

Problems of Translating Computer Terms from English into Arabic: Yemeni Computer Science Students in India as a Case Study

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Abstract

Technological devices heavily control our life, entertainment, relationships, and even personal matters. Rapid innovation brings with it several new computer terms. The present paper aims to investigate the problems Yemeni computer science students (YCSSLs) face in translating computer terms. A test was prepared to collect data related to computer terms under investigation. The results of the study reveal that almost YCSSLs are unaware of using different strategies associated with translating computer terms. The low performance of the participants can be ascribed to the shortage of knowledge regarding computer science translation, lack of handling the online resources of computer glossaries and dictionaries, and weak mastering of Arabic morphology, which complicated translating computer terms. Pedagogically, it is strongly recommended that translating computer terms into Arabic must be trained in the institutions rather than autonomous learning.

Keywords: Arabic, English, Computer Terms, Translation, Yemeni Students.

Introduction

The world has witnessed a great revolution and development in all various aspects of life. These developments facilitated life and helped the humanities. Computer science is one of the most important disciplines that witness significant advancements over time. Therefore, translating its terms becomes a necessity.

Sultanbayeva and Montanay (2019) considered computers as the core part of almost all jobs and daily life aspects. The translation of written works related to these disciplines worldwide becomes a requirement. However, the accelerated expansion of computer technology and its associated terms creates several difficulties for

the field of translation to continue to advance. It is one of the fastest development technologies; new terms and concepts are introduced daily. It is also a challenge for users to identify and recognize these terms.

Many studies talked about translating computer terms (Hazza & Hussein, 2013; Suwais, 2005). Most of the previous studies confirmed that translating computer terms is considered difficult for students and professional translators. However, this paper focuses on Yemeni computer science students' problems translating computer terms in foreign countries, Yemeni students in India as a case study to see whether they face difficulty translating such terms, because Yemeni students

who are studying computer science abroad will come back home, and they will be in dire need to use the Arabic equivalents. They will be teachers or users of such techniques. Thus, they have to understand the meaning of such terms in English as the source language and Arabic as a target to convey the message clearly and adequately. The researchers conducted this study and followed the descriptive-analytical method in doing this research. For data collection, a test is used to collect data related to the challenges of translating computer terms. The findings showed that translating computer terms is considered a problem for students due to their lack of enough information about translating computer terms. Most of the participants know the meaning in English, but it is difficult for most of them to select the equivalent meaning in Arabic as the target.

Significance of the Study

Because of the revolution of knowledge in computer science, field that associates with new terms, this study attempted to investigate some problems Yemeni computer science students encounter in translating the computer terminology. This study deals with the most problematic issues that face Yemeni computer science students. Thus, it is essential to explore the difficulties to help in finding suitable strategies for translating these terms into Arabic. Finally, this study attempts to fill a gap in the computer terminology translation research and pave the way for further studies by encouraging other scholars to do such studies on the same line.

Objective of the Study

This study aims to

1. Investigate the problems YCSSs face in translating computer terms from English into Arabic.

Questions of the Study

1. What are the problems that YCSSs encounter in translating computer terms from English into Arabic?

The Hypothesis of the Study

Yemeni Computer science students (hence forth YCSSs) do not face problems in translating computer terms from English into Arabic

Literature Review

Translation is considered a tool of communication because it can help in understanding foreign languages and exchanging information among nations. Newmark (1988) defined translation as "rendering the meaning of a text into another language in the way that the author intended the text" (p.5). Translation is an urgent need for disseminating information among people of different nations who use different languages. Hadithya (2014) confirmed that in the current era of globalization, computers have a remarkable impact on human life. Computers are used in almost all aspects of daily human life. Since not all computer users recognize the information retrieved on computer, consequently, a translated version is highly required. Therefore, some previous studies claimed that translating computer terms is not an easy task for translation students and professional translators.

Hazza and Hussein (2013) conducted a study to investigate Jordanian translators' problems in translating computer terms. They aimed to evaluate the effectiveness of rendering computer terms into Arabic by using these strategies. The results demonstrated that numerous Jordanian translators are ignorant of using different strategies related to translating computer terms.

Soualmia (2010) conducted a study entitled "Third-year students' difficulties in translating computing terms from English into Arabic". She investigated the difficulties that third-year English language learners encounter when translating computer terms and drew attention to adopting an appropriate strategy that helps to produce high-quality translation by using purely Arabic entries. She found that students commit mistakes in their translations due to their lack of knowledge of proper methods. They are not trained to translating scientific terms, and their unfamiliarity with the computer sciences' peculiar language worsens the process of translation. As a result, specific pedagogical implications have been provided as a starting point for solving this problem and helping students translate scientific terminology.

Suwais (2005) investigated information technology problems translated into Arabic. She set three goals: identifying the problem with IT terminology translation from English to Arabic, addressing the most suitable strategies for

translating IT terms from Arabic to English, and finding terminology that involves metaphors or other figures of speech. In order to achieve those objectives, the researcher has administered a questionnaire containing 67 IT terms from various computer sciences and IT sources. The terms were left in their original settings and circulated to be translated to Yarmouk University's fourth-year IT and MA translation students, as well as individuals who specialized in Computer Engineering. According to the findings, translators had difficulty in determining the translation for each item. Mistranslation, paraphrasing, multiplicity, and no translation were among the difficulties. Only 25.2 percent of the translations were correct, while 74.8 percent were erroneous, according to the research. On the other hand, the subjects used a variety of translation strategies to translate the given IT terms into Arabic, including transliteration, loan translation, borrowing, and loan blends.

Awawdeh (1990), on the other hand, attempted to identify significant problems that translators may face when translating a scientific-technical text from English to Arabic, offering some guidelines for dealing with these problems as well as establishing principles and rules for translating scientific and technical texts. The research included a comparison of Arabic and European technical writing characteristics and a sample of 26 translated works from English to Arabic covering several disciplines. The study concluded with a list of concerns that included lexical issues, syntactic issues, cultural issues, metaphorical issues, and cohesiveness issues. In addition, he recommended some strategies to deal with these problems, such as stressing on the translator's capability and normalizing scientific terminology on the national level. This process is almost taken by an institution rather than individual efforts.

Belda Medina (2004) concluded study related to translating computer abbreviations from English

to Spanish. Belda Medina (2004) confirmed that abbreviation is a problem in the computer field. He mentioned the classification of abbreviations in computer and how we can deal with such terms.

The above researches are relevant to the present research. They entirely dealt with the computer terms and the translation strategies used for translating these terms. This research is rather different from these previous studies because the authors will focus on Yemeni computer sciences students' problems when translating computer terms.

Methodology

The study followed a descriptive-analytical method for collecting data.

Population and Sample

The study population was Yemeni Computer science students (YCSSLs). The total population was 95. The sample of the study was thirty students, and they were taken randomly from the various Indian universities.

Data Collection

A test was developed to collect data and achieve the objective of the study. It aimed to collect data about Yemeni Computer science students (YCSSLs) encountered when translating computer terms from English into Arabic. The researchers designed the test by selecting (15) computer terms adopted from the previous study to be given to the participants.

Validation and Reliability of the Test

The test items were given to five translators experts to check the test items' validity. Furthermore, Cronbach's alpha value showed that the test items reached acceptable reliability of 86%, which indicates internal consistency and high reliability as follows:

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.865	.868	15

Data Analysis

The score system was based on the following approval criterion for statistics purposes: Any item that was not translated or had an inadequate translation received a zero-point score. Each acceptable translation received a one-point score, while each accurate comprehensible translation received a two-point score. If the computer terms were correctly rendered without any mistake, the answer was regarded as accurate. At the same time, if the term was rendered correctly, but with certain language mistakes that did not modify the meaning, the answer was regarded as acceptable. Finally, the answer was considered wrong and unacceptable if the answer were not rendered accurately to convey the meaning of computer terms or committed some fatal linguistic errors that changed the meaning.

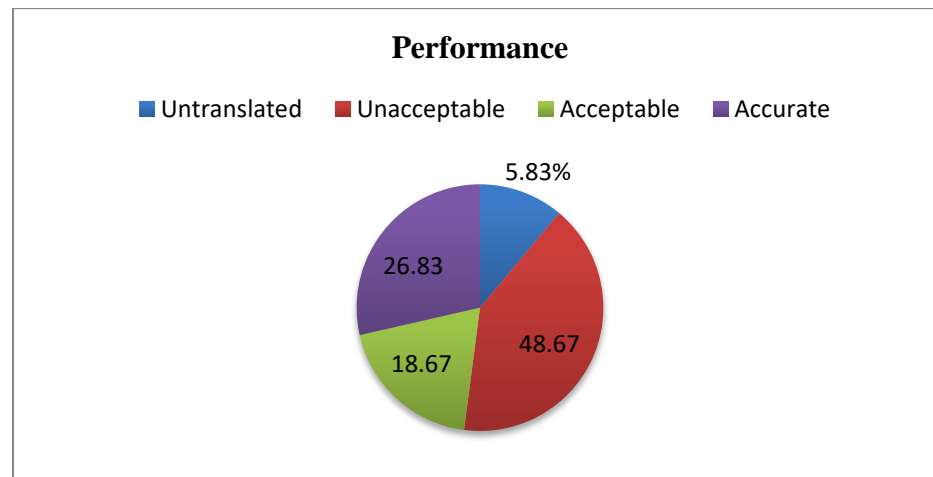
SPSS program was used to do the calculations.

Percentage values were used to identify the problems that Yemeni computer science students face in translating computer terms.

Results and Discussion

The test was used to investigate the problems YCSSs face while translating computer terms from English into Arabic. It included 15 statements and 15 terms. Percentage values were used to highlight the problems, in general. The below figure illustrates the participants' overall performance on the translation test, as well as whether or not they have difficulty in translating computer terms.

Figure: students' performance on translation test



The above diagram shows the percentages of the YCSSs' performance on the translation test. It shows that only (45.50%) of the YCSSs' translations were accurate (26.83 %) and (18.67%) were acceptable translation. However, (54.50 %) of YCSSs' translation were either unacceptable (48.67%) or left blank (5.83 %). This data indicates the level of challenge that YCSSs encounter in translating computer terms from English into Arabic.

For statistical purposes, frequencies (F) and percentage values (%) were used to shed light on

the problems in translating computer terms. Moreover, the means and standard deviation were also given to identify the volume and size of difficulties related to each item. However, the values included the specific interval as follows: [1- 1.75) = untranslated, [1.75- 2.5) = unacceptable, [2.5 – 3.25) =acceptable and [3.25 – 4] = accurate. More details about the participants' translation performance on the test for each type of computer term were discussed in the following table.

Table: The Participants' Performance on Translating computer terms

Computer terms	YCCSs' translation											
	Untranslated		Unacceptable		Acceptable		Accurate		Mean	Standard Deviation	The level of difficulty	The Result
	F	%	F	%	F	%	F	%				
Word Options	1	2.50	27	67.50	12	30.00	0	0.00	2.28	.506	3	unacceptable
Screen Tips	1	2.50	22	55.00	4	10.00	13	32.50	2.73	.960	8	acceptable
Down Arrow	1	2.50	10	25.00	14	35.00	15	37.50	3.08	.859	13	acceptable
Format	1	2.50	12	30.00	18	45.00	9	22.50	2.88	.791	10	acceptable
Print Preview	1	2.50	15	37.50	7	17.50	17	42.50	3.00	.961	11	acceptable
Click	2	5.00	7	17.50	12	30.00	19	47.50	3.20	.911	15	acceptable
Sandbox	5	12.50	31	77.50	1	2.50	3	7.50	2.05	.677	1	unacceptable
Back up	8	20.00	19	47.50	2	5.00	11	27.50	2.40	1.105	6	unacceptable
burn CDs	4	10.00	27	67.50	7	17.50	2	5.00	2.18	.675	2	unacceptable
Firewall	2	5.00	17	42.50	0	0.00	21	52.50	3.00	1.086	12	acceptable
Spreadsheet	2	5.00	27	67.50	6	15.00	5	12.50	2.35	.770	5	unacceptable
Data-driven graphics	2	5.00	21	52.50	7	17.50	10	25.00	2.63	.925	7	acceptable
Appearance attributes	1	2.50	21	52.50	4	10.00	14	35.00	2.78	.974	9	acceptable
A cookie	3	7.50	28	70.00	3	7.50	6	15.00	2.30	.823	4	unacceptable
Hackers	1	2.50	8	20.00	15	37.50	16	40.00	3.15	.834	14	acceptable
Total	35	5.83	292	48.67	112	18.67	161	26.83				Unacceptable

The researchers arranged the computer terms according to their level of difficulty (based on the mean) from the most to the least difficult based on their results in the above table. They did that to give a clear picture of the problems facing YCCSs while translating computer terms.

Sandbox

Sandbox is one example of computer terms. The above table shows that Sandbox term got the highest percentage of difficulty among the other above terms. It was translated in various ways. **7.50%** who translated this term accurately while Only **2.50%** of the participants achieved an acceptable translation i.e. (تحديد الحماية), whereas the remaining produced wrong translations, such as (صندوق رمل, صندوق الرمل). This term is new and may not available in dictionaries as computer terms (Awadh & Shafiull, 2020; Mahdy et al., 2020)

Therefore, most YCCSs followed literal translation strategy in translating such terms, and consequently, the majority of YCCSs' translation was unacceptable.

Burn CDs

This term is also called neologism and polysemy because it encompasses a modern meaning in addition to the old one. The data shows that most of the participants did not translate this term well. Only 5.00 % of the participants produced accurate translations, such as (ينسخ على القرص) and (المضغوط) and 17.50% produced acceptable translations like (ينسخ) whereas others gave a wrong translation such as (يحرق)). The result confirms that a large number of YCCSs face difficulty in rendering or translating computer terms related to neologisms.

According to Argeg (2015), a translator may encounter a difficulty when translating a term with many completely different meanings in the SL and the TL, such as, burn, in the above example. Moreover, Ghazala (2008), confirmed that the difficulty because such terms are polysemous and hence ambiguous. Students encounter lexical problems when translating such terms since they continually accumulating new meanings in addition to the old. There are several different meanings of the computer term ,burn, according to a dictionary, however some participants choose to use the literal translation for this type, such as (يحرق) in the above example instead of the correct meaning as ينسخ as computer term.

Word Options

From the table no one of the participants gave an accurate translation, only 30 % of participants' translations were acceptable (خيارات النص أو الورد). Yet, 70.00% of their translations were either unacceptable such as خيارات الكلمة or untranslated. This type of computer term is called collocations. Translating such type of terms comes in the third level, among others.

The result indicates that majority of the YCCSs faced problem in rendering these collocations. That is why such collocations have new meanings and old ones as well. Thus, most of the participants encountered ambiguity in identifying which required meaning could be chosen to properly convey the SL message. The researchers think that the reason behind this problem is the ignorance of some of YCCSs of the technical context to disambiguate this term. This result is like Newmark's result (1995) which considers translating collocations as a translator's trap because collocations' meaning sometimes hide innocently behind a more general or figurative meaning so still a problem.

A cookie

It was translated in various ways. Only 15.00% of the participants who translated this term accurately as ملف تعريف ارتباط while Only 7.50% of the YCCSs produced an acceptable translation while the other got inappropriate and wrong translation. That means that 77.50 % produced wrong translation because most participants translated this term as كوكي by using literal

translation and transcription without giving equivalence. Therefore, Sultanbayeva N.D., Montanay E.A (2019 confirmed that nowadays, translators' main task is to select the most suitable method and strategy to have a good result of the translation.

Spreadsheet

It was translated in various ways. 12.50% who translated this term accurately as جدول بيانات while Only 15.00% of YCCSs obtained an acceptable translation as جدول among others who produced wrong translations as ورق and untranslated.

Back up

As shown above that of the translations of computer terms, back up, were either accurate (27.50%) as ينسخ نسخة احتياطية or acceptable (5.00%) as ينسخ. Yet, the rest translations were either 47.50% unacceptable or (20.00% untranslated. As shown in Table, this computer term is considered as phrasal word and came in the sixth level in problems among other types. The result confirms that most YCCSs face difficulty in translating such computer. In the same line, Ghazala (2008) considers translating phrasal words is one of the biggest problems that can face translators or students as well. For translating purpose, a context may help in facelifting the process of translating such computer terms.

Data-driven graphics

It was translated in various ways. 25.00% who translated accurately as رسوم مستندة على البيانات while Only 17.50 % of the YCCSs who obtained an acceptable translation as رسوم بيانية while the other failed in giving accurate or acceptable translation. Therefore they produced wrong translations as بيانات or untranslated.

Screen Tips

From the Table 32.50 % of the participants produced accurate translation as تلميحات الشاشة, only 10.00 % of participants' translations were acceptable as ملاحظات الشاشة Yet, 57.50% of their translations were either unacceptable such as خطوات or 2.50 % untranslated. This type of computer terms called collocations.

The result confirms that YCCSs encounter a difficulty when translating new collocations as a type of computer terms, which could be due to the

following reasons. First, the participants were either unable to understand this type of computer terms or to find their Arabic equivalents. Second, some of the participants used an unsuitable strategy, such as literal or transcription in translating such terms.

This finding supports Ghazala's (2008) conclusion that translating collocations is difficult because they are closely linked to technological advancements and dictionaries do not always assist translators in determining the required meaning, especially when these collocations are introduced as new terms. Therefore, most of YCCSs failed in achieving the proper equivalent for such collocations. That is why that most YCCSs utilized literal translation, and consequently most of the students' performance was unacceptable.

Appearance Attributes

It was translated in various ways. **35.00%**, who translated this term accurately as *سمات المظهر* while only **10.00%** of YCCSs got an acceptable translation as *وصف مظهر*. On other hand, 55% failed in translation and produced wrong translations as *مظهر اعتباطي* and untranslated.

Format

The format is one example of computer terms. The above table shows that format obtained a good achievement in translation. It was translated in various ways. **22.50 %**, who translated this term accurately as *تنسيقات* and 45.00 % of students obtained an acceptable translation i.e. (*صيغة*), while the remaining produced wrong translations, such as (*فرمته*). This term is not new and may be available in dictionaries as computer terms. Therefore, most participants produced acceptable translations.

Print Preview

From the Table **42.50%** of the participants produced accurate translation as *معاينة قبل الطباعة* and 17.50% of participants' translations were acceptable as *معاينه*. Yet, 37.50% of their translations were either unacceptable such as *قبل الطباعة* or 2.50 % untranslated. This type of computer terms called collocations.

Firewall

The table above indicates that **52.50 %** of the YCCSs produced accurate translation as *جدار الحماية* whereas, 42.50 % of their translations were unacceptable such as *جدار النار* and 2.00 % untranslated.

Down Arrow

As shown on the above table, that of the translations of computer term, Down Arrow, was either accurate (37.50%) as *السهم المتجه للأسفل* or acceptable 35.00 % as *السهم السفلي*. Yet, the rest translations 27.50% were either 25 % unacceptable or (2.50 % untranslated).

Hackers

The term of, Hackers, is one example of computer terms. The above table shows that format obtained a good achievement in translation. It was translated in various ways. **40.00 %** who translated this term accurately as *قرصنة الحاسوب* and 37.50% of the participants achieved an acceptable translation i.e. (*اختراق او قرصنة*), whereas the remaining produced wrong translations, such as (*هكر*). This term is not new and may available in dictionaries as computer terms. Therefore, most participants produced acceptable translation generally.

Click

From the Table, **47.5%** of the participants produced accurate translation as *انقر* and 30.00% of participants' translations were acceptable as *اضغط*. Yet, 22.50% of YCCSs' translation was left either blank or inappropriate. This type of computer terms is considered as the easiest one among all previous computer terms. That is because such term is common and uses often. The result demonstrates that, among other forms of computer terminology, translating this term is the simplest. As a result, there could be different reasons for this conclusion. The participants' familiarity with terminology is considered common and used daily is the first factor to consider. Second, although such terms can be easily found in most of the dictionaries, some difficulties might appear due to misuse of dictionaries and the general weakness of the participants in translation.

To sum up, the results related to Yemeni computer science students encounter problems while translating computer terms from English into Arabic have stated that translating such terms correctly and accurately can be difficult for most YCCSs. The participants encountered difficulty in finding out the Arabic equivalent. Figure (1) indicates that only 26.83% of the total number of the YCCSs had the ability to translate accurately.

When it comes to translating computer terms, YCCSs have some difficulties. As a result, in order to make people comprehend computer terms, the translator must first understand the

meaning of the terms and then translate them appropriately. Translation techniques, according to Haditha (2014) are the best ways to handle that challenge. An excellent translation product can be created if it is translated correctly and strategically to ensure that the message is communicated effectively. In general, a translator can employ multiple strategies when translating computer jargon. If necessary, the translator may use two, three, or four methods at the same time. In addition, the translator must be computer literate. If necessary, the translator may use two, three, or four ways at the same time. Furthermore, s/he must be familiar with computer terms in both SL and TL so that the meaning of such terms in the original text may be translated correctly.

Conclusion

The results indicated that translating computer terms accurately was hard for most computer students generally. Yemeni computer students faced many problems when translating computer terms. The complex structure of these terms themselves is considered as one of most important problems because it is difficult to be understood without good and enough background. In addition, the translators did not get benefits effectively from the context. They translated computer terms as isolated words. Moreover, most of the YCCSs were unable of using suitable strategies in translating computer terms. Thus, some of YCCSs followed some unhelpful strategies and methods excessively, such as transference and literal strategy. Finally, translating computer terms is a real problem for students as well as translators and requires individual translation efforts to be supplemented by institutional efforts.

• Suggestions for Future Research

Since this study only attempted to cover the problems of translating computer terms, further research is needed to focus on the strategies of translating computer terms.

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