Problems of Translating Some Terms of Computer Sciences and Remote Sensing From Arabic into English

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Abstract

The research is an attempt to focus on some common terms of computer sciences and remote sensing. It aims at proving that translating such terms, which have been chosen randomly from different references, from Arabic into English constitutes problems, posing difficulties for fourth year students of translation / University of Mosul. The study hypothesizes that some terms cause confusion for fourth students of translation due to the lack of adequate scientific background knowledge in the fields of computer sciences and remote sensing. Sometimes, absence of linguistic background knowledge of some phenomena hinders the translation of terms in these fields. It is handy for the students in the study to know what these terms could mean by resorting to dictionaries, knowing the scientific fields in the study, and having a good span of time for the questionnaire. However, not having adequate background knowledge of scientific terms in general and in these fields make some students stand helpless in translating the terms from Arabic into English.

Keywords: computer Science , Transalation , terminology , sensor.

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مشاكل ترجمة بعض مصطلحات علوم الحاسوب والاستشعار عن بعد من العربية الى الإنكليزية

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الملخص: يعد البحث محاولة للتركيز على بعض المصطلحات الشائعة في علوم الحاسوب و الاستشعار عن بعد فهو يهدف الى اثبات ان ترجمة مصطلحات كهذه والتي تم انتقاؤها بصورة عشوائية من مصادر مختلفة يسبب مشكلات و صعوبات في الترجمة من اللغة العربية الى الانكليزية بالنسبة لطلبة المرحلة الرابعة في قسم الترجمة / جامعة الموصل. وتفترض الدراسة بأن بعض المصطلحات تسبب الالتباس لطلبة الصف الرابع في قسم الترجمة بسبب عدم امتلاكهم المعرفة العلمية المناسبة في مجال علوم الحاسوب والاستشعار عن بعد. وفي بعض الاحيان فأن غياب الخلفية اللغوية لبعض الظواهر يعيق ترجمة المصطلحات في هذين الحقلين. وعلى الرغم انه من الممكن للطلبة معرفة ما تعنيه المصطلحات قيد البحث عن طريق استشارة القواميس ومعرفتهم بحقلي الدراسة وامتلاكهم الوقت الكافي لترجمة المصطلحات في الاستبيان الا ان عدم امتلاكهم الخلفية العلمية الكافية للمصطلحات العلمية بشكل عام وفي هذين المجالين على وجه الخصوص قد جعل بعض الطلبة عاجزين عن ترجمتها الى اللغة الإنكليزية.

الكلمات الدالة: علوم الحاسوب ، ترجمة ، المصطلحات ، الاستشعار   .

1.Introduction:

The present research is an attempt to show the difficulties encountered by fourth year students of translation / College of Arts / University of Mosul in translating the most common terms in the fields of computer sciences and remote sensing. Sixteen terms have been given to ten fourth year students as a questionnaire. Enough time has been given to them , telling them about the type of the scientific fields in the study. Also, consulting dictionaries and resources can help them. The study reveals that a translator who embarks on translating terms of such fields should have a good background knowledge of such specialized terms. It also shows that translating computer sciences and remote sensing terms constitute a problem sometimes without a context of situation. Unlike English in which the term 'disk' can to a certain extent be easily rendered into قرص, the Arabic word قرص could have many English equivalents. It can be translated into 'tablet' in medicine, 'round flat loaf ' for قرص من الخبز 'discus' for رياضة بدنية, and a 'honeycomb' for قرص عسل (see Baalbaki,R.2008:856). In computer sciences, the word قرص could mean 'disk', depending on the meaning and nature of the text. The case could be much easier when translating from English into Arabic. The word 'disk' refers to something which is round and flat

(ibid). Studies have been made about scientific translation, and few of them about computer sciences . However, to the researcher's knowledge no study from Arabic into English has been done, especially about remote sensing terms. The study also shows that translation from Arabic into English for fourth year students of translation concerning terms of computer sciences and remote sensing is much more difficult than the other way, i.e. from English into Arabic. It tries to unveil the mistakes committed by fourth year students of translation. One of the reasons behind choosing Arabic into English translation is to test the qualifications of students and to know the extent to which they are capable of handling scientific terms of such fields from Arabic into English. Fourth year students have already practiced scientific translation for two years. Thus, a student supposedly has good working background knowledge of both languages, i.e. Arabic and English.

2.Definition of Translation:

Different theorists and scholars of translation look at translation from different points of view. In his linguistic theory of translation, Catford (1965:27) emphasizes textual equivalence. Translation for him is a substitution of textual material in one language by another in the other language. For Nida and Tabor(1982), translation is a source text reformulated into the closest equivalent of the target language. Savory's definition of translation (1969) is similar to Catford's. An equivalent of thought makes translation possible with the different verbal expressions. Others like Brislin(1976:1) looks at translation as the transfer of ideas and thought between languages, regardless the written or oral forms. Newmark(1981:7) looks at translation as a craft whereby a written message and/or statement in one language is replaced by the same thing in another language.

3.Scientific Translation:

Scientific texts are usually presented for specialized people. they contain important findings and good results. Universities, research centres, and institutions depend mainly on professional scientific translators due to the use of scientific language and specialized terms (www.lengua.com>scientific translations). Fourth year students of translation in the University of Mosul are chosen to be tested for this purpose, supposing that they are familiar with scientific translation. Scientific terms, according to Nida (1994), that appear in the developed countries are not easy to be translated in the third world countries suffering problems. The case being so, this leads us to suggest that translation of terms of computer sciences and remote sensing from Arabic into English becomes much more difficult and more problematic than translating them from English into Arabic. Fourth year students , therefore, face many problems when embarking on such a job due to the lack of abundance of scientific terms and consequently in the fields of computer science and remote sensing. New words appear as a result of the development of science and technology. This development in the last years has caused much linguistic problems because of the large number of newly found concepts. The translation of full technical texts is still considered a major intellectual challenge (Nida,1964:223).

3.1.Prerequisites of a Scientific Translator: Scientific translation is a very difficult task. One can imagine the responsibility that rests on the translator's shoulders. If he/she understands that doctors ,for example, write about drugs, engineers and scientists write about pin point precision inventions, a scientific translator is then required to convey these texts including terms depending on his scientific background knowledge. The above argument shows that a translator of scientific terms should have certain characteristics. Al Hassnawi(2010) mentions certain points in this regard:

1. A good working knowledge of the subject matter of the text to be translated.
2. A very good imagination helping the translator visualizing the process under description.
3. The scientific translator should be intelligent to fill any links missed in the original text.
4. He/she has the ability to discern things, so that a translator can make his/her choice of the best equivalent term from the literature of the field or dictionaries.
5. A scientific translator should be able to use his/her language in a clear, precise conscious way.
6. Being a scientist, engineer, a linguist and a writer is very important in order to be a technical translator (ibid).

The scientific translator should be capable of correcting small mistakes that appear in the source text. Translators sometimes resort to paraphrasing in order to keep the sense and meaning of a sentence intact. Reading the latest books and journals of the specialized field helps them enhancing their skills. Paying attention to numbers and symbols is very important because otherwise the sense of the text will be changed (translatorthoughts.com>2016>scientific-translation-techniques).

4.Translating terms of computer science and remote sensing:

 Computer science is considered one of the applications of remote sensing. It is used for digital image processing that are taken by sensors portable on satellites (Mather,P.M.,2014:1). Hence, the terms of these two fields will be tackled and elaborated inseparably. Fourth year students of translation / University of Mosul are acquainted with some well known terms used in mobile phones, personal computers, and remote sensing. Some terms, on the other hand, seem to be odd and unfamiliar to those students. The study tries to show the extent to which some terms are rendered whether properly or not. Sixteen terms have been chosen randomly in the fields of computer sciences and remote sensing. They have been distributed among ten students of translation/University of Mosul. The terms will be elaborated and analyzed as follows:

1.ذاكرة الوصول العشوائي:

Linguistically, the use of the acronym 'RAM' has become familiar in the daily context of life which is used in mobile phones and personal computers. All the ten students succeeded in rendering this term. Seven of them chose the acronym 'RAM' while three of them opted for 'random access memory'. 'Random access memory' which is translated by the three students may reflect their awareness with the exact meaning of this term. Still both groups can be regarded true translations of ذاكرة الوصول العشوائي.

2.مترجم:

Such an Arabic word has become a pitfall for most of the students of translation in the study. Being students of translation is one reason behind choosing the English word 'translator', and perhaps because they are students at the 'Department of Translation'. Eight of them were unlucky in translating the term مترجم. Seemingly, they have no idea about the exact and correct meaning of this term in computer sciences which is. Only two students ,however, translated it correctly into 'compiler'. This indicates that most students do not grasp what the word 'compiler' means. A compiler processes a programming language which is written in a particular language (usually high level) and turns them into the machine language (low level) which is required by computers (Mogensen,2010:1-2).

3.معالجة اولية:

Although the questionnaire was given to fourth year students as homework which means they have had enough time to consult dictionaries and resources, almost all of them failed in giving the exact meaning of this term. Seven students translated it into 'preliminary treatment'. One of them rendered it into 'preferred prevention' while only two of the students gave an approximate but not an accurate meaning 'initial processing' and 'preliminary processing' respectively. The exact translation of this term in computer sciences is 'preprocessing'. This indicates that fourth year students of translation suffer when translating terms of computer sciences from Arabic into English. If the term 'preprocessing' was given to the subjects, asking them to translate it into Arabic , the case would much easier for them because Consulting dictionaries could make things much easier when translating from English into Arabic. The term معالجة اولية has many synonyms in English which makes translating such a term more difficult especially with the existence of many synonymous words. For more details about synonymy see Palmer (1980) among others.

4.صورة نقطية:

Contrary to the previous argument, all the subjects succeeded in translating the term صور نقطية into 'bitmap' which is true. The explanation given here is that the word نقطية is associated with صورة . It gives a sort of contextual clarification to the term which is used in computer sciences and remote sensing. Thus, it is easy excluding other possibilities. For this reason صورة نقطية can easily be found in many dictionaries and resources.

5.الواقع الافتراضي:

Virtual reality (VR) has become worldwide familiar among people especially young. It allows people to experience things that are farfetched in the real word. Any person can manipulate a world of three-dimensional graphics. Among the applications of VR is computer gaming (see Mandal:2013:304). The term has become so familiar even for a layman. As a result, fourth year students found no difficulty in

translating this term into English. It is translated by all the subjects into 'virtual reality' which is true. Perhaps most students do not resort to dictionaries when translating this term which means that some terms of computer sciences   commonly used   in the daily life in Arabic constitutes no problem in translation.

6.نظام افتراضي:

The word افتراضـي has become a pitfall for the majority of the subjects in the study. It confuses them with الواقـع الافتراضـي (virtual reality). Eight of them translated it into 'virtual system'. One of the students rendered it 'hypothetical system' while only one of them translated it correctly into 'default system'. Seemingly, the nine subjects do not know what نظـام افتراضـي means. It may refer to a value preexists or to the options offered to the users. Having a scientific background knowledge in a specialized field would save fourth year students and any translator overcome such a problem. This again shows that translation from Arabic into English in the field of computer science is much difficult than the other way, i.e.   translating from English into Arabic.

7.معالجة الكلمات:

All the students in the study translated this term correctly into 'word processing' except one of them who gave the translation 'writing the words'. Back to the translation of معالجـة اوليـة in (3) where seven students translated معالجـة into 'treatment' which means that they are fluctuant in choosing 'processing' one time and 'treatment' another time in their translation.

8. قرص:

Knowing the field of translation is very important especially for students of   translation. However, four students among the ten subjects seem to be misled because the word قرص has many synonymous words in English (Baalbaki,2008:856). As a result, four students translated this Arabic word into 'tablet' which is used as a drug in medicine. There is no relationship between   قرص and 'tablet' in field of computer science. The other six students correctly translated it into 'disk'.

9.معالجة الصور:

Image processing is one of the most important applications in both remote sensing and computer sciences (see Gonzales and Richards, 2002:1,22-34). Seven of the subjects succeeded in translating this term into 'image processing' while three of them failed in giving the exact English equivalent. The word 'photograph' has nothing to do with image processing. Also, the word 'picture' is entirely different from 'image', and the third unlucky translation is 'CPU of image'   because 'CPU' is a hardware in personal computer (PC).

10.الاعداد الحقيقية:

This term ,although seems easy to be translated, confuses some fourth year students of translation. Six of them translated it correctly into 'real numbers' whereas four of them could not do that which means that 40 percent are not true. Subjects are supposed to commit few mistakes with the help of dictionaries, references as well as a long period of time they have been given   when translating   such terms. The

unlucky   translations in the questionnaire are 'actual numbers', 'real sets', and 'floating numbers', while the fourth student left it without translation. Students of translation should be advised to pay attention to the different fields of science including computer sciences and remote sensing which need to be focused on when studying   scientific translation.

11. رمز

12.شفرة

Being confusing, the two terms رمـز and شـفرة are tackled inseparably in this research.

It is well known that in the field of computer sciences a code can replace words with symbols. Things become accessible in code and computer can respond and perform the tasks that are necessary by using codes (see Bentley,2003:33). The term رمـز is translated correctly by eight students into 'code' whereas only two of them translated it into 'symbol' and 'icon'. This shows that most students managed to render رمـز properly into English because it has become a commonly used term in the daily life. For example, the code of something is quite familiar and well understood by an Arabic reader. This is why it is easy to translate رمـز into 'code'. However, the word 'symbol' is one of the rendering by one of the subjects is also used in mathematics. Also, the term رمـز is rendered into 'icon' by the ten subject which could mean 'ايقونـة' in Arabic.   Concerning the word شـفرة, individual letters might be replaced by other letters or even symbols or sounds to be a cipher. The word شـفرة which is translated wrongly by nine of the ten subjects constitute by no doubt a problem for fourth year students of translation. The translations of this word is translated by the students into: 'code' by three students, 'blade' by four students, and 'decryption' by one subject   while it is left without a translation by the ninth student. Only one subject translated it correctly into 'cipher'. Unlike the Arabic term رمز which is easily translated into English because it is commonly used in our daily life, the majority of the subjects in the study, on the other hand, failed in translating شـفرة because it is a specialized term. It is highly used in security methods.

13. اخفاء المعلومات:

Due to the development of information technology and the huge amount of digital information, stealing information has appeared. Therefore, the   communicating secretly has become an urgent need (see Fabian A.P. et al,1999:1062).   This term is closely related to the previous two terms رمـز and شـفرة. It shows the way information is hidden. Syntactically, the verbal noun 'hiding' refers to the process of making information secret. Syntactically, this constitutes an obstacle for students of translation not only as a scientific term but also as a linguistic one. Four subjects rightly translated the term into 'hiding information' which indicates that they could grasp the force of the verbal noun 'hiding'. Five of them translated it into 'steganography'. The problem here is both linguistic and scientific because the five students could not make a distinction between the process of hiding information اخفـاء المعلومـات and   the name of the science 'steganography'

which means علـم اخفـاء المعلومـات in Arabic. Steganography is one of the best ways for hiding information. Embedded information is concealed for securing messages (Kumar,2010:19). The tenth student opted for 'information case' which has nothing to do with hiding information. A blurred image is , therefore , faces the subjects in the study regarding ways of hiding information.

14. قمر صناعي:

Being familiar with this term, many people, laymen, or even some young people who are not specialized neither in remote sensing nor in translation know that قمـر صنـاعي corresponds to 'satellite' in English. This means that fourth year students face no difficulty in translating this term which ,as it seems, has become archaic in Arabic. Therefore, all the ten subjects translated قمر صناعي in remote sensing into 'satellite'.

15.صور فضائية:

The word 'image' is used in the field of remote sensing rather than 'photograph'. Only images can be processed whereas photograph should be converted to a digital image. Photographs therefore can be used in other different fields of life. Unable to discern these two terms properly, most of the students of translation even with the help of some dictionaries could not translate صـور فضـائية properly into English. Four of the ten students translated it into 'aerial photographs', one of them rendered the term into 'space photographs'. Another one translated it into 'satellite T.V.'. Only four of them correctly translated صـور فضـائية into 'satellite image'.

16.بيانات فضائية:

Among the technologies of remote sensing is satellite data. Satellites are used to collect information about earth and the space. One of the most important uses of satellite data is the observation of earth by giving information about the changes of our planet(https://www.iceye.com). Concerning the questionnaire given to the fourth year students, half of them translated the term بيانـات فضـائية into 'space-based data' which can be true in some scientific fields. However, 'satellite data' is more accurate when dealing with data taken by satellites. Five of the subjects truly translated it into 'satellite data'. Half of the students in the study are unaware that بيانـات فضـائية refers to satellite collecting date in the field of remote sensing.

5.Conclusions:

A number of conclusions can be drawn in the light of the previous analysis:

1. Translating terms of the fields of computer sciences and remote sensing from Arabic into English constitutes problems and difficulties for fourth year students of translation / Department of Translation / University of Mosul.
2. A translator in these fields should understand both the exact meaning of the terms and master both the source language and the target language, since he / she is after conveying accurate and clear equivalents. Terminology is one of the most significant aspects in scientific translation.
3. A linguistic background knowledge of both the source language (SL) and the target language (TL) is not enough for fourth year students of translation to

embark on translating computer sciences and remote sensing terms without a considerable scientific background knowledge.

4. Even with the help of dictionaries and references, some fourth year students fail in rendering some terms from Arabic into English. The word مترجم is well known as 'translator' in different texts of translation. If students of translation had known that the word 'compiler' is used in computer science, their background knowledge would help them in choosing the right equivalent word.

5. The degree of difficulty in translating terms of computer sciences and remote sensing ranges from simple to difficult. Terms like ذاكرة الوصـول العشـوائي, الواقع الافتراضـي, and القمر الصـناعي are easily translated by fourth year students of translation into 'RAM' (random access memory), 'virtual reality', and 'satellite' respectively. Such terms have become widely used in the daily life worldwide due to the technical and scientific development. Other terms like شفرة and معالجة اولية are wrongly translated by the majority of the subjects in the study which are specialized terms that can be translated into 'cipher' and 'preprocessing, respectively. Specialized dictionaries and resources are required when translating such terms in addition to the good background knowledge of the field a translator is indulged in.

6. A linguistic background is needed even when translating decontextualized terms. An example is اخفاء المعلومات. It refers to the process of making secret information. The English verbal noun 'hiding' can be used to describe this process. 'Hiding information' is therefore a suitable choice for translating اخفاء المعلومات. The term 'steganography' is chosen by half of the subjects which reflect their unfamiliarity with English verbal nouns.

7. Finally, the results of the study may indicate that a general course in scientific translation is not enough during fourth year study. It is therefore recommended that each scientific field be dealt with separately in more details to achieve the aim of scientific translation.

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