Complementarity between Translation Memories and Computer-Aided Translation Tools: Implications for Translator Training

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Abstract
The leading edge of technological development which translators up to now have only dreamed of is perhaps the shift to Translation Memories (TMs). Since they came onto the market in the 1990s, TMs have gained importance in translation training for enhancing speed, productivity and quality. The translator’s demanding job goes far beyond mere knowledge of two languages and cultures to ineluctable knowledge of technological skills. The present article shows that introducing TMs to translator training has indeed given the translation profession a new lease on life. The article is based on hands-on experience from the MA Translation and Interpreting programme at Al-Quds University in which a one-off translation technology (TT) course is offered as part of the requirements for a master’s degree in Translation and Interpreting. The article reveals that although translation students stand in awe of TMs, they are faced with the multifarious intricacies of TMs, mainly because (1) they are unperceptive rather than perspicacious; (2) they are unable to be conversant with Computer-Aided Translation (CAT) tools; and (3) they are unable to integrate these tools with one another for the sake of appropriate translation. The article concludes that integrating CAT tools with TMs may give rise to optimal translation, with minimal communication breakdowns and maximal communicative thrust.

Keywords: technology; translation memories; SDL Trados; translator training; CAT tools

Introduction
Technology has become the personal fiefdom of some translation theorists and practitioners for the past few decades. It can be roughly defined as “methods, systems, and devices which are the result of scientific knowledge being used for practical purposes” (Collins Cobuild 2003) which, according to Austermühl (2006: 51), “serves to enhance the translators’ hermeneutic abilities.” By way of example, the use of parchment for an old-time writing, and then moving to paper, print technology and electronic technology show obvious technological advancement, deemed to be of paramount importance to human beings since time immemorial. It is true, therefore, that technology helps people to process information as efficiently and effectively as possible. Its presence in translator-training institutions seems to be needed, according to the type of translation involved (e.g., literary versus technical translation). Surveying twenty Palestinian translation graduates on the absence of translation technology (TT) from master’s curriculum in two Palestinian universities offering a degree in translation and interpreting, Thawabteh and Shehab (2017: 37) found out that the graduates were “dissatisfied with the fact that TT is missing from the programme’s curriculum” at one university. In this vein, European Master’s in Translation (EMT) campaigns for developing six sets of competences in trainee translators to put them at a considerable advantage on the job market, among which is technology (see Al-Shehari 2017: 357).

The fact that translation is eclectic in nature makes it possible to have good relationship with other disciplines from social and natural sciences, e.g. media studies, sociology, technology, etc.. A proper relationship with technology has been well-established (on the technology of machine translation and Translation Memory tools, see Gil and Pym
(2006: 16) for the former and Bowker (2002: 92) for the latter). To better explore such a relationship, it would be interesting to examine a definition of translation: it refers to the transference of meanings across languages and cultures, namely from Source Language (SL) into Target Language (TL) or, more precisely, “reproducing in the receptor language the closest natural equivalent of the SL message, first in terms of meaning and secondly in terms of style” (Nida and Taber 1974: 12). Regardless of a plethora of criticism on this definition by many translation theorists and practitioners over decades now, the transference process is of particular interest to me as the ultimate goal of such transference is knowledge-based. For exactly the same goal, technology stands four-square behind the transference of knowledge. Roughly speaking, technology “makes information and processes available to all” (Pym 2006: 113). All in all, technology is understood as a means by which transference is made as is translation.

Nevertheless, many translators and translator trainers may still have immense interest in translation in its conventional sense. Brian Mossop argues that “if you can’t translate with a pen and paper, then you can’t translate” (Pym 2005: 1). This is true to some extent. Pym (ibid.) further states: “No amount of new technology will make up for the basics.” True enough again. However, the greater role technology plays in shaping our translation world is indescribable, primarily due to its ability to extend ‘human capacities’ (Gil & Pym 2006). One of the widespread technologies which has shifted from downstream to upstream is the leading-edge technology of Translation Memories (TMs) which have worked for the benefit of high translation quality, consistency of translation and an increase in productivity (see also Esselink 2000; Bowker 2002; Zughoul & Abu-Alshaar 2005; Garcia 2006; Gil & Pym 2006;Elimam 2007; Austermühl 2001; Azzam 2004; Thawabteh 2013). TMs are “specifically designed to recycle previously created translations as much as possible” (Esselink 2000: 362), particularly in “the translation of any text that has a high degree of repeated terms and phrases, as is the case with user manuals, computer products and versions of the same document (website updates)” (Gil & Pym 2006: 8).

SDL Trados stands as one of the several TMs which “can be used to translate any kind of document that can be opened by Microsoft Word [generating] a statistical overview of the number of the internal repetitions, and fuzzy or exact matches in the translation memory” (Esselink 2000: 368). TMs break down a source text into segments, roughly defined as a manageable bite sized chunk. When the SL segments are translated, they are saved to a Translation Memory (TM). At the same time, the segments are being saved for new translations. The TM is also being used to leverage previously translated content as will be shown later. When one moves to a new segment for translation, the software checks in the TM if there is an identical or similar translation. It then automatically enters the result which is most appropriate for the new target.

When initially introduced, TMs are a lot more user-unfriendly as is the case with everything new coming out. Perhaps the major stumbling block to efficient use of TMs is a lack of translation technological skills on the part of translators (a point that will be discussed later). It is no wonder that some people in our translation world are still insisting on conventional translation tools. This brings to mind the concept of translator training which, according to Caminade and Pym (1997), “has become an integral part of Translation Studies” But the problem is that translator training is most of the time linguistics-oriented rather than technology-oriented as (Venuti 1998: 1) aptly remarks: “translator training [has] been impeded by the prevalence of linguistics-oriented approaches that offer a truncated view of the empirical data they collect.” In fact, translation students seem to agree with the former: in
an appropriately equipped classroom set for translator training at Al-Quds University, students are keen on a classical-teacher-centred translation class, thus concurring with the traditional view. For instance, when asked to translate ten documents, each of which comprising, say, a 500-word repetitive text using Trados, they were genuinely surprised. “Today?” they complained. Nevertheless, real-time interaction with other classmates and with Trados per se has changed the current state of the students’ performance. Most interestingly, no sooner had they started to use Trados than they said “Wow! Well, that is it!” A user-unfriendly system has then become a user-friendly one.

**Computer-aid translation (CAT) tools**

CAT tools are those which have valuable vocational and academic values in translator training setting and, by implication, they are helpful and useful to translators, of which we may mention: Catalyst for software localization and Trados Tag Editor for HTML/XML files, etc.. More problematically, CAT tools should not be confused with the basic translation process. “The recent translation technologies are mostly based on assumptions that translation is phrase-replacement process. They distance the translator from senders and receivers; they privilege consistency rather than communication; they turn the world into databases” (Pym 2005: 4). It ensues, therefore, that the translator should be meticulous enough to give priority to communication rather than consistency.

The Internet’s reach has made CAT tools ubiquitous. A relatively new CAT course is housed in the Department of English Language and Literature at Al-Quds University. A Master’s Degree in Translation and Interpreting is affiliated with the department. Some technological-related software applications such as Déjà vu, Wordfast, SDL Trados, subtitling, dubbing etc. are offered as a requirement for obtaining the degree (see Thawabteh 2009: 166).

A typical CAT translation course comprises of a number of distinguishing characteristics as Gil (2006: 90) argues:

The course comprised 50 hours of learning time, distributed over ten weeks. Of those 50 hours, 5 (10%) were devoted to the translation market, 15 (30%) to translation strategies, 15 (30%) to CAT tools and 15 (30%) to translation projects. The module topics were as follows: Advanced Internet searches; Revision tools with MS Word; terminology management with MS Excel; HTML basics; Creating a simple website with Netscape Composer; HTML for translators: Identifying translatable text inside code; using Translation Memories: Trados; WordFast; DéjàVu.

In this, CAT represents a significant step towards the integration of translation course components, amounting to the learning time allocated to translation strategies and translation projects. Included in a ten-week module is Advanced Internet searches topic which piques our interest because it is introduced as a separate topic from TMs; yet both are closely interconnected.

**Methodology**

**Design of the study**

The MA translation programme at Al-Quds University offers a combination of core and elective courses, amounting to 39 credit hours, among which there are a host of TT courses (e.g., Translation Technology and Term Management, Audiovisual Translation, etc.).
Therefore, the students have the chance to receive considerable training for at least two years on special TT courses, which mainly aim at furnishing students with knowledge of electronic tools including some TM systems (e.g., Wordfast and Trados). Based on data derived from an English-Arabic highly repetitive text in the second semester of the academic year 2016/2017, the present study addresses only Translator’s Workbench (TWB). Other wide-ranging SDL Trados components e.g., WinAlign, TagEditor, T-Window for Clipboard, etc. are beyond the scope of the study. The study also investigates a well-defined focus on how other CAT tools are (or should be) made use of, and the overall impact on the product. The figures of screenshots represent the students’ actual translations. The examples are used to further explain the linguistic and/or technical difficulties the students were faced with in a translation classroom. Equipped with a server-based system on my computer, I could access databases (the process and products of students’ translations) and then stored on central file server. The screenshots are good examples of the students’ recourse to various CAT tools in the course of translation using TM.

Significance of the study
The polar opposites for translator training for CAT tools in the Arab World seem to mainly focus on linguistic-oriented approaches to translation as can be seen in the many traditional translator-training institutions. Clumsy and ill-starred attempts to introduce TT courses have occasionally been made in the Arab World, with the possible exception of very few institutions, e.g. Hamad bin Khalifa University\(^1\) and Sultan Qaboos University\(^2\). In the former, a non-credit course is offered whilst in the latter a three-credit hour course is taught on the fringes of the university, covering different translation memories and CAT tools. In terms of research that has exercised considerable influence on TM tools discipline in relation to Arabic, very scant attention has been paid to TM tools (e.g. Azzam, F. 2004; Raddawi & Al-Assadi 2005; Hammadah 2008; Fatini 2009; Thawabteh 2013). In view of a lack of interest in TM and CAT tools, the present study can be considered significant as it is mainly concerned with the minutiae of translator training for TM and CAT tools as can be illustrated in the use of TWB and some CAT tools by MA translation students. Hopefully, this paper will increase translator trainers’ awareness of the technology of TM and CAT tools as a growing discipline in translation studies and they can be integrated into translator training.

Discussion and analysis
From this broad kind of analysis, we move on to diversify and corroborate the argument that handles technology: two fairly large inseparably intertwined TM and CAT tools, with very smooth integration. This would not only encourage a kind of translation lubrication, but would also create a translation of high quality. Let us now show translation processes at work in some actual examples. To facilitate reading this article, a typology of the problems the students are encountered with is made.

Perspicacious/unperceptive
Being perspicacious is more favourable than being absent-minded or being unperceptive, for everything, including technology, of course. The translator may be versatile. It goes without

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saying that students belong to various educational backgrounds. Therefore, some may understand things quickly, or may not. For the latter group, tailor-made training may be an outlet. During training, there are always people who find TMs "[a]s a curse: based on a deep feeling of frustration in many translators—mainly, but not only, beginners—due to the perceived steep learning curve needed to master TM" (García 2006: 98). This is true. Insofar as our data is concerned, I could observe that some students are unable to create a TM, the rudimentary knowledge to translate a document using TWB. Others give all attention to Google Translate, for instance. Google Translate is an interesting CAT tool perhaps with the proviso that other CAT tools are concurrently used. It is then important that students are trained to use rightly as many CAT tools as possible, rather being taught to use particular ones.

**Inability to be conversant with CAT tools**

Student may be able to translate well. That is fine. However, in our translation world, there are a lot of rushed activities. A client may want a document be rushed out. Therefore, the translator should be conversant with as many TMs and relevant CAT tools as possible. In Example 1 below, students perhaps find it easy to translate in a non-problematic way, that is, a one-to-one correspondence between English and Arabic seems to be an easy task.

Example 1:

Discover Agadir, Morocco’s top sea resort: fine sandy beaches, over 300 days of sun per year. An accessible year-round destination!

It is obvious that the student translator seems to be working in TM tool interface. It is perhaps worth pointing out that TWB seems to have been fantastically used to translate Example 1 above as can be shown in Figure 1 below:

**Figure 1: A student’s translation using TWB**

**Inability to integrate CAT tools**

The student translator apparently translates Example 1 without even resorting to a more readily accessible strand of CAT tools usually at his/her fingertips. It is noted here that the student translator seems to have a degree of mastery of the initial stage of TM, so this is literally true. The teacher is, however, aware of the need to familiarise the student with another CAT tool, namely using an Internet search engine like Google for [اغادير](agadir). Actually extra-textual information is necessary for making salient choices in the course of translation. The student comes up with more vital information about the city, apparently
through Wikipedia\(^3\) that may help refine the first translation, including more workable strategies e.g., adaptation as can be observed Figure 2 below:

![Figure 2: Using a simple Internet search as a CAT tool](image)

It is fairly obvious that the translation in Figure 2 is more culturally and linguistically appropriate than that in Figure 1. For example, 

<table>
<thead>
<tr>
<th>Arabic Translation</th>
</tr>
</thead>
</table>
| اكتشف مدينة اغادير الواقعة على الساحل الغربي للاطلسي، هو أفضل منتجع في المغرب على الإطلاق, (lit. Discover the city of Agadir situated on the Atlantic Ocean Morocco’s top sea resort) is a translation made up of a concatenation of sentences put together that, then again, reflects “the closest natural equivalent of the SL message” (Nida and Taber 1974: 12), thus working in tandem with meaning and style. It is clear that drawing on a simple Internet search, i.e. Wikipedia is conducive to optimal translation as it were, as the second attempt to deliver more intelligibly by the same student shows (in Figure 3 below). The student translator makes maximum use of a CAT tool that, in the final analysis, brings about the following translation. Arguably, opting for more than a CAT tool bespeaks optimal translation.

![Figure 3: A sample refined translation using TWB after using a search engine](image)

In order to further appreciate the effectiveness and efficiency of CAT tools with which the translator from English into Arabic may be concerned, let us consider the following output sample:

**Example 2:**

<table>
<thead>
<tr>
<th>English Translation</th>
</tr>
</thead>
</table>
| Sam had been gored by a rhinoceros

The premise in translation theory is that languages with little linguistic and cultural affinity usually pose enormous problems to translators (be they fully-fledged or novices). The item ‘Rhinoceros’ is presumably part of a language and culture which are fairly remote from Arabic and Arab culture, thus it may be difficult for, say, a Palestinian translator (working

\(^3\) Available at: at https://ar.wikipedia.org/wiki (visited August 8, 2017)
from English into Arabic) to select the nearest lexical equivalent for the target audience or, more simply, it is intrinsically of culture-specificity. It is, after all, not the product of Palestinian culture, nor is it of Arab culture. A partial solution to this problem is to opt for a user-friendly dictionary, like the one below; it is possible for the translator to easily recognise the apparently problematic lexical item ‘rhinoceros’, by means of its meaning values, i.e., ‘a large animal’, with ‘thick grey skin’, ‘a horn, or two horns, on its nose’. These would help the student translator reach the right lexical equivalent.

![Figure 4: Colins Cobuild CAT tool](image)

A far more favourable alternative, and without even consulting a dictionary, is feedback from the teacher that would enable students to use other CAT tools. One is simply a Google Image tool. It may help bring about a visual image of ‘rhinoceros’ that would, drawing on an encyclopaedic knowledge and visual perception of this animal, render it equivalent to saying وحيد القرن (‘rhinoceros’). The first and second CAT tools can yield insights into the transfer of meanings from English into Arabic, and further help the student translator fair-mindedly reflect on procedures that would enhance a translation of good quality, and even accelerate the translation process. For more elaboration, take Example 3, 4 and 5. These are semantically and syntactically the same, but are well-designed to show difference in terms of American and British English and spelling, highlighted in bold. To see how the student deals with this issue, a taxonomy is made.

Example 3

It was getting near lunchtime and I needed some **petrol**, so I left the **motorway**, and drove towards the nearest town. There was a **petrol station** just outside the town and I decided to stop and have a look **round**. I put the car in a **car park** and took a **taxi** to the **centre**. It was midday and very hot, so I stopped at a little **café** with tables on the **pavement**. I started talking to a **lorry** driver, who gave me a history of the town, and afterwards he took me on a guided tour. It made a nice break.

Example 4

It was getting near lunchtime and I needed some **petrol**, so I left the **motorway**, and drove towards the nearest town. There was a **petrol station** just outside the town and I decided to stop and have a look **round**. I put the car in a **car park** and took a **taxi** to the **centre**. It was midday and very hot, so I stopped at a little **café** with tables on the
pavement. I started talking to a lorry driver, who gave me a history of the town, and afterwards he took me on a guided tour. It made a nice break.

Example 5

It was getting near lunchtime and I needed some gas, so I left the freeway, and drove towards the nearest town. There was a gas station just outside the town and I decided to stop and have a look around. I put the car in a parking lot and took a cab to the center. It was midday and very hot, so I stopped at a little diner with tables on the sidewalk. I started talking to a truck driver, who gave me a history of the town, and afterwards he took me on a guided tour. It made a nice break.

Creating a new TM

The first thing to do is to create a new TM to start translation work. In Create TM dialogue box, select English (United Kingdom) as your SL and Arabic (Oman) as your TL. Here is a problem. All Arabic varieties in Source Languages and Target Languages menus are more or less the same when it comes to written Arabic. Therefore, it sounds redundant for the translator to choose, as his/her SL or his/her TL, from among the list in Target Languages menu: Arabic (Egypt); Arabic (Iraq); Arabic (Jordan); Arabic (Kuwait); Arabic (Lebanon); Arabic (Libya); Arabic (Morocco); Arabic (Oman) among others. In Figure 5 below,
It is perhaps worth stating that pre-translation steps are needed to facilitate maximum translation quality. It seems that the student is singularly ill-equipped to deal with this step. The translator student is then directed to use Analysis command for the first time translation. In this technique, TWB analyses “Word, PowerPoint and Excel documents, HTML, SGML, XML, TRADOSTag (TTX), PageMaker, QuarkXPress, InDesign 2.0 and Ventura tagged text files” (TWB Help 2006)\(^4\). The Analysis command analyses one or more documents by comparing them with the current translation memory to calculate the number of segment matches between the document(s) and the memory. The five possible types of segment match are Context TM, 100% match, fuzzy match, repetition match and no match. Having created a TM, Analyse File dialogue box opens with no repetition in translation (ibid.) as can be shown in Figure 6 below. The TM serves as a receptacle for all previous translations. Since no translations have been saved to TM, Analysis of Text 1 shows no repetition. This simply means that the student has to settle for translating the text in question.

![Figure 6: Analysis of Example 3 showing no repetition](image)

Following up analysis of Example 3 showing no repetition, the translation is shown in Figure 7 below:

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\(^4\) Manual of SDL TRADOS7 Freelance.
It was getting near lunchtime and I needed some petrol, so I left the motorway, and drove towards the nearest town.

There was a petrol station just outside the town and I decided to stop and have a look round.

I put the car in a car park and took a taxi to the centre. It was midday and very hot, so I stopped at a little café with tables on the pavement.

I started talking to a lorry driver, who gave me a history of the town, and afterwards he took me on a guided tour.

It made a nice break.

Figure 7: Screenshot of a translation of Example 3

Using the Analysis Command for the subsequent Texts

When the first text is translated, it is now saved on the memory. Using the Analysis command for the next texts will be fruitful for speed, productivity and quality. The analysis says that 4 out of 6 segments observe exact match. For the sake of speed, the student may opt for the pre-translation technique from TM, Tools, or may open the MS Word document and use the Fuzzy Match icon until encountering the segments (two in total) which have fuzzy match.

The result is shown in Figure 8 below:

Figure 8: Using the analysis command for the subsequent texts
**TM concurrent with the text in MS Word**

Whilst translating a given text, it is necessary to let the TM be open at the top of the screen which steers the student in the course of translation. Now the student is translating “I put the car in car park and took a taxi to the centre.” A previous translation saved on the memory is displayed: “I put the car in carpark and took a taxi to the centre”, with an 87% fuzzy match although the two segments are semantically the same. Fuzzy match means the process by which the TM programme “pairs text segments in a revised source text with similar text segments from a previously stored translation based on the original source text. Fuzzy match will find segments that are very similar to the original and suggest the original translation” (Webb 1998: 9). Surprisingly, there was no exact match! By exact match, we mean the process in which the TM programme “pairs text segments in a revised source text that match the original source text exactly; however, any text in the document that does not exactly match the original will not be translated” (ibid.). It is obvious that the TM shows differences between the two segments due to English varieties, i.e. American versus British English. The student should spot right away that this kind of difference as shown by fuzzy match is unimportant when translating from English into Arabic. However, it can be important when translating into English as the target audience should be borne in mind. If the target audience is American, American English can be used; if it is British, British English can be then used.

![Figure 9: Tricky alternative spelling](image-url)
Due attention should be then paid to similar examples: petrol, motorway, a petrol station, have a look round, a carpark, a taxi, the centre, café, pavement and a lorry driver versus gas, freeway, a gas station, have a look around, a parking lot, a cab, the center, diner, and sidewalk and a truck driver.

**Pre-editing in the use of TM**

In the course of translation, the student translator may look for means to have his/her translation look nice as translation on TWB is usually badly organised. Using Print Review with MS Word may be helpful as only the translation appears, so that the student translator can read it thoroughly for language problems, lexical choice, and most importantly, for incoherent cases. In Figure 10 below, the SL segments usually disappear in Print Review. We suggest another advanced means: what we may term Labyrinth Method (LM) as shown in Figure 10. Here we hypothetically cross the SL segments out. LM is used to refer to a series of TL segments in TWB, obviously as a labyrinth. The translator student can be trained to pre-edit translation disregarding the SL text and reading through in an LM mode. For sure, reading goes through from right to left.

![Figure 10: Using LM](image-url)

In Print Review mode, the SL segments disappear (here we cross them out for the sake of elaboration).

**Concluding remarks and implications for translator training**

So far in our analysis, we have noted that TT in need is a friend indeed and it is here to stay. We also noted that it has received considerable attention worldwide for the past few decades. In the Arab World, however, it is still fraught with difficulties and challenges as priority has usually been given to linguistics-oriented approaches at the expense of rapid growth of technology in our translation world. While translating, integrating CAT tools with each other, then with TM tools is an attempt to give translator training a jump-start. In order to ensure a translator-training programme of good quality and quantity, the following conclusions and implications can be made:

1. translation students are unperceptive, rather than perspicacious; that is to say, they have difficulty understanding things;
2. they are unable to be conversant with technology. That is to say, to be able to use CAT tools conveniently (e.g., advanced Internet searches; Using TMs, etc.);
3. they lack computer skills. It is important for students to deal with computer programmes;
4. TM is a relatively a new technology whose presentation is likely to befuddle its users in doing translation tasks. With the passage of time user-unfriendly system may
become user-friendly with the proper training. The better versed the translator is in the technology of SDL Trados, the more s/he seems to stand in awe of it. (Thawabteh 2013: 181);

(5) make training available to translation students and professional translators as well.
(6) hold tailor-made training on translation memory tools such as Trados, Déjà vu and Wordfast, among many others;
(7) hold tailor-made pedagogy for the not-so-advanced students can be pursued due the fact that learning TM is a combination of individual differences for trainees who usually belong to various educational backgrounds;
(8) Carry out more research on TM tool Technology because, in the words of Hammadah “although TMs are precise, they are a neglected area of study in the Arab World” (2008, MTs in International World Market; researcher’s translation);
(9) make training on CAT tools available to translation students, trainee translators and professional translators;
(10) prepare translation students, trainee translators and professional translators to adapt to rapid technological progress; and
(11) Doing translation via TM tools, even in subtle and intricate ways, seem to be clearly not enough to bring about good translation. Perhaps it is important for the trainer to exhort translation students to do a slew of search engine tasks. True as it may sound, ‘dos and don’ts’ of employing CAT tools in a translation task is likely to do justice to translational activity in a general sense;

References

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