficiently" (Bowker, 2002, p.185). The main function of CAT tools is to save the translation units in a database called translation memory (TM). This idea simulates somehow the human memory. Imagine yourself knowing for the first time the meaning of a certain word, when you see or hear this word again, if your mind memorized it before, your memory will recall it immediately. The same goes for CAT tools.

The core of CAT tools is a translation memory (TM). Doherty (2014) defines TM as: "a software program that stores a translator's translated text alongside its original source text, so that these pairs can later be reused in full or in part when the translator is tasked with translating texts of a similar linguistic composition" (p.4). Bowker (2002) elaborates that matching of these compositions can be exact matching, fully matching, fuzzy matching, term matching, or sub segment matching (p.185). Thus, the more matches a translator finds, the more effective TM will be and the more satisfied a translator will be. According to Sun (2005), "The effectiveness of CAT tools also depends on the nature of documents to be translated" (p.46). CAT tools are valuable with texts that have a high degree of repeated terms and phrases such as user manuals, computer products and website updates (Gil & Pym, 2016, p.8). Therefore, it is expected that translators who are specialized in terminology-based fields are more satisfied with CAT tools than those specialized in creativity-based fields. As many studies focus only on the advantages of CAT tools, this study focuses more on the disadvantages frequently encountered by most translators specialized in different text genres, analyzes the possible reasons behind these advantages and suggests some solutions.

Believing that it is always helpful to correct the worst issues with these tools, this study seeks to explore long-practicing translators' suggestions to optimize the functionality of CAT tools and solve some linguistic and technical issues resulting from using such software. This could be beneficial for CAT developers and trainers. McBride (2009, p.175) suggests that trainers are encouraged to "remain informed of current uses of and developments in TM systems and the issues surrounding their use in order to adequately and properly prepare future translators for the profession". As localization is often related to most technical, medical and marketing translation, the paper sheds some light on localization issues. Localization is defined "linguistically as translating a product to suit the target users, technically as adjusting technology specifications to suit the local market, and culturally as following the norms and conventions of the target community" (Chan, 2013, p.347). Although CAT tools are primarily developed for localization projects, they need to be optimized to be more effective in such fields.

2. LITERATURE REVIEW

Several studies have contributed to the literature on translators' attitudes to CAT tools, but all were conducted disregarding or giving little consideration to text genre. With respect to CAT software evaluation, two key studies are always referred to: Rico (2001) and Höge (2002), both of which emphasize the significance of a user-oriented perspective for evaluation based on the context of use; likewise, this study has adopted user-oriented approach for evaluation based on text genre. Rico (2001) proposes a strict methodology for evaluation that identifies a number of relevant features and assigns value or weight for each one. Höge (2002) also highlights the importance of the reusability of an evaluation framework that is based on user-oriented and context-oriented approaches. Lagoudaki's survey of translators' use of Translation Memory (TM) systems (2006, 2008) is one of the first international surveys on CAT tools and he concludes that the usability of systems and end-users' demands should be given much attention which is consolidated by this study. Starlander and Vázquez (2013) explore postgraduate students' evaluation of CAT tools

using EAGLES 7-step recipe (1999). However, the study concludes that Eagles needs further simplification and illustration with concrete examples. That is why the present study depends on constructs developed by the researcher and piloted by six professionals in linguistics and translation studies. In an ethnographic study, LeBlanc (2013) interviews Canadian translators on both the advantages and disadvantages of working with TM tools. LeBlanc (2013) has not adequately addressed all issues that "revolve around the tool's conception or design" encountered by the translators, but rather focused on segmentation as the primary issue. In contrast, the present study addressed all issues figured out by the participants which allows the potential users to better understand the advantages and the disadvantages of several CAT tools in relation to different text genres, and to benefit from the solutions based on the hands-on experience of professional translators in using CAT tools.

As CAT tools have been recently introduced to the Arab market at a high price, scarce studies have been conducted to explore translators' assessment or attitudes towards CAT tools in the Arab world. Both Thawabteh (2013) and Abotaibi (2014) suggest that CAT tools may seem too complicated when first introduced to students, but students get used to them and appreciate their feasibility eventually. Abotaibi (2014) adopts a comparative approach in conducting one of the pioneering studies on attitudes towards CAT tools in the Arab world. Although Abotaibi (2014) seeks to examine the expectations and attitudes of female Saudi translation students before and after taking a CAT tools course at the College of Languages & Translation, the study only relies on freely theoretical lectures, video tutorials and available online services, which do not reflect users' attitudes based on hands-on experience. Similar to the present study, Zaretskaya (2015) conducts a larger survey on working practices of professional translators, but Zaretskaya (2015)'s study is distinguished by their overall attitudes towards current technology-related industry trends. Christensen and Schjoldager (2016) conduct a survey in which the perceived impact of CAT tools is diversified just like this study. Some feel positive as CAT tools increase productivity and quality whereas others feel negative as these tools are costly and lower creativity.

Similar to the present study, O'Brien et al. (2017) use a survey to investigate the most irritating features and the missing features. They report that the features that matter most to translators are compatibility, formatting, workflow and search support, respectively. Both Bundgaard et al. (2016) and O'Brien et al. (2017) confirm translators' resentments towards segmentation. Similar to Abotaibi (2014), Mahfouz (2018) uses two instruments: questionnaires and semi-structured interviews. Unlike Abotaibi (2014), Mahfouz (2018) investigates the attitudes of actual users like this study. Mahfouz (2018) compares the attitudes of 114 translation students and professional translators at a number of Egyptian translation agencies with specific reference to their perceived benefits, ease of use and compatibility. Both Mahfouz's study (2018) and the present study adopt an analytical approach. However, it is worth mentioning that exactly half of the participants in Mahfouz's study have no experience as translators while more than half of the participants in the present study have (1-3 years) of experience using such tools.

From the above discussion, it is noted that there is an increasing interest in investigating the attitudes and evaluation while interacting with CAT tools. However, the significance of the present study lies in investigating the perceptions of specialized actual users of CAT tools for a period ranging from one to more than 8 years, as opposed to potential users or inexperienced users. In addition, this study addresses the pros and cons of CAT tools in relation to text genres which helps translators be more cognizant of these tools. Moreover, this study is distinguished by examining the most significant linguistic and technical issues that face translators in each text genre, the suggested solutions for these issues, and potential developments can be made to computer-based tools to meet translators' needs in each text genre. Thus, this study is of utmost significance as it gives CAT tool

trainer and translators an insightful view about the best practices mitigating or solving some technical and linguistic issues resulting from using such tools. At the same time, it gives CAT tool developers a clue to what kind of functionality needs to be developed and added.

3. METHODOLOGY

A multi-dimensional survey was developed, validated and distributed among a number of Egyptian professional English<>Arabic translators who are specialized in different text genres and have different years of experience using CAT tools in order to investigate their perceptions about CAT tools. The design of the questionnaire allows to yield quantitative and qualitative data and provides a more in-depth view of users' perceptions. The survey was carried out using Google forms. The survey link was distributed among translation companies and translators' groups on social media. In addition, follow-up letters were sent to none-respondents. Within two weeks, the researcher received 113 completed responses. The participants of the study are either full-time or freelance professional translators with different fields of specialization and different years of experience using these tools. The face validity of the questionnaire was confirmed through a jury of six professionals in linguistics and translation studies. According to the comments obtained, some items were modified and some were deleted. The reliability of the questionnaire was calculated using alpha Cronbach for internal consistency.

4. DATA ANALYSIS

Over the survey period (January 1-17, 2019), 113 responses were received. Data analysis is divided into three sections. The first section deals with demographic data, the second with participants' responses to the three constructs and the third discusses the data obtained from the open-ended question.

4.1 Respondent demographics

The initial survey has identified some participants' characteristics such as the field of specialization and years of experience with CAT tools. Translators were required to choose only one field of specialization from a list that includes six genres of texts: general, technical, legal, medical, literary and marketing; with an option of "other" in case a translator works with a genre that was not included in the list. 101 participants chose a certain translation genre and the rest chose "other". For the purpose of measuring specialized user satisfaction with CAT tools in identified text genres and investigating their perceptions on the effectiveness of CAT tools in such genres, the responses of those who have chosen "other" were excluded. The sample consisted of 101 translators who chose the text genre, in which they are specialized, as follows: Legal and general texts (23%), technical texts (22%), medical (18%), marketing (11%) and literary texts (3%) (See figure 1). For years of experience: less than 3 years (52%), 4-8 years (27%) and more than 8 years (21%) (See figure 2).

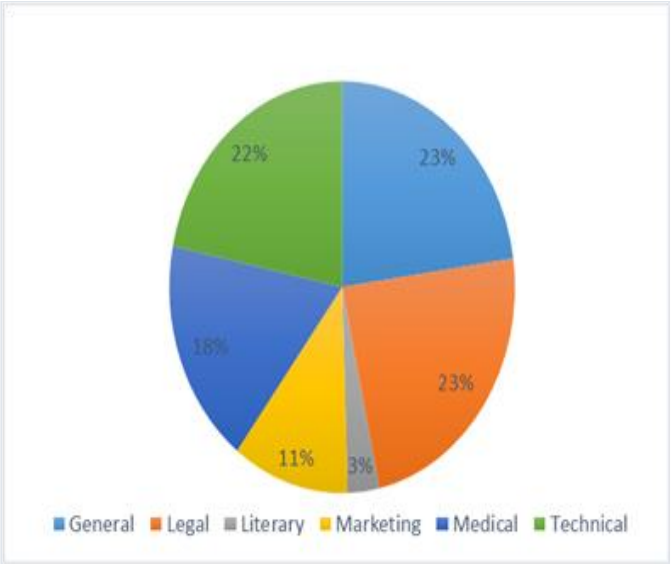

Figure 1. ***Participants' distribution based on field of specialization***

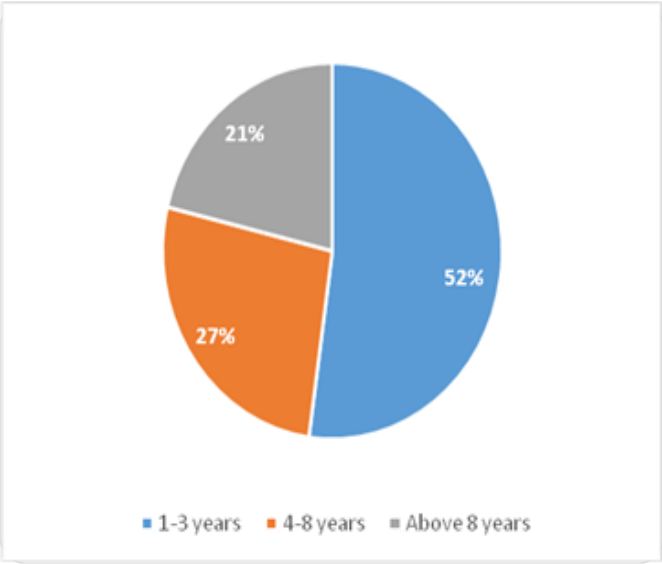

Figure 2. ***Participants' distribution based on years of experience***

4.2.1 The relationship between translators' satisfaction with CAT tools and text genres in which they are specialized

Satisfaction with CAT tools is measured by the specialized translators' responses to certain questions on the compatibility of CAT tools with their needs, richness of translation memories (complete matches and partial matches) and the adequacy of the built-in quality assurance. Respondents were asked to choose one of five possible responses on a 5-point Likert scale. Responses range from Strongly Agree to Strongly Disagree, in which strongly disagree corresponds to 1 point, while strongly agree corresponds to 5 points. The chart below assures that translators in all fields of specialization show a kind of satisfaction. However, this satisfaction is high in certain text genres such as technical, legal, medical and general texts, whereas it is medium in other text genres such as marketing and literary texts (See Figure 3).

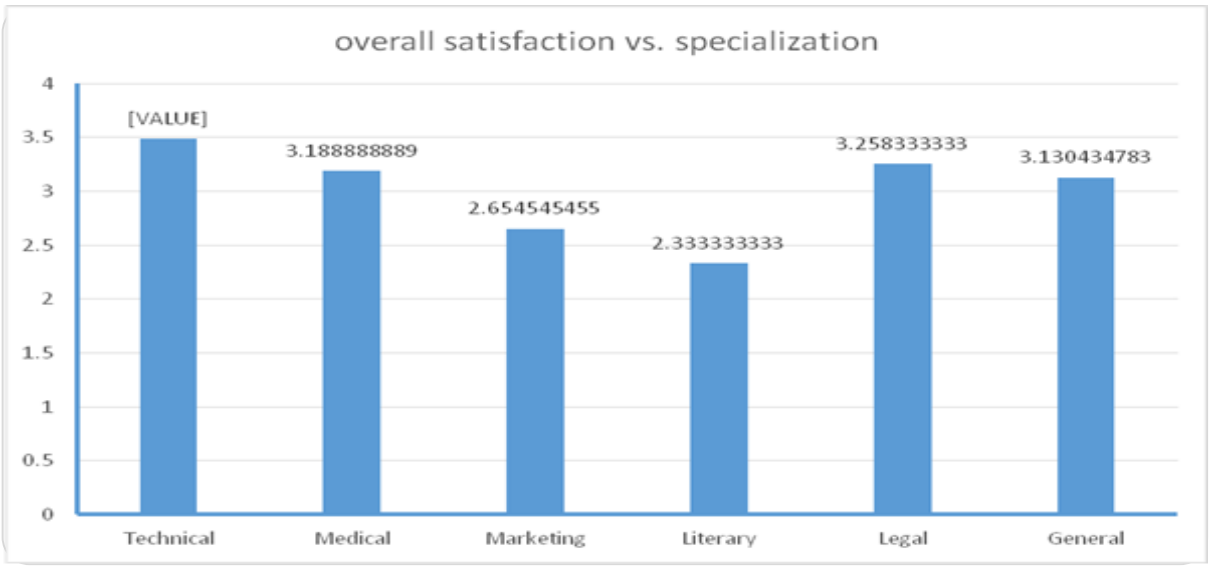

Figure 3. ***Translators' satisfaction with CAT tools based on text genre***

ANOVA asserts that variations in the degree of satisfaction among translators in different fields of specialization are insignificant except in the question related to compatibility of CAT tools with translators' needs. (See Table 1). With an insightful view of

ANOVA in this question, this difference is caused by the low mean of the literary and marketing translators in that question (See Table 1 in the appendix).

Table 1. Differences in satisfaction according to specialization

ANOVA						
		Sum of Squares	Df	Mean Square	F	Sig.
Q14.Compatible with needs	Between Group	111.502	5	22.300	59.135	.000
	Within Groups	35.825	95	.377		
	Total	147.327	100			
Q15.Complete Match	Between Groups	10.841	5	2.168	2.501	.036
	Within Groups	82.347	95	.867		
	Total	93.188	100			
Q16.Partial Match	Between Groups	6.495	5	1.299	2.350	.047
	Within Groups	52.515	95	.553		
	Total	59.010	100			
Q17.Tags	Between Groups	2.967	5	.593	.803	.550
	Within Groups	70.221	95	.739		
	Total	73.188	100			
Q18. Quality Assurance	Between Groups	3.501	5	.700	.682	.638
	Within Groups	97.509	95	1.026		
	Total	101.010	100			

4.2.2 The relationship between translators' satisfaction with CAT tools and years of experience with CAT tools

Results show that almost all participants are satisfied with CAT tools regardless of their years of experience. ANOVA shows no significant variation in satisfaction shown by translators belonging to the three categories of years of experience using CAT tools (See Table 2).

Table 2. Differences in satisfaction according to years of experience

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Q14. compatible with needs	Between Groups	2.714	2	1.357	.920	.402
	Within Groups	144.613	98	1.476		
	Total	147.327	100			
Q15. complete match	Between Groups	4.180	2	2.090	2.301	.106
	Within Groups	89.008	98	.908		
	Total	93.188	100			
Q16. partial match	Between Groups	4.961	2	2.480	4.498	.014
	Within Groups	54.049	98	.552		
	Total	59.010	100			
Q17. tags	Between Groups	5.521	2	2.760	3.998	.021
	Within Groups	67.667	98	.690		
	Total	73.188	100			
Q18. Quality Assurance	Between Groups	.772	2	.386	.377	.687
	Within Groups	100.238	98	1.023		
	Total	101.010	100			

4.3. The differences between translators' responses that can be attributed to years of experience with CAT tools

Based on four questions that investigate translators' suggestions for optimizing the functionality of CAT tools and solving some issues, it is notable that the statement of "I do not know" was chosen by more than three-fourths of the translators whose experience ranges from (1-3) years; however, less than one-fourth of translators belonging to the two other categories chose the same (See Figure 4). As solving issues and providing suggestions need an extensive knowledge and considerable practical skills, the responses of the least experienced category are excluded.

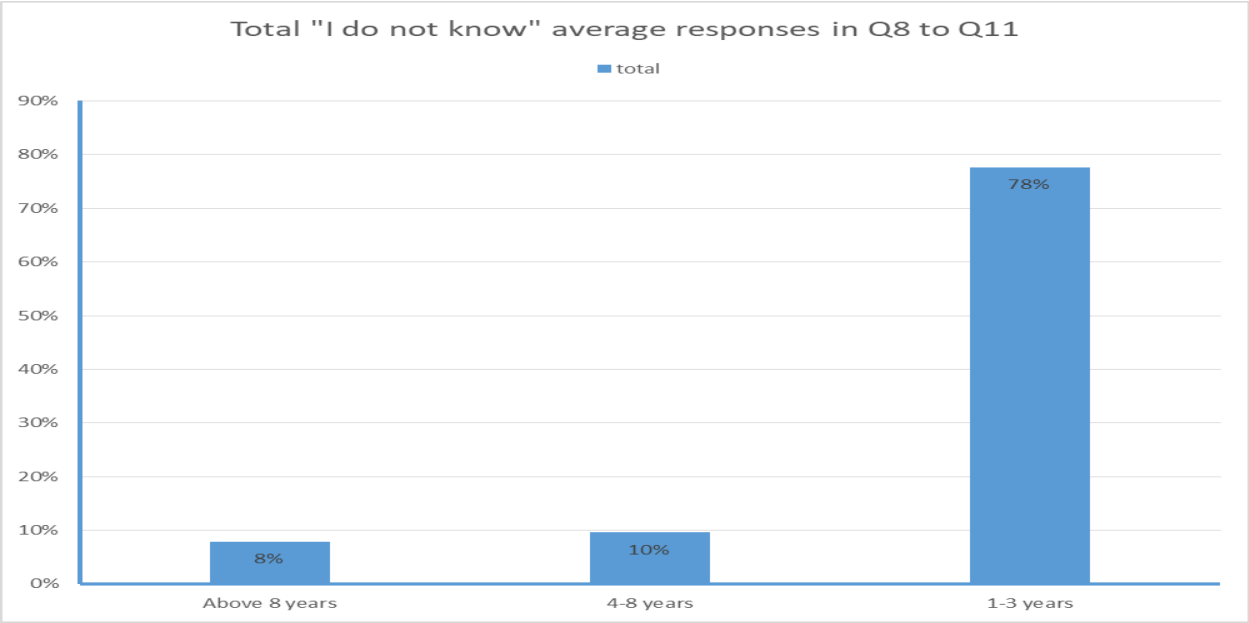

Figure 4. ***The differences between translators' responses according to years of experience***

As for translators' suggestions to leverage TM results, there is a near consensus between the two most experienced categories on three suggestions. Allowed to add more practices, they added the following practices: "searching for partial sentences when no match is automatically proposed" and "prioritizing certain TM in result matching". As for the translators' suggestions to optimize the functionality of CAT tools, there is a near consensus among the two most experienced groups on three suggestions. However, they added: "enhancing web look-up feature" and "improving the usability of Multi-term". As for the translators' suggestions to solve the problem of security and confidentiality, there is a near consensus between the two most experienced categories on three suggestions. In addition, they suggested "providing ready-to-use cloud CAT tools in reasonable prices" and "to encrypt data transfer". Concerning the translators' suggestions to solve the problem of localizing terms, there is a unanimous consent between the two most experienced categories on three suggestions. One of them added a new suggestion which is to "build a multidisciplinary multi-language Term Bank".

4.4. Advantages and disadvantages of CAT tools with view to text genre

Each translator was required to tick the most relevant advantages and disadvantages of CAT tools taking into account his/her field of specialization. (It was allowed to choose more than one choice and add one more than one item either in advantages or disadvantages). Noticeably, translators in different fields of specialization did not add any more items to advantages, but some translators added some items in the disadvantages section.

The advantages section includes 12 items. The responses were filtered according to translators' fields of specialization. When the researcher highlighted the items ticked by

more than (%٥٠) of the translators in each text genre, there is a near consensus among translators in different fields of specialization on six items out of 12 in the advantages section. They are: *ensuring accuracy, consistency throughout the project, helping avoid skipping any untranslated part, maintaining the original text formatting, providing maximum leverage from previous translations stored in TM and speeding up the translation process and increasing productivity*. However, both marketing and literary translators agreed on three items only: *ensuring consistency throughout the project, helping avoid skipping any part untranslated and maintaining the original text formatting* (See Table 2 in the appendix).

On the other hand, when the researcher highlighted the items in the disadvantage section ticked by more than (35%) of translators specialized in each text genre, there is a near consensus among translators in different fields of specialization on two disadvantages: using a sentence-by-sentence approach and hindering creativity and development of translators (See Table 3 in the appendix). At first sight, it may sound strange that technical translators are the category which most complained about technical issues, but there is a reasonable justification for this. Some reasons are attributed to the complex nature of technical texts, some are attributed to the extension of their files and others are related to translators' bad practices in handling such kinds of texts and files. Notably, translators in different fields of specialization .

4.5. The most obvious linguistic issue recognized in each text genre while making use of TM

Translators' responses are categorized according to their fields of specialization so that one can spot the most outstanding linguistic issue in each text genre. *Incoherence* abounds in general texts according to (22%) of general translators. According to (67%) of literary translators, *text omission or addition* is a common error in literary texts. Errors in *general style* are often in abundance throughout marketing texts according to (36%) of marketing translators. (39%) of medical translators suggested that making use of TM can result in an issue with *contextualization*. Moreover, (29%) of legal translators and (27%) of technical translators reported that mindless dependence on TM can generate an *inconsistent translation* (See Table 4 in the appendix).

5. FINDINGS AND DISCUSSION:

The percentages shown in the distribution of users of CAT tools based on the field of specialization give a primitive prediction about the high level of satisfaction with CAT tools in certain text genres more than other genres. Based on this notion, the low percentage (11%) of number of marketing translators and the very low percentage (3%) of number of literary translators participating in the survey have a significant indication. As CAT tools have been required urgently by the Arab translation companies in the last few years, more than half of the participants have only (1-3 years) of experience using CAT tools.

Using ANOVA to investigate variations in user satisfaction with view to the field of specialization, insignificant variation is found except in the question exploring the compatibility of CAT tools with translators' needs. In comparison with all translators' responses to that question, literary and marketing translators have scored a lower mean (M of literary =1.00 and marketing =1.45, whereas M of the rest are more than 3 and less than 5). Perhaps this is because segmentation in CAT tools does not suit the creative nature of such texts. Furthermore, these kinds of texts require a comprehensive overview of the context to achieve coherence and cohesion between various parts of the text. As the core function of CAT tools is retrieving the previous translation to be reused, the innovative nature of literary and marketing texts hinders making use of this function, especially in literary texts as it is hard to find a complete sentence, but just a word or a phrase matches at

the most. Although marketing translation requires building a brand new sentence each time even if the sentences have the same meaning, QA checks in CAT tools help ensure consistency (particularly for brand names, trademarks, taglines, slogans, boilerplate texts, etc.).

It is perceived that the level of user satisfaction with CAT tools is a leading indicator for their effectiveness. The translators' responses to the open-ended question reveal that CAT tools are effective in certain genres of texts such as technical, legal, medical and general texts, whereas they are less effective in other text genres such as marketing and literary texts due to their creative nature and lack of repetition in such texts. It is worth mentioning that technical translators find CAT tools very effective in handling various tags surrounding user interface text and the often repetitive content of the documents (e.g. the updated version of a user's guide that goes with a new release of the software) which relieves the pressure of producing a high-quality and coherent text on a tight schedule. Similarly, Mahfouz (2018) assures that technical translators provided positive responses towards the benefits of CAT tools (p.78). At the other end of the spectrum, literary translators can mostly dispense with CAT tools because of the thought-provoking nature of literary texts.

Although all translators show either a high or medium level of satisfaction with CAT tools in their fields of specialization, their responses to the open-ended question, about their perceptions of whether text genre plays a role in the effectiveness of CAT tools or not, are diversified. Many assure that the effectiveness of CAT tools depends on text genre; some bring to light a bunch of drawbacks with CAT tools, few assert that it depends on the translator's knowledge and others affirm that the gist of the issue is related to the format and the arrangement of the text. The drawbacks with CAT tools according to legal translators emerge from the sentence-by-sentence approach in CAT tools which hinders comprehending the lengthy complex sentences in legal texts as one unit. According to medical translators, the problem appears when translating chemical formulas in drug formulations or patents because of the abundance of tags. Transliterating structural forms of chemical compounds such as CH3-CH2-CH2-CH2-CH2-CH2-CH2-CH3 alongside with replicating tags take too much time and require drastic proofreading. Marketing translators find that CAT tools can not handle fonts that are not installed in CAT tools such as ﷺ and other fonts used in advertising and publication by *Photoshop* users.

When the relationship between translators' experience and their satisfaction with CAT tools are examined, it is notable that translators belonging to the three categories of years of experience express high satisfaction. No significant variation is found. It seems that user satisfaction does not rely much on the number of years for which the user has been using these tools. Rather, it seems to be more related to some other factors, such as: the extent of the knowledge a translator has acquired concerning these tools through the course of his training; the extent to which a translator has acquainted himself with the most recent updates related to CAT tools by following the updates released by the software developers from time to time; and, the degree of complexity of the format found in the documents a translator has been working with. However, when it comes to the best practices to get the best out of CAT tools, solve issues or provide suggestions to optimize them, years of experience using such tools becomes significant. Comparing translators' responses to "I do not know", this choice is chosen most by the least experienced translators. Similar to Mahfouz's study (2018), this study emphasizes that less experienced translators reveal a lack of knowledge in many aspects of CAT tools (p.80). Being satisfied as users with the existing functionality does not deny the need for optimization. The study suggests that the more the translators become familiar with CAT tools, the more they can render applicable suggestions and beneficial solutions.

Asking about the best practices to leverage TM results, a significant number of the two most experienced categories jointly suggest a "Pre-translation" feature, "allocating one TM for each product line" and "MT integration". In addition to all user-centric suggestions

offered, TM cloud sharing is useful in making real time use of team members' efforts while working on a cloud-based CAT tool. It is also helpful to convert any TM of other CAT tools into TMX (Translation Memory eXchange) and reuse previous translations by aligning parallel bilingual texts through using the "alignment" feature. Further, it is beneficial to use technologies including web scraping, web mining and wrangling. Translation agencies can harvest a great deal of bilingual texts with HTML format and convert them into usable formats (including Excel files (.csv) and .txt files) through " data wrangling". Aligned corpus in Excel could be converted into TMX by the help of Glossary Converter in *Trados*, *TMX Maker*, *ApSIC Xbench*, *Olifant*,..etc. In addition, it is useful to create a huge TM from specialized bilingual websites such as *Mayo Clinic* or *Almeezan* by using an alignment engine such as *AlignFactory*.

The Pre-translation feature sometimes saves a lot of time through inserting and confirming the translation for 100% matches automatically in one go rather than having to insert and confirm the segments manually in the editor, especially in automotive catalogues where the safety part (around 2000 WC) is almost the same in various releases. However, a certain amount of editing may be required in case of fuzzy matches. "Allocating one TM for each product line" is an excellent suggestion to leverage TM results and avoid inconsistency as well. Integrating machine translation (MT) into CAT tools can be achieved by purchasing application programming interfaces (API) from any of the MT providers (such as *MyMemory pro*, *Google*, *Microsoft*, *Systran*, *ModernMT*, etc.) to get an access to a generic or a specialized MT. However, there is a free plugin called "*MyMemory*" that could be installed on *Trados*. This plugin has a feature called "MT-TM comparison" that allows a translator to see statistical machine translation (SMT) suggestions directly produced for the current segment along with TM matches and the translator is free to post-edit these suggestions or discard them depending on their quality (See Zaretskaya et al., 2015, p.76). This combination is perceived as useful in uncreative fields. The idea is to retrieve the fuzzy matches from TM, identify the elements of the source sentence that are not covered by the match, and translate them using SMT techniques. However, it is more accurate to repair fuzzy matches by using term bases, neural machine translation (NMT), deep NMT, hybrid MT or adaptive NMT rather than SMT. Due to the high costs of an API that is priced monthly or per 1 million characters, some agencies tend to train domain-, company- or project-specific engines.

When the researcher has investigated the suggestions of the two most experienced categories at optimizing the functionality of this CAT tool to be more effective, the majority of votes are in favor of "adding *Babylon* dictionary software as an add-in". This software allows adding dozens of bilingual and monolingual dictionaries. Although *Trados* has recently added a free plugin "*Web Lookup",* many translators do not know about this plugin. This is because it is provided, as a free plugin embedded in *Trados*, for those who have a licensed version, to enable them to search a word or a phrase in online dictionaries instead of going back and forth to a browser, while translators mostly go for the cracked version. Despite the recent advancements in ensuring compatibility among the most popular CAT tools (*Trados*, *MemoQ* and *Wordfast*), a considerable number of translators of the most experienced categories voted for "ensuring compatibility between CAT tools" which reveals some sort of translators' lack of awareness of the advancements in the recent releases of CAT tools. Whatever the case, this suggestion can be considered only in a certain way. The most popular CAT tools do not support some tools required to be used when translating some technical texts, such as *Passolo*, *Idiom*, *Helium and TWS*. Some of the reasons are commercial and others are technical, so there is no way out. Translators should always be ready to familiarize themselves with any CAT tools within a few minutes by going through their tutorials.

"Supporting the embedded text in images" comes the third place in the list of suggestions made by long-practicing translators. Most translation agencies follow a strategy to handle this. A localization engineer (LE) is asked to decompose the texts from the images, provide such texts in form of *Trados* files, for example, to translators through a project manager (PM). Then, translators resend the *Trados* files to the PM who provides it to the DTP (Desktop Publishing) specialist. Then, the DTP specialist embeds the translation in its places in the images and resends the images to the PM who resends them to the translator to ensure the correct formatting and aligning of such texts (LSO (language sign-off) phase). Although this process is a labor-intensive manual process and consumes too much time and cost, it is the best in terms of quality. It is worth noting that some CAT tools offer add-ins that can read texts in images and embed the translation directly in the image, but they are costlier than rates paid to a DTP specialist and LE.

As for well-versed translators' suggestions for solving the problem of security and confidentiality while working on a cloud-based tool, there is a consensus on three options: "to have a license", "to code" and "to track the IP address". Due to the sensitive nature of some projects, especially in legal, technical and marketing fields, many translation agencies ask translators to sign on a none-disclosure agreement (NDA) which imposes not to share any TM in case of working offline. Although there are some applications to anonymize the sensitive data in TMs such as *SDLTM Anonymizer* that could be installed on *Trados* 2019, it is much safer for agencies to purchase a license on a Cloud-based CAT tool like Smart CAT or *Memsource.* However, reading service polices of such platforms beforehand is significant. Coding in a way that cannot be accessed by third parties without the author's permission would be helpful as well. Although tracking IP address is the easiest option to exercise, it may not be possible due to the General Data Protection Regulation (GDPR).

In pursuit of navigating translators' suggestions to solve the problem of localizing terms, the most common solution proposed by the majority of the most experienced categories and even adopted by many translation agencies is "tailoring cloud term bases" after consulting a subject matter expert to provide an accurate translation for key terms to be abided by throughout the project in order to maintain consistency. The second suggestion is "to add an option/function that allows the client to upload the needed references". This would help translators to adapt a product linguistically and culturally to a certain locale (country) where it will be sold. Enhancing Multi-term functionalities to facilitate customizing term bases according to a certain country or a certain product line would ultimately help translators in this regard.

Considering the number of advantages that gained a rating of more than 50% by the participants in each field of specialization, the lowest number is observed in literary and marketing texts. This denotes that most of literary and marketing translators do not get many advantages from CAT tools which emphasizes that they are less satisfied with CAT tools comparing to their counterparts specialized in other text genres. Furthermore, comparing the average percentage of votes given to "advantages" with the average percentage of votes given to "disadvantages" assures overall high satisfaction with CAT tools. A closer examination of the two highest-ranking disadvantages according to translators' perceptions is worthwhile.

First, the sentence-by-sentence approach to CAT tools breaks up texts which results in the loss of context and the production of incoherent translations. However, making use of *Preview* feature in CAT tools mitigates this issue. Second, translators in this study, find that CAT tools hinder creativity and the development of the translator. This could happen if the TM is too rich and with high quality to the extent the translator does not use his/her mind and this rarely happens. The opposite is right; CAT tools' rich TM can greatly help in the development of the translator. The matter depends on how the translator uses CAT tools' functionality for his/her own benefit. Surprisingly, after close scrutiny, the researcher found out that technical translators are the most complaining about technical issues. This is because technical texts are so rich with various components such as tables, charts, images…etc. that

CAT tools, especially *Trados,* fail to align texts therein. Moreover, the existence of equations, numbers or symbols alongside with plain texts causes the Arabic translation to overlap with said numbers or symbols; so more support to "RTL" is urgently needed in CAT tools, especially *Trados*.

Additionally, these technical issues sometimes come from some bad practices. Some companies copy the content of a website, for example from XML files, and paste it into word files to be imported easily on CAT tools which results in many error messages popping up or raising some issues with formatting at least. Not to mention that XML files provided for translating user interface of Mobile applications sometimes cause problems while importing them into CAT tools. In addition, the abundance of tags at such text genre and at HTML files could hinder exporting them from CAT tools, in case of deleting a tag mistakenly like "Shaperef" tag, or at least corrupt the format and even the translation. This is because tags could represent images or orders; they sometimes seem to be like placeholders that cannot be displaced or deleted. Using QA checker built-in most CAT tools helps in tag verification. To ensure the highest quality, proofreading, LSO (Language Sign-Off) and DTP support are inevitable.

Considering the added disadvantages, it is notable that legal and technical translators similarly complain of the lack of support in CAT tools for some file formats. This complaint reflects technical translators' lack of awareness of the enormous capabilities of CAT tools especially in their latest versions. It is noteworthy that CAT tools are mainly designed for translating technical texts such as Mobil applications, manuals,..etc. Legal translators' complaint is more likely related to lack of support to PDFs in CAT tools. It is worth noting that CAT tools can handle electronic PDFs without needing any converters. Moreover, *Trados* can also handle scanned PDFs or high-quality images through *TransPDF, Solid pdf, ReadIRIS and InfixPDf*, whereas *MemoQ* can do the same through *TransPDf* only. These softwares are paid and provided only on cloud so as not to be cracked. That is why many translators have no idea about them. Alternatively, translators usually use *ABBYY FineReader, FineReader* or *ABBYY PDF Transformer* to convert PDFs, photos and scans into an editable word file to be easily used on CAT tools on condition that it is written in English; otherwise, translators ask for the help of typists. Although Google Drive supports Arabic scanned PDF and images, it fails to replicate formatting. It converts an Arabic PDF into a plain text. Thus, few edits of styles of fonts are required.

While exploring translators' perceptions on the most obvious linguistic issues they face, translators specialized in each text genre express their resentment with a certain issue. Dividing sentences into segments threatens the coherence of nearly all text genres especially general ones according to a high percentage of general translators' responses. Likewise, Bédard's (2000) study highlights that there is a concern that translators feel disappointed when working with a TM because they risk becoming "translators of sentences" rather than "translators of texts" (P.44). Incoherence results from dividing texts into segments which makes a translator lose the context as a coherent unit. The Preview pane in *MemoQ*, which allows a translator to see the segment he/she are translating in-context, could help in this regard.

Incoherence also occurs when texts that are embedded in images are overlapped with the paragraphs in the file. Unfortunately, not many translators know that there is Preview Window in *Trados* that is used to preview the source text, target text or both the source and target side-by-side. Thus, it is advisable to check the context constantly. Moreover, converting an English PDF file to a Word file sometimes causes some issues with formatting in the original source file and consequently causes issues with segmentation i.e. chaotic division of the text instead of dividing the text into syntactic units. As a result, the segments stored in the TM are not the appropriate matching units that represent incoherence within

TM. Then, the translation of such segments can not be reused. In such case, it is highly recommended to format the original source file before importing it into any CAT tools.

Similarly, literary translators suffer from *segmentation* issues which require text omission or addition. Literary translators sometimes need to omit the translation of the last chunk in a segment and add it to the beginning of the next segment to provide a proper syntactic and semantic structure within a segment. Moreover, literary translators feel restricted by segmentation because this principle prevents them from juggling the order of sentences within a paragraph. By the same token, marketing translators believe that making use of TM sometimes adversely affects the general style of the marketing text as this genre of text requires a high degree of flexibility in moving from one sentence to another and creativity in providing a coherent text and a polished style. The nature of such texts depends on rhetorical devices not cliché. Therefore, general style in marketing translation somehow depends on translators' innovative sense; a translator may find his/her translation more creative and suitable to the context than the one proposed by the TM.

A great portion of medical translators has complained of *contextualization* as the most significant problem they face while making use of TM. This is because of the fact that a term or an abbreviation is translated differently according to the context. Hence, using a translation memory of a medical report in a certain medical specialty could be misleading if the medical specialty differs. For example, "AF" stands for "atrial fibrillation" in cardiology, "amniotic fluid" in Gynecology, "auto florescence" in Ophthalmology and "athlete's foot" in dermatology. Thus, medical translators are advised to categorize their translation memories according to medical specialties and give due attention to abbreviations while translating in the same medical specialty because they may differ from one context to another. Contextualization also appears on the term level. For example, *Drug Control* could be translated as الرقابة على الأدوية or مكافحة المخدرات and *Drug Administration* could be translated as إدارة الأدوية or تناول الدواء depending on the context. Then, a live preview of the source text helps with this issue. Retrofit feature could also help in this respect.

Legal translators have experienced hard times because of inconsistency in TMs. This is because the term is translated differently according to the target country. For example, "Court of Cassation" is translated as محكمة التمييز in Kuwait, Saudi Arabia and U.A.E, as محكمة النقض in Egypt and Syria, as المحكمة العليا in Sudan and as محكمة التعقيب in Tunisia. These differences in terminology among legal systems should be considered by the translator while making use of TMs to avoid inconsistent use of terminology. Furthermore, inconsistency emerges from the fact that the term is translated differently according to the context. For example, "victims" is translated in humanistic contexts as الضحايا while translated in criminal contexts as المجني عليهم. The term could be translated differently even in the same context such as "claim" in insurance contexts; it could refer to مطالبة تأمينية or دعوى قضائية. Moreover, using a TM which contains the translation of a contract could cause inconsistency in some parts while using it during the translation of a power of attorney because an archaic term such as "herein", that functions as a cohesive device, should be translated as في هذا التوكيل not في هذا العقد as it would appear in the TM. Then, considering the context and the target country or the target audience would help guarantee a level of homogeneity throughout the legal document. One should know that the TM only proposes translations, but translators are always in control to ignore or adjust these suggestions to suit their current document.

Inconsistency is also observed by a considerable number of technical translators while making use of translation memories. Inconsistency could occur when technical translators use more than one TM related to different product lines to leverage the results of fuzzy matches without regard to the fact that each client or product line customizes his/its own glossary, term base or style guide that should be observed. Referring to style guides is significant especially in localization when it comes to translatable and untranslatable contents. For example, product names are untranslatable in *Microsoft* while *Oracle* and *Google* tend to translate some and leave others untranslated. Thus, translators should be alert

to these differences even on the word level. For example, *Microsoft* translates "click into" as انقر فوق, *Oracle* translates it as انقر على and *Google* translates it as اضغط على. By the same token, a translator should be cautious when using TM while translating a catalogue for *Toyota* and *SCANIA.* This could cause a hassle in translation because *Toyota* translates "brake" as مكبح and *SCANIA* translates it as فرامل. Providing a clear-cut Termbase helps translators make use of Term verifier in the QA checker in each CAT tool or use a stand-alone QA software, *Xbench* for example, to ensure consistency. It is worth mentioning that the same client could provide an updated memory, so using previous memories alongside with the updated one could lead to inconsistency. Thus, it is advisable to prioritize the updated TM from the setting and use the suggestion of the most updated translation memory in case of contradiction.

6. CONCLUSION

Having first–hand knowledge of CAT tools, which have become a fixture of professional translation, is ultimately significant. Translators' high satisfaction with CAT tools in technical, legal, medical and general genres indicates the feasibility of CAT tools with such genres. Nevertheless, there is still a space for their improvement in the direction of user satisfaction. Marketing and literary translators show a medium level of satisfaction with CAT tools and believe that CAT tools are not so effective or compatible with their needs. Years of experience using CAT tools is not influential in translators' satisfaction with such tools as users, whereas it is influential in matters related to solving issues or providing practical suggestions. That is because such matters require an advanced level of practical knowledge gained by years of experience using such tools.

The fact that CAT tools have great advantages does not nullify the fact that they do have some drawbacks. However, most issues are not inherent ones; rather, they arise from unaffordable prices of CAT tools and their great plugins which make translators use cracked versions that lack many significant features, and do with such plugins. Furthermore, some bad practices of some users, insufficient knowledge and unfamiliarity with the detailed functions and features of these tools play a significant role here. Therefore, CAT developers need to reconsider their prices. Translators also need to gain profound knowledge and get themselves familiarized with their commonly-used CAT tool(s) by attending advanced workshops provided by professional associations and making use of the abundance of information available on the web, such as *Youtube* Channels, user forums such as Proz.com, which often provide solutions to some technical issues. It is worthy to note that avoiding jumping at the first translation suggested in a TM, and taking into consideration the context and communicative purpose of the translation document at hand minimize linguistic issues.

To sum up, user-based assessment is perceived as the main driving force behind the development of CAT tools. Thus, more in-depth studies are needed in the field of optimizing CAT tools functionalities. Investigating translators' attitudes towards the most popular CAT tools (*SDL Trados*, *MemoQ*, *Wordfast*) with view of the distinctive features in each one is still open for investigation.

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APPENDIX:

Descriptive Analysis									
			Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Q14.Compatible with needs	General	3	3.96	.825	.172	3.60	4.31	3	5
	Legal	4	4.25	.532	.109	4.03	4.47	3	5
	Literary		1.00	.000	.000	1.00	1.00	1	1
	Marketing	1	1.45	.522	.157	1.10	1.81	1	2
	Medical	8	4.11	.583	.137	3.82	4.40	3	5
	Technical	2	4.77	.528	.113	4.54	5.01	3	5
	Total	01	3.87	1.214	.121	3.63	4.11	1	5

Table 1. The relationship between translators' specialization and their satisfaction with CAT tools

Advantages	General	Legal	Literary	Marketing	Medical	Technical
Customizing glossaries for clients	30.43%	37.50%	33.33%	36.36%	38.89%	40.91%
Dividing texts into segments	52.17%	16.67%	33.33%	18.18%	50.00%	40.91%
Ensuring accuracy	52.17%	62.50%	33.33%	45.45%	55.56%	72.73%
Ensuring consistency throughout the project	65.22%	58.33%	66.67%	72.73%	61.11%	77.27%
Facilitating teamwork	34.78%	45.83%	33.33%	36.36%	44.44%	59.09%
Helping avoid numeric mismatch	43.48%	45.83%	0.00%	27.27%	44.44%	50.00%
Helping avoid skipping any part untranslated	60.87%	66.67%	66.67%	63.64%	61.11%	59.09%
Maintaining the original text formatting	69.57%	62.50%	100.00 %	54.55%	61.11%	54.55%
Providing maximum leverage from Previous Translations stored in TM	60.87%	70.83%	33.33%	36.36%	66.67%	81.82%
Sharing terminologies assets (term bases)	30.43%	37.50%	33.33%	27.27%	27.78%	59.09%
speeding up the translation process and increasing productivity	69.57%	75.00%	33.33%	45.45%	72.22%	77.27%
Working with many formats (PDF, word, Excel, PowerPoint ,Visual Studio, Java, HTML, XML, etc.)	4.35%	0.00%	0.00%	0.00%	0.00%	9.09%

Table2. The most significant advantages of CAT tools in each text type

Disadvantages	General	Legal	Literary	Marketing	Medical	Technical
Endangering confidentiality for the clients	8.70%	20.83%	0.00%	18.18%	0.00%	18.18%
Failing to localize; i.e. localize metaphors, idioms or terms according to the targeted Arab country.	17.39%	41.67%	33.33%	18.18%	16.67%	9.09%
Hindering creativity and development of translators	39.13%	37.50%	33.33%	0.00%	38.89%	36.36%
Lack of coherence and cohesion	30.43%	33.33%	66.67%	18.18%	33.33%	18.18%
Many technical issues	21.74%	16.67%	0.00%	18.18%	11.11%	45.45%
Providing minimum leverage from Previous Translations stored in TM	0.00%	0.00%	33.33%	72.73%	5.56%	4.55%
Slowing down translation process because of containing too much tags	26.09%	20.83%	0.00%	27.27%	33.33%	36.36%
Using a sentence-by-sentence approach	43.48%	41.67%	33.33%	45.45%	50.00%	45.45%

Table 3. The most significant disadvantages of CAT tools with regard to field of specialization

Problem	**General**	**Legal**	**Literary**	**Marketing**	**Medical**	**Technical**
Text Omission or Addition	0.00%	4.17%	66.67%	0.00%	11.11%	13.64%
Contextualization	13.04%	25.00%	33.33%	18.18%	38.89%	18.18%
Inconsistency	13.04%	29.17%	0.00%	0.00%	16.67%	27.27%
Grammar/Syntax	4.35%	0.00%	0.00%	18.18%	0.00%	0.00%
Ambiguous Translation	4.35%	12.50%	0.00%	0.00%	0.00%	4.55%
Localization Issues	8.70%	0.00%	0.00%	9.09%	5.56%	13.64%
Inappropriate Term	8.70%	12.50%	0.00%	9.09%	5.56%	0.00%
General Style	13.04%	12.50%	0.00%	36.36%	0.00%	9.09%
I do not know	13.04%	4.17%	0.00%	9.09%	0.00%	9.09%
Misunderstanding\Wrong Translation	0.00%	0.00%	0.00%	0.00%	22.22%	0.00%
Incoherence	21.74%	0.00%	0.00%	0.00%	0.00%	0.00%

Table 4. The most frequent linguistic issue countered in each text type while translating on CAT tools