

Criteria for the Integration of Term Banks in the Professional Translation Environment

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Recibido: 25/11/2016 | Revisado: 14/02/2017 | Aceptado: 07/07/2017

Abstract

Translation-oriented terminology management is not only limited to the study of terminology problems with regards to specialization, currency, and reliability. The integration of terminology data bases within CAT tools facilitating their use, maintenance and retrieval towards the automation of the translation process and consistency of terminology has also attracted attention from the academia and the language industry alike. However, this approach to terminology management seems to be carried out from a mostly theoretical perspective. Thus, the aim of this paper is to present the results of a survey conducted among professional translators in Spain regarding their actual experience with terminology in order to identify potential gaps between the technological offer and the specific needs of translators.

Keywords: Translation-oriented terminology management; CAT tools; specialized translation; freelance translators

Resumen

Criterios para la integración de bancos de datos terminológicos en el entorno del traductor profesional

La gestión de terminología para la traducción no se limita al estudio de problemas terminológicos de especialización, vigencia y fiabilidad: también la integración de bases de datos terminológicas en herramientas de traducción asistida que facilita su uso, mantenimiento y recuperación, y contribuye a la automatización del proceso de traducción y a la consistencia terminológica ha sido objeto de investigación académica y desde la industria.

Sin embargo, este enfoque parece llevarse a cabo desde una perspectiva teórica en su mayoría. Por lo tanto, el objetivo de este trabajo es presentar los resultados de una encuesta realizada a traductores profesionales en España sobre su experiencia real con terminología para identificar posibles brechas entre la oferta tecnológica y las necesidades específicas de los traductores.

Palabras clave: gestión terminológica para la traducción; herramientas TAO; traducción especializada; traductor profesional

1. Introduction

One of the main difficulties commonly identified by translators is the lack of reference material, especially with regards to valid and current terminology, specialization and available information. Apart from this, translation-oriented terminology management also deals with the construction of terminology data bases and the use of information technologies, such as computer-assisted translation systems, translation memories and terminology management applications, data mining and terminology exchange standards (TBX). During the last years, the process of developing terminology data bases, their integration with CAT tools to facilitate their use, maintenance and retrieval towards the automation of the translation process, and the consistency of technical terminology has attracted attention from the academia and the language industry alike.

All in all, this approach to terminology management seems to be carried out from a mostly theoretical perspective, disregarding that professional translators do not usually share a common ground in terms of work environment, available resources, translation specialization or language combination just to mention a few of the variables that shape this profession (Candel-Mora 2014).

Currently, the translator's work is conditioned almost entirely by the use of technology, not just translation tools, but word processing programs and publishing and business management tools, which confirms the transition from a traditional craftsmanship and small scale production to an almost industrial process, especially due to the number and variety of documents to be translated (Austermühl 2014; Candel-Mora 2011; Quah 2006; Somers 2003; Vidal-Beneyto 1991).

However, this new era of information and communication brings about not only new working methods, but also new activities and new media and communication channels making it necessary to have a more specialized environment. This requires the use of tools to manage multilingual projects, carry out software testing and verification, translate user manuals and online help, to mention a few, while being able to process new web formats, multimedia applications, etc. Therefore, for these new activities, it is essential to work with technology, at least to be competitive and deal with different types of projects (Hutchins 1998; Melby 1992; Newton 1992).

The decision to implement computer-assisted translation systems is undoubtedly motivated by the expectations created by translation software manufacturers that these tools will allow users to translate faster and more efficiently. In the case of computer-assisted translation and translation memory systems, their use implies not to translate the same content repetitively and thus optimize performance (Candel-Mora 2014).

Therefore, the aim of this paper is to present the results of a survey conducted among professional translators in Spain regarding their actual experience with terminology management: their most frequent problems, and the most common resources used; and then compare these results with the functionalities of terminology management solutions integrated in some of the most widespread CAT tools in order to iden-

tify potential breaches between the technological offer and the specific needs of translators, and suggest future enhancements. According to Hatim and Mason (1990:9)

It is well established that every translator is aware of the “inadequacy” of dictionaries and intuitively knows that a dictionary search is often futile, but keeps on trying and hoping for a lucky hit. What has not been analysed systematically, however, is the type of information translators are actually looking for and how they could be systematically helped in their decision-making process.

The functionalities of these tools ensure users a significant increase in productivity, higher quality and faster translation (Martín-Mor et al. 2016: 105). Due to the increase of formats, media and communication channels, these tools also release the translator from working with complex formats and advanced layouts, as the use of filters in most of these tools allows the translator to focus only on the text to be translated, and avoid additional work with tags and formatting marks, for example.

In addition, it should be highlighted the assurance of manufacturers that they provide intuitive interfaces to use with the automation of the most repetitive and mechanical processes, and facilitate the organization of any translation project - such as document analysis with translation memories and existing data bases.

To this end, this work is structured in four parts: the first part briefly describes the origins and foundations of translation-oriented terminology management, compared with the other approaches to the study of Terminology and identifies the key terminology management functions featured in some of the most widespread terminology management tools. Then, the design of the survey and methodology is explained, and subsequently, the results of the survey and their alignment with these IT solutions' functions are analysed in detail. Finally, some conclusions are drawn.

2. Translation-oriented terminology management: origins and foundations

One of the key indicators of quality in translation lies in the intelligibility based on the proper use of the correct specialized language (Wright 2001: 492). Professional translators acquire their first contact and frame of reference with their texts through terminology, which in most cases, will guide them through the process of finding reference material and parallel texts to capture the essence of the specialized language and its idiomatic subtleties. In addition, when possible, they can directly consult the client or follow the project's specifications if working through an agency or translation company.

The view that terminology is the most outstanding feature of a specialized text, shared by different authors (Auger 2000; Arntz and Picht 1995; Austerlühl 2013; Dubuc and Lauriston 1997; Lerat 1997; Sager 1990; Warburton 2014), is much more noticeable in disciplines such as specialized translation. The study of the literature on

terminology confirms that translation-oriented terminology management should not only be limited to the construction of a reference terminology data base, but should also be closely related to the implementation of information technologies for translation, translation memories and terminology management programs. According to Kugler, Ahmad and Thurmair (1995:3):

Only very few translators organised their terminology systematically (e.g., according to a library classification), but many stated that this could be useful. Grouped in order of priority, requirements for terminological information were found to be: foreign language equivalent, synonym, variant, abbreviation; definition, contextual example, usage information; date, source and terminologist's name; and grammatical information.

In short, Cabré (1993: 39-41) distinguishes three types of orientation of terminological work depending on the type of user: terminology oriented to the language system (Standardization approach); terminology oriented to language planning (Normalization approach); and, translation-oriented terminology management (Translation approach).

The standardization approach is based on the works by E. Wüster (1998) of the Austrian-German school whose systematic study served as the basis for future studies on terminology, and was originally applied to implement the recommendations on the terminological and lexicographical work of the ISO/ TC37 committee. This approach goes from notions to concepts in order to standardize the terminology used in technical and scientific communication, and ensure the transfer of knowledge between specialists. Some of the institutions closely related to this approach are: International Organization for Standardization (ISO); European Committee for Standardization (CEN); Asociación Española de Normalización y Certificación (AENOR); Association Française de Normalisation (AFNOR); and British Standards Institution (BSI), to mention just a few.

The language planning approach was initiated as a government initiative to recognize the status of a certain level of language, to identify grammatical and lexicographical gaps through official regulations. It originated in the 70s with the methodology proposed by Auger and Rousseau (1987) in order to equate the use of French with English in technical and scientific areas in the Quebec region. The approach is also systematic; however, it is oriented towards terminology work in two languages, based on the terms to reach the notions or concepts. The *Office québécois de la langue française* and the TERMCAT in Catalonia have been active users of this approach.

Finally, the translation approach is oriented to translation and is based on the implementation of the above approaches by multilingual international organizations such as the UN, EU, UNESCO, and has been the driving force behind the creation of large terminology data bases, such as TERMIUM in Canada and EURODICAUTUM in the EU.

With similar aims to this translation approach, there is an intermediate level between the linguistic and terminological approach and the standardization approach, called *terminological harmonization* (Pavel and Nolet 2001: 33), understood as the process undertaken by a company, department or other administrative entities to consolidate terminology usage. Terminological harmonization combines the desire for conceptual precision and linguistic correctness, with the appropriateness of the term to the communication situation and the effectiveness of communication.

2.1. Characteristics of the translation-oriented terminology management approach

The main difference between the models mentioned above and the terminological work applied to professional translation is marked by the limitations inherent to the nature of this work environment, especially the pressure of deadlines and translation project management constraints. This inevitably leads to making a specific terminological work aimed at the terminology problems identified during the initial phase of analysis of the original text, or during the translation process. As Wright and Wright (1997: 148) note, terminologists have time and resources to conduct a more thorough work and maintain direct and constant contact with experts in the field to collect systematic and exhaustive data, thus fulfilling the aim of representing the entire conceptual field of the specialized area.

On the other hand, from this *ad-hoc* approach to terminology, based on terminology management issues in the text to be translated, according to Wright and Wright (1997: 148), in addition to the time factor established for terminological issues, the other major aspect is that a text rarely contains all the examples represented in the conceptual field to which the original text belongs. Thus, translators would make unproductive efforts if they attempted to document all terms associated with that field.

After the comparison of the different approaches to terminology, the following specific characteristics should be highlighted:

- The main differences between the systematic terminology work and translation-oriented terminology management are the objective and the approach. While translators work with the use of language, terminologists work on the conceptual system. The principal differences are that terminology work is a static process of identification and description of isolated terminological units, while translation is a dynamic process aimed at the transfer of a text from one language to another (Sager 2001:251).
- The main reasons for translators to develop their own methodology arise from the lack of dictionaries, their degree of specialization, the possibility of teamwork and the integration of terminology resources in computer-assisted translation workflows, among others.

- The definition of the conceptual field in *ad-hoc* terminology work is not as comprehensive as in the systematic models, since it is given by the lexical aspects of the original text. *Ad-hoc* translation-oriented terminology management starts from a work methodology based on the conceptual delimitation of the field of study and leads to a methodology based on the terminological work of the original to provide a description of the terms within their natural discursive context.
- *Ad-hoc* terminology management applied to specialized translation poses specific problems that require strategies and skills from translators, and a methodology adapted both to the needs of the translation process and the limitations of the work environment such as deadlines and project management.

From the point of view of the translator, compiling a terminology data base is a difficult and laborious task. However, in the long run, the effort compensates, since consistency of technical terminology is among the main quality parameters (Cabré 1998). From the perspective of the profession, the incorporation of a systematic data base to the new translation tools streamlines the decision-making process while ensuring consistency. According to Neubert and Shreve (1992:14):

The translation of a technical text must be technically correct. This means it must correctly reproduce the technical content of the original document both in all its details and in its entirety. It must also be linguistically correct, which means specifically that the common language components must be correct, even phraseologically correct. The terminology must not only be correct, it must be applied uniformly throughout. Both components, the common language framework and the terminology must interact correctly and typically.

2.2. Key terminology management features in CAT tools

Thus, terminology plays as a key role in specialized translation and as a result, from the first versions of computer-assisted translation tools, the terminology management component, which helps the translator maintain consistency and a uniform use of terminology, is an essential part of them.

The integration and level of complexity of the terminology management component depends on how advanced the specific computer-assisted translation system where they belong is. Consequently, some tools simply connect with a glossary - in plain text format - with the terms and their equivalents in the target language, while others propose advanced terminology management solutions fully integrated into the computer-assisted translation workflow and also include an advanced terminological record structure, which may contain cross-references to other records, images that illustrate the concept represented, or the possibility to add all kinds of terminological information such as contexts, grammatical information or definitions.

The features of terminology management software solutions can be classified into three categories: features shared with their corresponding CAT tool, standalone features, and specific advanced features.

For this study, three of the most widely used tools on the market were selected: QTerm by memoQ, Multiterm by SDL Trados and LogiTerm. A detailed study of the specification sheets of each of the tools was carried out in order to extract the main features that manufacturers attribute to their solution.

Since this work places special emphasis on integrating terminology management in the translation workflow, the first set of characteristics analysed corresponds precisely to the adaptation of the terminology management component within the computer-assisted translation tool (shared features with CAT tool). The following features facilitate the integration of both tools and improvements in the workflow: adding terms with one click, definition and term information, import formats, forbidden terms, image store with terms, fuzzy terminology lookup, prefix based term matching, and term extraction.

Some of them refer specifically to the translation process, such as the possibility of incorporating terms to the terminology data base as they appear in the text being translated. Although sometimes proprietary terminology is used such as “Adding terms with one click” of Qterm, or “Adding terms on the fly” of Multiterm, basically they refer to the same functionality. To avoid interrupting the work of the translator, once the corresponding terminological data base has been connected, the translator can add terms as they appear in the text and their equivalent in the target language.

Also within the translation phase we find the functions “Fuzzy terminology lookup” and “Prefix matching based term”, which considerably speed up the recognition of terms from the terminology data base and their subsequent inclusion in target text. These features refer to the recognisability of the terms already included in the data base in use, since sometimes they may appear in a slightly different form as they were originally recorded in the termbase, and the program allows you to search equivalent terms from partial correspondences containing the term in the source language. Other important features are the simplification of the design, definition and structure of the terminological information included in the data base, and the possibility of adding images to the terminological entry, which the three solutions studied include.

These manufacturers also take into consideration that the translator may have migrated from other software solutions or have terminology resources in other formats. As a consequence, terminology management programs offer the possibility to import existing glossaries created with previous versions, or from spreadsheets or even text files.

The main features as a standalone tool can be classified into four broad categories: technical features, integration into the translation workflow, ease of use and collaboration with other users. Within the first category of technical features there is the possibility of a desktop or server version, adding graphics or multimedia material to terminological record and adding filters to show more or less information on the screen.

Regarding their integration with the translation workflow, software manufacturers mainly include integration with computer-assisted translation tools or with those same tools but from their online versions. As for ease of use, practically all the solutions analysed highlight an intuitive user interface, the ability to customize the termbase structure, the possibility of searching in different data bases and the possibility of consulting the termbase and to search in any of the languages included in the data base. Finally, and with the intention to facilitate collaborative work in translation teams, all the IT solutions studied allow access to terminological information to external users via online access or authorisations.

To conclude this section on the identification of key terminology management features in CAT tools, it can be said that although all the solutions analysed integrate the main features, in order to satisfy translators' needs, these advanced features provide the ability to export terminology data bases, preview the same data base or manage the information contained within the terminology data base and merge duplicates, as well as the ability to add filters and replace data.

3. Methodology

In this context of terminology applied to translation, this study attempts to identify the most common terminology problems encountered by translators compared with some of the most common terminology management features of renowned CAT solutions and to examine the alignment of the technological offer with the most relevant translators' needs identified in the survey.

The questionnaire was designed including the most frequent situations in which a translator has to deal with terminological problems (Cabr e 1998; Wright 2001), for example, neologisms, abbreviations, or different options for a term in the target language, and was divided into three sections dealing with: professional profile, terminology problems, and resources.

The survey was completed by 143 professional translators contacted through different Spanish professional associations during the first quarter of 2016. Respondents completed an online Google form survey which highly facilitated data collection and further processing. The items included in the survey were simplified to encourage participation and questions were limited to the most common problems identified in the literature.

In the first section of the survey: "Professional profile", questions were designed to find out the actual use of CAT tools (Question 1) and terminology management tools (Question 2). Question 3 focused on the type of professional profile: freelance or in-house; and the type of translation and thematic field of specialization to further research whether these variables can have an effect on the overall result of the survey. For example, in the case of dedication to translation, in an in-house environment of a translation company or a department of translation of an institution, translators are

more likely to have more terminology and documentation resources available than in a freelance environment.

Table 1. Section 1: Professional profile.

1. Do you use CAT tools?
2. Do you use terminology management tools?
3. What is your dedication to translation?
4. What is your translation specialization?
5. What is your field of specialization?

Questions 4 and 5 were included in the survey to further analyse whether there is a correlation between the specialization and the thematic field in terms of the types of terminology problems encountered or the type of resources used, which although out of the scope of this study, paves the way for further exploitation of the survey.

Within Section 2, the purpose of the questions was to obtain information on the experience with terminology problems and then identify the type of problem (see Table 2). As can be seen, the questions range from the frequency with which translators find terminological problems of meaning, grammatical information and use to the specific type of problems, such as neologisms, collocations or abbreviations.

Table 2. Section 2 of survey: terminology problems and type of problems.

6. How often do you find terminology problems during translation?
7. How often do you not know a term in the source text?
8. How often are you not sure of the meaning, grammar information or usage of a term in the source language?
9. How often do you not know a term in the target text?
10. How often are you not sure of the meaning, grammar use or usage of a term in the target language?
11. How often are you not familiar with the phraseology of the specialized field?
12. At which stage of your translation work do you solve terminology problems?
13. Neologisms
14. Abbreviations
15. Collocations
16. Different options for a term in the target language with no clear info as to which one is the most appropriate
17. Do not know the most appropriate geographical variant
18. Do not know the phraseology of the specialized domain

Finally, Section 3 (questions 19 - 30) was aimed at the resources used and how they were rated by translators (Table 3).

Table 3. Section 3 of survey: use of resources and assessment of resources.

Q. 19 & 25. Dictionaries
Q. 20 & 26. Distribution lists or translators' forums
Q. 21 & 27. My own terminology data bases
Q. 22 & 28. I check with the client directly
Q. 23 & 29. ISO standards
Q. 24 & 30. Other. Please specify

4. Results and discussion

The first section of the survey aims to find out the use of translation and terminology management computer tools and establish the profile of translators who answered the survey based on data such as their specialties and thematic areas in order to then see if there is a correlation.

As shown in Table 4, computer-assisted translation is not fully integrated into the translators' workflow with 62.5% respondents who use it. The use of terminology management software (Question 2) even shows lower values: 52.5%.

Table 4. Answers to Questions 1 and 2 on respondents' use of CAT tools and Terminology management software.

	Question 1	Question 2
YES	62.5%	52.5%
NO	37.5%	47.5%

With regard to the dedication to translation (Question 3), most respondents (see Table 5) reported a dedication to freelance translation (70%). At first sight this could be interpreted as one of the keys to justify the non-integration of technology to translate, i.e. the requirement to use computer tools to translate is lower in a freelance environment than in a teamwork environment such as a translation company.

Table 5. Answers to Question 3: What is your dedication to translation?

Freelance	70%
In-house	20%
Other	10%

Question 4, on the translation specialization, may also shed some light on the overall interpretation of the results of the survey, since traditionally, computer-aided translation systems show their increased performance and potential depending on the types of text with repetitive segments such as user manuals or websites, as well as the possibility of handling different file formats or software that would otherwise be inaccessible. As seen in Table 6, the vast majority of respondents work in scientific translation - a suitable context to use terminology management systems to ensure consistency in the target text, but not so much to be translated by computer-aided translation systems as they do not contain the degree of repetition that delivers the real performance of these tools.

Table 6. Answers to Question 4: What is your translation specialization?

Scientific	50%
Legal	25%
Technical	35%
Medical	30%
Other	75%

Table 7. Answers to Question 5: What is your thematic field of specialization?

Environment	Tourism
Technical	Narrative
Civil Engineering	Watches, perfume, literature
Engineering	Oncology, radiology, tourism (airlines, hotels ...)
Maritime, civil engineering; purchase contracts	Marketing
Watches, jewellery, writing instruments.	General Science
Automotive	Marketing / Fashion
Literature, general translations and technical texts	Medical certificates
Computer and machinery	Literary, commercial, press
Legal	Law
Literature and informative texts	Localization and videogames
Construction, medicine, etc.	Food, physiotherapy, humanities
International organizations	Industry (machine tools), marketing, leisure and tourism
Autism, medicine, IT, technology	Science
Environment, technology, marketing	Health
Science / health / art	Art

Table 7 also shows the wide variety of fields of specialization of the respondents, all capable of being processed through translation technology. With the exception of repetitive texts such as medical certificates, localization and translation of video games, the rest will possibly not reach the same performance, or maximum exploitation of all resources of a computer-assisted translation tool.

In addition to taking into consideration what the literature identifies as common terminological problems during translation, the survey design proposes a reflection on each of the questions in order to see what consequences or improvements would be recommended for the terminology management features in CAT tools.

Table 8. Terminology problems.

	Question 6	Question 7	Question 8	Question 9	Question 10	Question 11
never: 0	0%	5%	2.5%	0%	0%	2.5%
1	7.5%	30%	37.5%	37.5%	22.5%	40%
2	37.5%	32.5%	32.5%	37.5%	35%	35%
3	30%	22.5%	22.5%	17.5%	27.5%	20%
very often 4	25%	10%	5%	7.5%	12.5%	2.5%

For example, although Question 7 (*How often do you not know a term in the source text?*) does not reveal a clear pattern, the fact that more than half of the respondents (30% and 32.5%) do not emphasize that they do not know the terminology of their specialties (which shows that the degree of specialization and professional expertise entails a mastery of the most common terminology in the professional field they have specialized) is remarkable.

The answers to Question 8 and Question 10 highlight the need for more terminological information in the data base, because sometimes it seems clear that the equivalent in the target language is not enough and that, therefore, it is useful to have additional grammatical details or information about the use of terms, or even the inclusion of images - whenever possible - for easy viewing and understanding of the terms used in the translation.

Table 9. Answers to Question 12: At which stage of your translation work do you solve terminology problems?

Question 12. At which stage of your translation work do you solve terminology problems?	
At the beginning, during the initial analysis of the text.	22.5%
During translation, as they appear.	90%
At the end of the translation.	20%
Other:	2.5%

In Question 12 (see Table 9) most respondents reported to carry out their terminology problem-solving work during translation. This result is consistent with the principles of translation-oriented terminology management (Wright, 2001) that focuses terminology work on the source text, and also confirms the commitment of the manufacturers of terminology software systems to include active term-recognition systems within more complex computer-assisted translation systems, and features such as including terms in the data base during translation work.

Table 10. Questions 13 to 18: Types of terminology problems

	Question 13	Question 14	Question 15	Question 16	Question 17	Question 18
never: 0	2.5%	0%	10%	5%	22.5%	2.5%
1	25%	25%	32.5%	17.5%	47.5%	40%
2	35%	37.5%	37.5%	30%	22.5%	30%
3	25%	17.5%	10%	37.5%	2.5%	25%
very often 4	10%	20%	10%	10%	2.5%	2.5%

As can be seen in Table 10 above, none of the terminology problems frequently identified during the translation process - such as neologisms, abbreviations, collocations, geographical variants or phraseology - occupies the top positions of the survey.

Among the terminological problems that seem to concern translators most are neologisms (Question 13), abbreviations (Question 14) and uncertainty regarding the suitability of a term when there are several options available (Question 16).

The most appropriate geographical variant (Question 17) and the phraseology of the specialized domain (Question 18) do not seem to worry the translator to a large extent.

It is also significant from Table 11, particularly in the field of specialized translation, that 27.5% of respondents claim to have never consulted ISO standards (Question 23), which could be taken into consideration for the implementation of improvements in computer solutions to come, due to the reliability of ISO standards, and the consolidation of terminology in specialized fields.

Remarkably, answers to Question 21, on the use of own terminological data, reveal that only 32.5% of respondents reported to use very often their own terminology resources - which is consistent with the results from Question 2 on use of tools for terminology management, which only 52.5% stated to use. Therefore, it can be seen that there is no full integration or use of technology for terminology management with their own terminology resources.

In order to avoid limiting the choice of new terminological resources from a list, Question 24 (see Table 12) allowed respondents to add their own terminology resourc-

es commonly used in their translation workflow. As shown in Table 12, the query in data bases and documentation on the Internet is almost a constant in the responses recorded, and yet, none of the IT solutions analysed allows the connection to an Internet data base, not even an interface to perform online queries from the same workspace.

In Table 13 below, with the answers to questions 25 to 30, translators had to rate from 0 to 5 the terminological resources they use most frequently.

Similarly, the most valued resources correspond to the use of dictionaries, followed by consultations with client and own terminology data bases. However, as reported above, the latter does not seem a common resource used by the translators surveyed (see table 11).

Table 11. Questions 19 to 23: Use of resources.

	Question 19 (Dictionaries)	Question 20 (Lists & forums)	Question 21 (Own data)	Question 22 (Client)	Question 23 (ISO)
never: 0	0%	2.5%	5%	5%	27.5%
1	2.5%	15%	15%	27.5%	35%
2	22.5%	42.5%	25%	27.5%	25%
3	15%	25%	22.5%	32.5%	0%
very often 4	60%	15%	32.5%	7.5%	12.5%

Table 12. Question 24: Please specify other resources you use

Internet
Parallel texts, previous translations
Internet data bases
Mainly specialized terminology data bases (online) and parallel texts on the subject in the target language
IATE, UNOGTerm, Glosbe
Internet search for contexts
Brochures, manuals, specialized books
Scientific articles on the net
Terminological data bases or other references (publications, websites) of the client

Table 13. Assessment of resources.

	Question 25 (Dictionaries)	Question 26 (Lists & forums)	Question 27 (Own data)	Question 28 (Client)	Question 29 (ISO)	Question 30 (other)
minimum: 0	0%	2.5%	5%	2.5%	17.5%	2.5%
1	5%	5%	5%	12.5%	25%	5%
2	17.5%	20%	17.5%	12.5%	30%	22.5%
3	35%	52.5%	37.5%	35%	12.5%	22.5%
maximum: 4	40%	20%	35%	37.5%	15%	10%

5. Conclusions

The analysis of the survey data and the alignment with the features from the most common terminology management software solutions is a major contribution to identify potential gaps between the technological offer and the actual needs of translators regarding terminology management and its integration in their workflow.

The professional profile of specialized translators is influenced by variables such as the specialized field of activity, working conditions, access to information resources, technical equipment used and personal skills and strategies to fill gaps in any of the aspects mentioned. Among the constants, the most important factor is time that, on several occasions, limits the possibilities of extrapolating efforts beyond what is directly related to translation.

Thus, the main conclusions of the analysis can be grouped into two categories: the features that fully meet the expectations of translators, and translators' needs that are not met by these tools.

In the first category we find that the survey data show that terminology work is done mostly during translation, which coincides completely with what is offered by all solutions analysed, and except for a software solution, the rest allows "Handling terminology during translation".

For features such as preferred term, different options, and geographical variants, all solutions studied allow adding this information within the terminological record. However, only those tools that are compatible with the use of a well-organized reference corpus of parallel texts meet the expectations of identifying different options for a term or geographic variants if these marks have been previously included in the terminological data base.

With respect to solutions that do not meet the expectations of translators: identifying collocations, phraseology or finding grammatical information (not previously

marked in the termbase) are some of the translators' needs that are not covered by these tools.

Likewise, the high value that translators give to dictionaries highlights the need for these tools to connect with existing dictionaries and not only to the term data base of the computer-assisted translation tool.

Collaborative work, increasingly common thanks to the development of Web 2.0 and social networks, also draws attention to the need for these tools to connect with distribution lists which can be used to solve terminological questions in real time. Finally, "Communication with client", which is one of the features demanded by translators, is only possible in software solutions that offer an online version.

Broadly speaking, the crossing of the data obtained in this survey contributes significantly to the improvement of terminology management systems for translators, at least with regard to their enhanced integration into the translators' working environment, the actual needs of terminological consultation, and ultimately, the design of the translator's workstation.

The analysis of the survey data also reveals patterns such as whether the translator's specialty or subject area are related to the frequency of terminology problems, specific types of terminology problems depending on variables such as specialty, language pair, thematic field, or even work environment.

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