Translation Tools and Resources: Exploring Saudi Translators' Awareness of Translation Technologies

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Abstract: This study provides a baseline for future comparisons in translation technology awareness which has implications for teaching translation technology under the premise that greater systematic training on translation technologies is needed in Saudi universities. The study is quantitative in nature: It investigates the awareness of translation technologies among 213 Saudi translators via a questionnaire distributed through Twitter and LinkedIn. The questionnaire was used to measure translators' awareness of five types of translation technology tools, namely CAT tools, Machine Translation (MT), Terminology Management Systems (TMS), Corpora Analysis Tools, and Quality Assurance (QA) tools, along with seven types of online resources, namely online dictionaries, knowledge-based resources, discussion fora, search engines, web pages, online documents, and Translation Memories (TM). The results show various degrees of awareness toward the tools and resources. However, Saudi translators were more familiar with the online resources than tools. More specifically, 50% and above of respondents displayed comparable high familiarity for all online resources, except for TM which recorded lower familiarity. As for tools, MT was the tool most familiar to translators, followed by CAT tools with a fair awareness, and a limited awareness was reported for TMS, QA tools, and Corpora Analysis Tools. Based on the findings, the study suggests searching for effective solutions to keep translators motivated and updated regarding recent translation technology. Another recommendation is to conduct further research that draws upon broader perspectives to explore the factors that have a decisive influence on the awareness of translation technology.

Keywords: Awareness, online resources, translation technology, translation tools.

1. Introduction

Using technology in translation practice has become a norm due to its ubiquity in the last few decades [1]. Being aware of translation technology is a fundamental step to utilizing it properly, as it is a significant component of a translator's competence. However, there are no clear boundaries as to what all can constitute translation technology [2]. Chan [3] defines *translation technology* as "a branch of translation studies that specializes in the issues and skills related to the computerization of translation" (p.258). This definition has been adopted by *The Routledge Encyclopedia of Translation Technology* [4], and the editor also states that translation technology involves Computer-Aided Translation (CAT) and Machine Translation (MT) without mentioning other resources.

Some scholars, however, broadened the notion of translation technology to involve online resources besides tools [2-5-6-7]. The current study espoused that translation technology has two main components: tools and online resources. Online resources are "collections of data underpinned by often complex technologies that make it possible to retrieve the desired information by the user" (p.89) [2], such as online dictionaries, online documents, search engines, and knowledge-based resources.

Nevertheless, core concepts and tools, such as CAT tools and MT, have formed the focus of publications and research in translation technology. In contrast, online resources have received less attention as part of translation technologies [2]. Several studies have focused on professional translators' attitudes, use, and awareness of CAT tools and MT rather than online resources. The current study attempts to shed light on the awareness of translation technology in its broader conception, i.e., tools and online resources used in translation.

Research questions

In view of the perceived needs of the translation studies in Saudi Arabia, this study tries to answer the following questions:

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RQ1: To what extent are Saudi translators aware of translation tools?

RQ2: To what extent are Saudi translators aware of online resources?

RQ3: To what extent do Saudi translators need to learn about translation technologies?

2. Literature Review

According to the online Longman dictionary, *awareness* is the "knowledge or understanding of a particular subject or situation." Gafoor [8] stated that awareness dimensions differ depending on the specific meaning attributed to awareness. Among three meanings he gave to awareness, the current study adopted this: "Awareness measurement has the object of what respondents know and what they do not know" (p.2) [8]. Besides, awareness in the present study is self-reported, i.e., being explored in the form of an opinion or direct questions for the participants by using the Likert Scale for response. Furthermore, the term 'translation technology' is an umbrella term for various technologies integrated into the translation process. Categorization of translation technology can be taken from different perspectives due to its increasing integrated nature [7]. The present study, however, adopted Gough's definition [2], which defines *translation technology* as "tools and resources used to aid, optimize or automate the translation process" (p.87).

2.1 Awareness in translation technology

The translation process is highly engrossed in translation technology which led researchers, e.g., [2-7-9-10], to emphasize the interrelationship between translators and technology. More importantly, Gough [2], for example, argued that the translation process, as it is immersed in a technological environment, could not be studied in isolation from translation technology. Besides, previous studies accentuated the engagement of translators with translation technologies, the trigger that highlighted the value of measuring the translators' awareness of such technologies. Gough [2] suggested that translators must have a basic understanding of the key concepts used by translation technologies to utilize them efficiently. Moreover, Mohammed et al. [11] suggested that "the non-adoption of CAT tools had more to do with translators' lack of understanding and familiarity with CAT tools rather than the nature of applications of CAT tools." Therefore, being aware of concepts employed by translation technologies is fundamental to pave the way for adopting them and toward smooth translation process. The current research provides an overview of the current situation of translation technology awareness among Saudi translators.

2.2 Research in translation technologies

Literature in translation technology has revolved around two directions [2]. The first one discussed the technological developments and their adoption by professional translators, e.g., [7-12-13-14], the second investigated the translators' usage of technology and the implications it has on the translation process, e.g., [2-15-16]. Nevertheless, research on translation technology usually discussed tools, such as MT, and CAT tools, with less attention paid to online resources as part of translation technologies.

In terms of translation technology awareness, very few studies have tackled translators' awareness compared to investigating attitudes and adoption of translation technology. A piece of evidence of the relationship between familiarity and use is provided by a study examining translation technology adoption by Man et al. [7] that concluded: "there is a strong positive correlation between familiarity and frequency of use" among the respondents of translation technologies (p.262). Yet, it was unclear whether respondents, who did not adopt some translation technologies, were aware of them or "they simply do not have the motivation to experiment with these tools" (p.264) [7]. Therefore, the use of translation technologies can be hindered by several factors and awareness is one of them [7]. The other factors could be the accessibility to hardware and software, financial costs, differences in translators' needs, and learning time [7]. However, the scope of the current study focused on the translators' awareness in terms of ability and frequency of use of translation technologies.

An empirical study conducted by Gough [17] examined professional translators' awareness and perception of Web 2.0 technologies and their implications for adopting emerging technologies and trends. The results showed that translators had a certain degree of awareness but seemed to lack depth of general concepts related to technological developments and trends. Unlike this, the current study focuses on translation tools and online resources.

Furthermore, Verplaetse and Lambrechts [18] investigated the use of CAT tools, TMS and corpora among Belgian and Dutch translators. Unlike the current study, they distinguished between in-house and freelance translators in terms of translation technologies to measure the potential impact of translators' profiles on the use. They found that CAT tools and TMS were more frequently used than corpora among all translators.

On the other hand, Man et al. [7] conducted a study with a broad scope of translation technologies involving tools and

online resources. They measured the MA translation students' knowledge and frequency of use of six types of translation technologies in Chinese universities. They concluded that knowledge was positively correlated with the use of translation technology.

As for the Arab world, several studies investigated translation technologies, especially CAT tools and MT, yet few studies have tackled the use and/or attitudes toward CAT tools in several Arab countries, such as Alotaibi [19] in Saudi Arabia, Mahfouz [20] in Egypt, Mohammed et al. [11] in Yemen, and Abu dayyeh [21] in Palestine. However, there is little published research concerning translation technology in its broader conception, i.e., tools and online resources or investigating awareness of translation technology exists.

Abu dayyeh [21], for example, tackled the use and evaluation of CAT tools in Palestine. The results displayed that the highest use was recorded for online electronic dictionaries, followed by online translation software, and then Internet search engines. In contrast, interviews indicated that Palestinians "were simply not familiar with translation memory systems, terminology management systems, and monolingual, bilingual or multilingual corpora" (p.115) [21].

Moreover, a pioneering study by Almutawa and Izwaini [22] studied MT in the Arab world, taking Saudi Arabs as a case study. The study found lack of interest and trust in MT among most Saudi organizations and translation agencies. Since Almutawa and Izwaini [22] was conducted some years ago, the current study will help in exploring the current status of MT among Saudi translators. Besides, Almutawa and Izwaini [22] focused only on in-house translators in organizations and agencies which might be surrounded by some barriers regarding MT adoption. To overcome such a limitation, the current study involved any Saudi translator regardless of whether he or she was an in-house translator or a freelancer.

3. Methodologies

3.1 Research design

In translation studies, this questionnaire-based study is participant-oriented since translators are the sample base [23]. We employed the quantitative approach due to the large population of this study. According to Saldanha and O'Brien [23], the questionnaire as a research instrument may be used "to collect background information on research participants; to collect data on facts, opinions, attitudes, behaviour, etc. or to combine the collection of both" (p.152). For this study's aim which was to investigate Saudi translators' awareness of translation technologies, the questionnaire was an appropriate instrument for data collection as it collects structured data on a large scale.

3.2 Participants

The questionnaire yielded 213 responses from randomly selected professional translators and translation students who are in the last year of their bachelor's. According to Creswell [24], random selection is suitable for studies with a large population as in this case. Moreover, the translation students were included because the questionnaire was circulated in the last three weeks of the academic year in Saudi Arabia; hence, it is assumed that they acquired the needed knowledge to start their careers as professional translators. In other words, they will reveal the role of the current curriculums in universities in raising the awareness of translation technologies.

3.3 Instrument

The questionnaire investigated the Saudi translators' awareness of translation technologies, i.e., software tools and online resources. It comprised two parts with 10 items. The first part investigated translators' awareness of various types of translation technologies. The second part examined the translators' needs to learn about translation technologies. As for the ethical considerations, respondents were asked to agree on informed consent before proceeding with the questionnaire to ensure that their participation was voluntary. They understood that they could withdraw any time and their personal information and responses would be used only for the purpose of this research and would be kept confidential.

Furthermore, the Likert Scale was applied to rate the respondent's level of agreement for some statements and the respondent's level of familiarity for other statements. The questionnaire was then reviewed by two specialized researchers who majored in English language and translation and one of them with expert knowledge on conducting surveys to ensure the items' validity and reliability. Based on the reviewers' feedback, some statements were added, and some were modified. The questionnaire, which is written in English, was designed using Survey Monkey and distributed from 13 April until 17 April 2022 using social media networking, namely Twitter and Linked In. These social network platforms were chosen for practical reasons. According to *The Global Static* website, Twitter is the most used platform after Instagram in Saudi Arabia by 71.9% of the Saudi population in 2022. On the other hand, LinkedIn, unlike other platforms that are primarily used for entertainment, seems to be more formal and accessible people who

share similar professional interests.

4 Results

4.1 RQ1: To what extent are Saudi translators aware of translation tools?

4.1.1 Saudi translators' awareness of the term translation technology

The respondents were asked to state their agreement level on three statements about the term 'translation technology' as shown in Table 1.

Table 1: Saudi translator' awareness in 'translation technology'

N	Statements	SA	A	D	SD
1	I am familiar with the term 'translation technology.'	45%	46%	5%	3%
2	I have come across the term ''translation technology' but do not know many details about it.	10%	31%	34%	23%
3	I am totally aware of the term 'translation technology' and know how to use it.	23%	45%	26%	4%

Note. SA= Strongly Agree, A= Agree, D= Disagree, SD=Strongly Disagree.

The results in Table 1 show that most translators i.e., 91%, were familiar with the term 'translation technology', particularly 45% strongly agreed and 46% agreed. However, those who were totally aware of the term 'translation technology' and knew how to use it represented 68% of respondents, 23% of them strongly agreed, and 45% agreed. At the same time, nearly half of respondents with 41% had come across the term ''*translation technology*' but did not know enough details about it.

Moreover, translators were asked to determine how they learned about translation technologies by choosing one of six choices: college, the Internet (courses, social media, etc.), friends and colleagues from the field, publications, own job, or other (specifying is required). As shown in Figure 1, half of the respondents i.e., 51% knew about translation technologies from college, which implies that translation technology is taught in Saudi universities. The internet followed with 37%, while 4% of the respondents knew about translation technologies from their jobs. The lowest score was for publications and colleagues from the field since they represented only 1.8% and 2.8%, respectively.
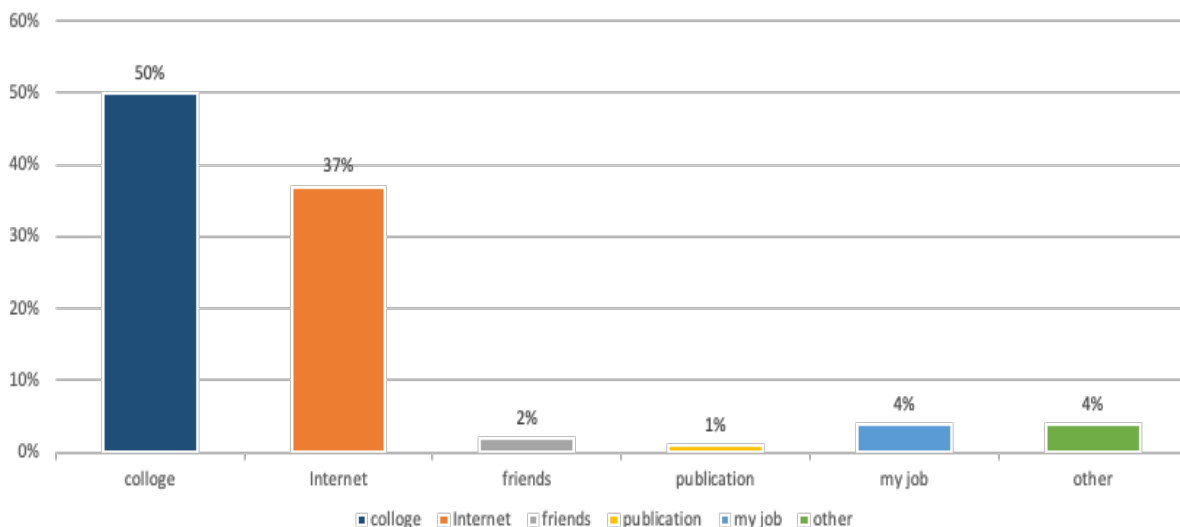

Fig. 1: Source of awareness of 'translation technologies'

4.1.2 Saudi translators' awareness of translation tools

The respondents were asked to state the level of their familiarity with various types of translation tools, namely CAT tools, MT, TMS, corpora analysis tools, and QA tools. Results are depicted in Figure 2.
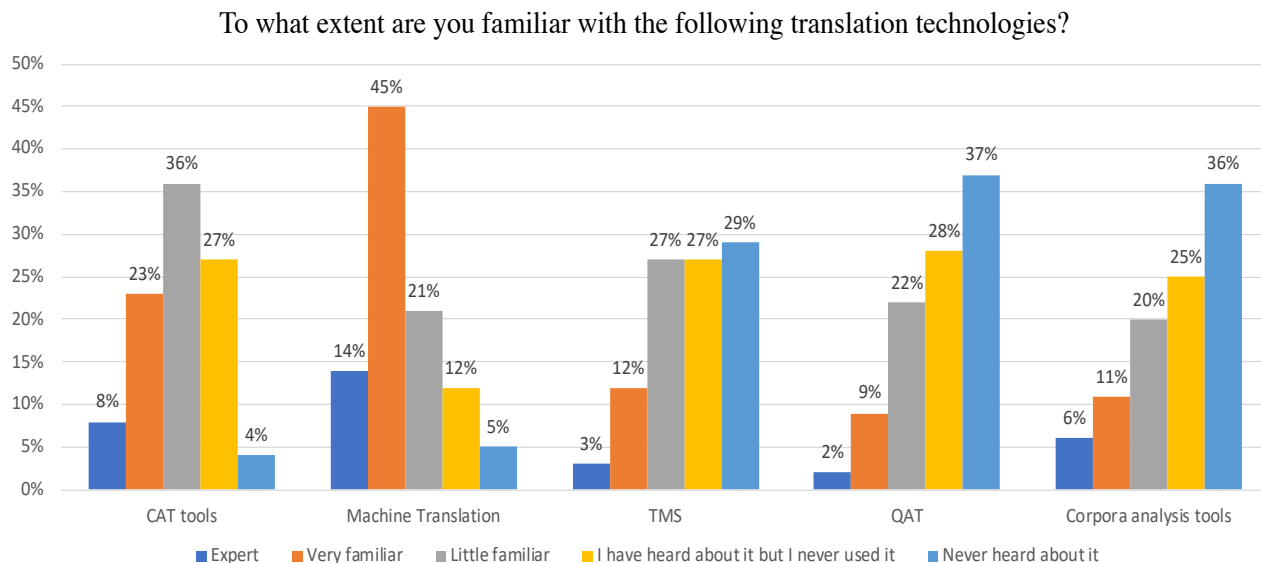

Fig. 2: Saudi Translators' awareness of translation tools

Overall, the results revealed that translators had various degrees of awareness of translation tools. The results showed that MT was the most popular tool among translators with the highest awareness scores, particularly with 14% and 45% of respondents being experts and very familiar with MT. 21% of the respondents were only somewhat familiar with MT. Respondents who were unaware of MT represented 17%, particularly 12% of them who had heard about MT but never used it, and 5% had never heard about it. This result was opposite to Man et al.'s study [7] that revealed a limited use of MT among Chinese translators.

Moreover, CAT tools came second with a decrease in the awareness of 28% compared to MT since 8% of respondents self-reported to be experts and 23% as very familiar. Although CAT tools ranked the second most popular tools, respondents who were unaware of CAT tools, i.e., who chose options *'I have heard about it, but I never used it* and '*never heard about it'*, equalled those who were aware, i.e., who chose '*expert*' and '*very familiar*' options. Therefore, 31% of translators reported being aware of CAT tools, and 31% as unaware of them. On the other hand, respondents who recorded little familiarity represented 36%, the highest score among other options. Overall, translators were fairly familiar with CAT tools since the percentages of high familiarity and little familiarity were quite close to each other.

On the other hand, a sharp decrease in the awareness of QA tools, TMS, and corpora analysis tools were reported to be the least popular tools, respectively, compared to MT and CAT tools. 29%, 36%, and 37% of respondents never heard about TMS, corpora analysis tools, and QA tools, respectively. For the combined categories of 'expert' and 'very familiar', only 11%, 15%, and 17% of respondents are aware of QA tools, TMS, and corpora analysis tools, respectively. For the rest of the familiarity degrees, respondents showed the same percentage of 27% for being a little familiar with TMS or having heard about it but never used it. For corpora analysis tools and QA tools, respondents who had heard about them but did not know the details exceeded those who were a little familiar with them. Overall, the respondents displayed limited familiarity with corpora analysis tools, TMS, and QA tools.

Table 2: Saudi translators' awareness of specific functions of CAT Tools and MT

N	Statements	SA	A	D	SD
1	I can use project management and collaboration functions efficiently in CAT tools.	11%	52%	28%	7%
2	I can use bitext aligner efficiently in CAT tools.	8%	45%	36%	9%
3	I am familiar with customized machine translation	8%	44%	36%	10%

4.2 RQ2: To what extent are Saudi translators aware of online resources?

In terms of online resources, the results show that respondents are more aware of online resources than tools. As shown in Figure 3, the online dictionaries category and websites, with almost the same percentage of 80%, were the most used online resources that respondents were aware of, i.e., choosing 'expert' and 'very familiar' with a slightly higher score by 1% for websites. Search engines and online documents followed with a percentage of 73% and 67% awareness, respectively, followed by knowledge-based resources at 57%, and then the discussion fora with 50%. Lastly, the TM category was the least known online resource among respondents with 41%. Overall, more than half of the respondents were aware of all online resource types mentioned in the questionnaire except for TM since respondents aware that this were just below half. Therefore, respondents were generally aware of online resources as an aid for translators.
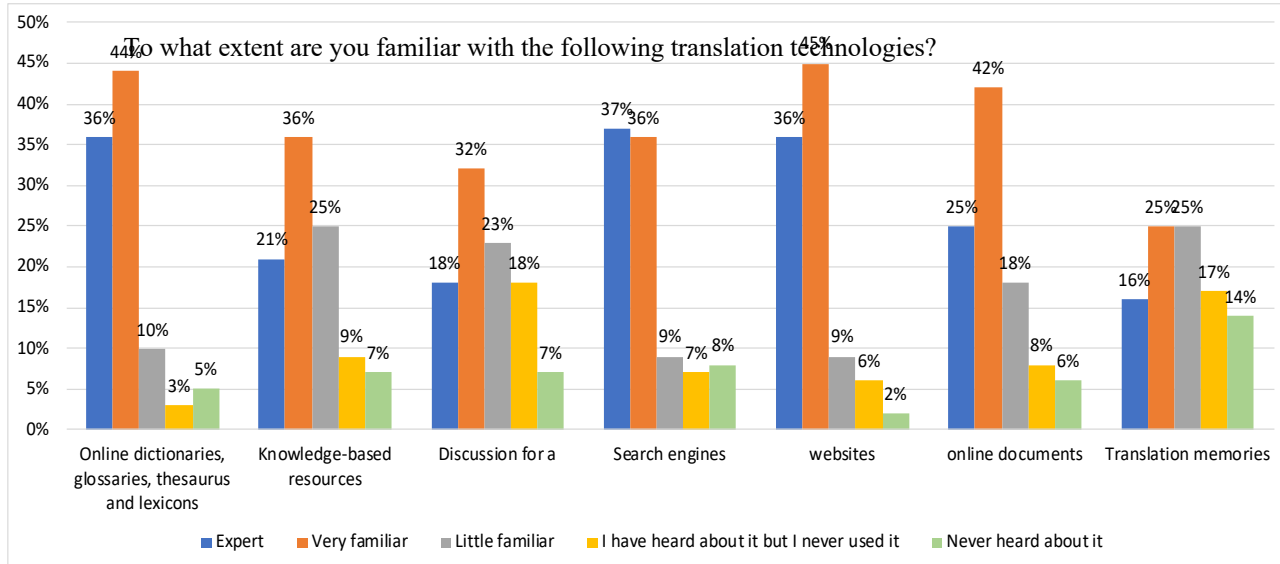

Fig. 3: Saudi Translators' Awareness of Online Resources.

4.3 RQ3: To what extent do Saudi translators need to learn about translation technologies?

Respondents were asked to rate their level of agreement on statements describing the need for learning about translation technologies. As shown in Table 5, the results indicated that majority of respondents totaling 49% strongly agreed and 44% agreed on the importance of having a practical roadmap/guideline that explains the types of translation technologies available for translators. Also, a vast majority of respondents believed that translation students should be exposed to translation technologies during their undergraduate degree courses. Besides, 41% of the respondents had never taken a course in using translation technologies, with 18% strongly agreeing and 23% approving the statement. Lastly, two out of five respondents expressed desire to use translation technologies but did not know how to do that. Although it was proved previously in the awareness of translation technology section that Saudi translators learned about translation technologies in colleges; however, the results showed that they were still in need of more systematic and in-depth learning regarding translation technologies.

Table 3: Saudi translators' needs for translation technologies learning

N	Statements	SA	A	D	SD
1	I think it is important to have a practical roadmap/guideline that explains the types of translation technologies available for translators.	49%	44%	1%	4%
2	I would like to use translation technologies, but I do not know how.	10%	30%	43%	15%
3	I have never taken a course on using translation technologies.	18%	23%	30%	26%
4	Translation students should be exposed to translation technologies during their undergraduate degree.	66%	28%	0.9%	4%

5. Discussions

The results in this study showed that a majority of respondents are familiar with translation technologies. Further, that translators do not resist MT as reported before in Almutawa and Izwaini [22]. It should be noted that Almutawa and

Izwaini [22] differed from the current study in that it investigated the status and use of MT in Saudi organizations and the interest in doing MT research in universities. Yet, its results showed the translators' general perception of MT, which revealed relatively little interest in MT among translators. The current study results assumed that the general situation of MT among translators in Saudi Arabia has enhanced since a majority of respondents revealed good familiarity with MT. Their perceptions toward MT might trigger this familiarity, as argued in several studies that the attitude and perception have a substantial role in adopting translation technology [2-11-20].

In terms of CAT tools, one possible explanation for the poor awareness of CAT tools is its recent introduction to the Arab scene in general [20]. As Alotaibi [25] argued that the literature described a lack of general use of Arabic-English parallel corpora resources. Al-Ajmi [26] claimed that the lack of corpora in the Arabic world "is partly due to the lack of the necessary programs to compile such resources and the funding authorities' doubts and uncertainty regarding the effectiveness of parallel corpora" (p. 327). Although that study was conducted several years ago, a recent study by Man et al. [7] goes hand in hand with Al-Ajmi's [26] claim that translators tend to use technologies that provide quick solutions, which will be discussed later. The sophisticated functions of some translation technologies would be a barrier to learning about them since it usually requires time and customization.

Moreover, translators are still managing terminology using spreadsheets (e.g., Excel) and word processors (e.g., Microsoft Word) [27-28]. In other words, translators' individual needs to play a fundamental role in their awareness of tools or their searching for such technologies since it was indicated by Allard [27] that other resources (e.g., online dictionaries) sometimes meet translators' needs in terms of terminology management. Besides, being aware of such systems requires a positive attitude regarding adopting new technologies, as reported in Gough's study [17] that translators' attitude toward adopting new technologies determines the translators' awareness, perception, and use of tools. These explanations might help when we aim to raise awareness of translation technologies.

Regarding the second question, results indicated that the respondents displayed a higher level of awareness of online resources than awareness of tools in general. The degree of their familiarity differs from type to type. This result aligns with a recent study conducted by Man et al. [7] that showed that "Chinese student translators generally have access to electronic dictionaries, online encyclopedias, and search engines when doing translation, but they have limited access to corpora and CAT software packages" (p.263). One possible explanation for such results is that translators prefer translation technologies that provide quick solutions.

[7], which are found in online resources rather than tools. Besides, unlike online resources, translation tools usually require training and practice in the software field [29].

More specifically, the online dictionaries category and websites were the most familiar resources to translators, followed by online documents, knowledge-based resources, search engines, and discussion fora, respectively. TM category, on the other hand, was the least familiar resource to translators. This result goes hand in hand with Gough's study [2] that investigates the interaction between translators and online resources. She found that dictionaries were the most widely used resources among 556 translators, explaining the current study respondents' familiarity with online dictionaries. Besides, Gough [2] revealed that TM, among other resources, seemed to attract less frequency of use, which makes the current study's result reasonable. Another piece of evidence explaining the results of the present study was stated by Gallego-Hernández [30] in his study that investigated the frequency of using corpora among 581 professional translators in Spain. The results showed that corpora, TMs, and MT are more frequently used than other kinds of resources, such as dictionaries [30]. It is worth noting that the low familiarity of TM among the current study respondents was expected since they displayed fair familiarity with CAT tools in the first place.

Results revealed that the majority of respondents recognize a need for learning translation technologies. They agree that having a practical guide that explains the types of translation technologies would be beneficial. Also, they believe in the necessity of teaching translation technologies in undergraduate degree courses. Around half of the respondents have never taken a course on using translation technology and want to use technology, but they lack the knowledge. These results confirm what Han [29] stated that "the traditional approach to teaching translation if performed exclusively using the pen-and-paper technique, was already becoming obsolete" (p.6). The results are also in line with Man et al's [7] conclusion that a "systematic training is therefore essential for the development of technological competence" (p.264). The current study suggests that more training is needed to raise awareness of translation technologies.

6. Conclusions

Increasingly, translation technologies have attracted researchers' attention due to their fundamental role in facilitating the translation process. Translators, these days, can rarely achieve their jobs efficiently and quickly without using any type of translation technology. Thus, their awareness of various translation technologies is a fundamental building block that enhances their translation competence [31]. In the current study, a categorization of translation technologies into

'tools and online resources' was applied for two reasons. First, the term 'translation technology' can serve various technologies [7]; hence, it needs to be specified. Second, the focus of previous literature was usually dominated by the tools such as CAT tools and MT [2].

The results show that Saudi translators are generally more familiar with the online resources than the tools. MT was the most familiar tool to translators, and CAT tools came second with a little familiarity percentage. The respondents displayed limited familiarity with the rest of the tools, namely corpora analysis tools, QA tools, and TMS. On the other hand, online resources received a relatively high awareness with almost relative percentages. Online dictionaries and websites recorded the highest scoring with high familiarity percentages, followed by online documents, search engines, knowledge-based resources, and discussion fora, respectively, with 50% and above of respondents displaying high familiarity. TM were the least familiar resource to translators, with just above a third of respondents recording high familiarity. Moreover, translators declared an increased need for learning about translation technologies.

7. Recommendations

The current study has important implications. There is an urgent need to raise awareness regarding translation technologies. This is important since Man et al. [7] observe that more familiarity with functions and translation technology could promote their adoption among translators. As for translation technology teaching and training in Saudi universities, systematic training that involves theoretical and practical sides of translation technology is needed since half of the respondents declared that they know translation technology at college; yet, they have moderate awareness regarding the tools. Besides, raising awareness is not limited to university students, translators who are graduated need to know about translation technology as well. Therefore, several ways can be applied to meet translators' needs. Besides courses, it would be beneficial to have a manual or guideline that describes the types of technologies available for translators. The last recommendation is to search for effective solutions to keep translators motivated and to be updated regarding developments in translation technology.

8. Limitations

This study is, undoubtedly, not without limitations. As for the chosen method, the questionnaire provides standardized results that need more explanations and details via another supporting instrument, such as interviews, to gain in-depth insights from translators' point of view. The distribution time of the questionnaire was only five days due to time constraints. It would be better to circulate it for a long time and among translators of various ages and experience. Moreover, it would be better if the respondents specify their affiliate organization to provide more concise results about translation technology teaching practices. Also, the sample was dominated by young translators who are new to the field with non- or little experience in the field which may affect the generalizability of the results. Besides, categorizing translation technologies into tools and online resources is not clear-cut with specific categories. Yet, it was suitable for the current study's purpose.

Further research is needed to fully understand the situation of translation technology in Saudi Arabia and the Arab world in general. It is recommended to carry out future research on tested awareness (Gafoor, 2012) rather than self-reported awareness by respondents. Another gap is to focus on conducting further investigation that draws upon broader perspectives of translators to explore the factors that have a decisive influence on the awareness of translation technology.

Conflicts of Interest Statement

The authors certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

References

[1]   E. Alonso, and E. Calvo. Developing a blueprint for a technology-mediated approach to translation studies. *Meta,* **60**(1), 135-157, (2015).

[2]   J. Gough. *The patterns of interaction between professional translators and online resources.* Doctoral dissertation, University of Surrey, England, (2017) https://openresearch.surrey.ac.uk/esploro/outputs/99514578402346

[3]   S. W. Chan. *A dictionary of translation technology.* Chinese University Press, Hong Kong, 258, (2004).

2097

[4] Sin-Wai, C.. *The Routledge Encyclopedia of Translation Technology*. Routledge, London and New York, xxvii-xxviii, (2015).

[5] A. Alcina. Translation technologies: Scope, tools, and resources. *International Journal of Translation Studies*, **20**(1), 79–102, (2008). https://doi.org/10.1075/target.20.1.05alc

[6] V. Enríquez Raído and F. Austermühl. Translation, Localization, and Technology: Current Developments. *Speaking in tongues: Language across contexts and users*, 225-250, (2003). http://ceh.ilch.uminho.pt/ficheiros/Enriquez Austermuehl Technology_Atelier_4.pdf

[7] D. Man, A. Mo,C M. H. Chau, J. M. O'Toole, and C. Lee. Translation technology adoption: evidence from a postgraduate programme for student translators in China. *Perspectives,* **28**(2), 253-270, (2020). https://doi.org/10.1080/0907676X.2019.1677730

[8] K. A. Gafoor. *Considerations in the measurement of awareness*, presented at the National Seminar on Emerging trends in education, Kerala, India, (2012).

[9] M. Cronin. *Translation and Globalization.* Routledge, London and New York, 1-208, (2003).

[10] M. O'Hagan. *Impact of new technologies on translation studies*, in The Routledge Handbook of Translation Studies, 1st ed.. C. Millán & F. Bartrina, Eds. Routledge, USA and Canada, 503–518, (2013). https://www.routledge.com/The-Routledge-Handbook-of-Translation-Studies/Millan-Bartrina/p/book/9781138211469

[11] O. S. M. M. S. M. Mohammed, S. S. Samad, and H. S. Mahdi. 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, (2020). https://doi.org/10.17263/jlls.759371

[12] X. Cheng. *Research on Computer-aided Translation Technology on the Background of Information Age*, presented at International Conference on Cloud Computing and Information Science (CCCIS), Shenyang, China, (2020). https://doi.org/10.1088/1757-899X/750/1/012177

[13] H. Wang. (2019). *The development of translation technology in the era of big data*, in Restructuring translation education: Implications from China for the rest of the world, 1st ed.. F. Yue, Tao Y., Wang H., Cui Q., & Xu B., Eds. Springer Singapore, 13-26, (2019). https://link.springer.com/book/10.1007/978-981-13-3167-1

[14] A. Zaretskaya, G. C. Pastor, and M. Seghiri. *Translators' Requirements for Translation Technologies: a User Survey*, presented at the 7th International Conference of the Iberian Association of Translation and Interpreting Studies (AIETI), Malaga, Spain, (2015). https://www.researchgate.net/publication/283667002_Translators'_Requirements_for_Translation_Technologies_a_User_Survey

[15] S. O'Brien and O. Conlan. *Moving towards personalising translation technology*, in Moving boundaries in translation studies, 1st ed.. Dam, H. V., Brøgger, M. N., & Zethsen, K. K., Eds.. Taylor & Francis, London, 81-97, (2018). https://doi.org/10.4324/9781315121871

[16] L. Salmi. A good servant but a bad master: Finnish translators' perceptions on translation technology. *Tradumàtica: tecnologies de la traducció,* **19**, 112-130, (2021). https://doi.org/10.5565/rev/tradumatica.287

[17] J. Gough. An empirical study of professional translators' attitudes, use and awareness of Web 2.0 technologies, and implications for the adoption of emerging technologies and trends. *Linguistica Antverpiensia, New Series–Themes in Translation Studies,* **10**, 195-215, (2011). https://doi.org/10.52034/lanstts.v10i.284

[18] H. Verplaetse and A. Lambrechts. Surveying the use of CAT tools, terminology management systems and corpora among professional translators: general state of the art and adoption of corpus support by translator profile. *Parallèles,* **31**(2), 3-31, (2019). https://www.paralleles.unige.ch/en/tous-les-numeros/numero-31-2/verplaetse-lambrechts/

[19] H. M. Alotaibi. (2014). Teaching CAT Tools to translation students: an examination of their expectations and attitudes. *Arab World English Journal, (Sepcial Issues on Translation)* **3**, 65-74, (2014). https://awej.org/teaching-cat-tools-to-translation-students-an-examination-of-their-expectations-and-attitudes/

[20] Mahfouz. Attitudes to CAT tools: Application on Egyptian translation students and professionals. *Arab World English Journal (AWEJ) Special Issue on CALL Number 4,* 69-83, (2018). http://dx.doi.org/10.2139/ssrn.3226682

[21] Abu Dayyeh. Use and evaluation of Computer-Aided Translation Tools (CAT) on the word level from the

perspective of Palestinian translators and translation trainees. *AWEJ for Translation & Literary Studies*, **4***,* 111-130, (2020). http://dx.doi.org/10.24093/awejtls/vol4no1.9

[22] F. Almutawa & S. Izwaini. Machine translation in the Arab World: Saudi Arabia as a case study*. trans-kom, Journal of Translation and Technical Communication Research, **8***(2), 382-414, (2015). http://www.trans-kom.eu/bd08nr02/trans- kom_08_02_04_Almutawa_Izwaini_MT.20151211.pdf

[23] G. Saldanha & S. O'Brien. *Research methodologies in translation Studies*. Routledge, London and New York, 150-204 (2014).

[24] W. Creswell. *A concise introduction to mixed methods research*. SAGE publications, the United States of America, 74-87 (2014).

[25] H. M. Alotaibi. Arabic-English parallel corpus: A new resource for translation training and language teaching. *Arab World English Journal (AWEJ),* **8** (3), 319 –337, (2017). https://dx.doi.org/10.24093/awej/vol8no3.21

[26] H. Al-Ajmi. A new English–Arabic parallel text corpus for lexicographic applications*. Lexikos,* **14**(1), 326–330, (2004). https://doi.org/10.5788/14-0-696

[27] M. G. P. Allard. *Managing terminology for translation using translation environment tools: Towards a definition of best pracices*. Unpublished doctoral dissertation, University of Otawa, Canada, (2012). http://dx.doi.org/10.20381/ruor-5747

[28] F. Steurs, L. van der lek-Ciudin, and T. Vanallemeersch. *How translators work in real-life: SCATE observations*. Brussels, Belgium, (2016) https://lirias.kuleuven.be/1667745?limo=0

[29] B. Han. *Translation, from pen-and-paper to computer-assisted tools (CAT Tools) and machine translation (MT), in Proc*. the 14th International Conference on Interdisciplinarity in Engineering—INTER-ENG*, **63** (1), 56, (2020). https://doi.org/10.3390/proceedings2020063056

[30] D. Gallego-Hernández. The use of corpora as translation resources: A study based on a survey of Spanish professional translators*. Perspectives,* **23**(3), 375-391, (2015).   https://doi.org/10.1080/0907676X.2014.964269

[31] EMT   Board.   *European   Master's   in   Translation   competence   framework.*   (2022). https://ec.europa.eu/info/sites/default/files/emt_competence_fwk_2017_en_web.pdf