Problems Jordanian Translators Face and Strategies they Use in Translating Computer Terms from English into Arabic

المشكلات التي يواجهها المترجمون الأردنيون والاستراتيجيات التي يستخدمونها في ترجمة مصطلحات الحاسوب من الإنجليزية إلى العربية

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Thesis Submitted in Partial Fulfillment of the Requirement for Master of Arts in English Language and Literature

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June, 2013

Authorization

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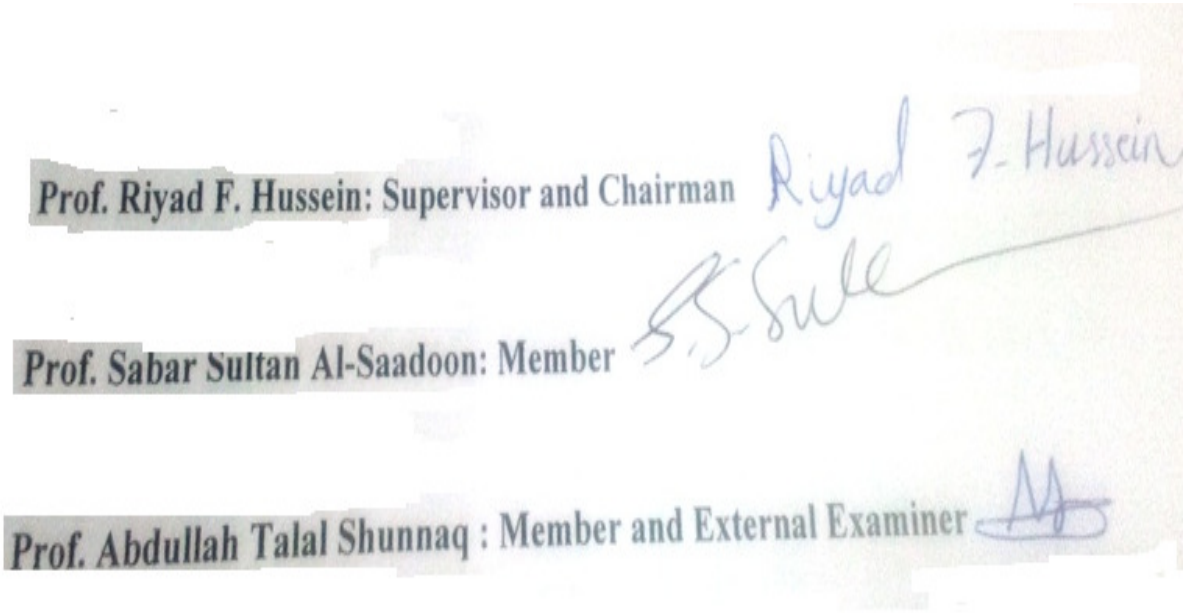
This thesis "Problems Jordanian Translators Face and Strategies They Use in Translating Computer Terms from English into Arabic" was discussed and certified on 5 th of June, 2013.

Thesis Discussion Committee



ACKNOWLEDGEMENTS

Praise be to Allah who gave me the will and ability to achieve this work. For Him, I owe all the blessings I enjoy. I ask Him to accept this work as an offering to help others.

I am honored to express my sincere gratitude to my honorable professor Riyad F. Hussein for his continuous support and guidance. I appreciate his constant and unconditional guidance and valuable instruction which have a crucial role in making this research possible.

I would, also, like to express my sincere gratitude to Professor Bader S. Dweik for all the unconditional support and guidance he showed to me. I also, extend my thanks to Professor Sabar Sultan for his guidance.

I would like, also, to extend my gratitude and sincere thanks to my friends, Tariq, Saleh, and Ismael whose support and assistance paved my way to success, and many thanks to all those who helped me to make this work a reality.

I, would, also, like to express my thanks to the committee of referees who paid time and effort to evaluate the instruments of the study.

Finally, I would like to express my deep love and gratitude to my family whose support and unconditional love enabled me to reach this level of education.

Dedication

I dedicate this work to the wise, the patient, and the ones, who are always with me,

My Parents

&

My beloved Wife

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Problems Jordanian Translators Face and Strategies They Use in Translating Computer Terms from English into Arabic

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Abstract

The present study aimed to investigate the problems that Jordanian translators face in translating computer terms and the strategies they use in rendering them. Moreover, the study aimed to evaluate the effectiveness of the rendered computer terms into Arabic using these strategies. To achieve the above-mentioned objectives, the researcher raised the following three questions; what problems do Jordanian translators face in rendering computer terms into Arabic? What strategies do Jordanian translators use to overcome problems related to computer terms? How effective are the computer terms translated into Arabic? To answer the above questions, the researcher used two questionnaires and a test. A questionnaire and the test were given to 66 experienced translators to investigate the problems they encounter when rendering computer terms and the strategies they use to overcome the problem of equivalence. Another questionnaire was given to 100 computer users to investigate the degree of confusion they encounter when using translated computer terms into Arabic. The results showed that many Jordanian translators are unaware of when and how to use various strategies related to translating computer terms. This is because they lack the knowledge needed in the field of computer science, are unaware of the online resources of computer glossaries and dictionaries, and not mastering Arabic morphology which causes the confusion in translating computer terms. Furthermore, it is found that translating computer terms into Arabic needs institutional rather than individual work to have unified translations for computer terms. Moreover, borrowing and domestication prove that they are the most suitable strategies to overcome the lack of equivalence.

المشكلات التي يواجهها المترجمون الأردنيون والاستراتيجيات التي يستخدمونها في ترجمة مصطلحات الحاسوب من الإنجليزية إلى العربية

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مستخلص الدراسة

هدفت هذه الدراسة إلى معرفة المشكلات التي يواجهها المترجمون الأردنيون في ترجمة مصطلحات الحاسوب والاستراتيجيات التي يستخدمونها للتغلب على هذه المشكلات. كما هدفت الدراسة أيضاً إلى تقييم فاعلية المصطلح الذي يترجم باستخدام هذه الاستراتيجيات. ولتحقيق اهداف هذه الدراسة، طرح الباحث الأسئلة الثلاث التالية: ماهي المشكلات التي تواجه المترجمين الأردنيين عند ترجمة مصطلحات الحاسوب للعربية؟ ما هي الاستراتجيات التي يستخدمها المترجمون الأردنيون عند ترجمة مصطلحات الحاسوب؟ مامدى فاعلية مصطلحات الحاسوب المترجمة للعربية؟ وللإجابة عن هذه الأسئلة، استخدم الباحث استبيانيين واختبار. وقد أعطى الباحث استبياناً واختباراً لستٍ وستين مترجماً من أصحاب الخبرة في الترجمة للوقوف على المشكلات التي يواجهونها عند ترجمة مصطلح الحاسوب، والاستراتيجيات التي يستخدمونها للتغلب على مشكلة عدم وجود المكافئات اللغوية لهذه المصطلحات. وتم توزيع الاستبيان الآخر على مائة من مستخدمي الحاسوب للوقوف على المشكلات التي يواجهونها عند استخدام مصطلحات الحاسوب المترجمة للعربية. أظهرت النتائج أن كثيراً من المترجمين الأردنيين ليسوا على دراية كافية من حيث متى وكيف يستخدمون الاستراتيجيات المختلفة فيما يتعلق بترجمة مصطلح الحاسوب، ويعوز كثير منهم المعرفة اللازمة في حقل علوم الحاسوب المختلفة، وأن كثير منهم على غير دراية بوجود مصادر مختلفة من معاجم ومسارد خاصة بمصطلحات الحاسوب عبر الأنترنت، وأن كثيراً منهم غير متقن لنظام الصرف باللغة العربية مما يؤدي إلى ترجمة غير دقيقة لمصطلحات الحاسوب. وإضافة إلى ذلك، أظهرت النتائج أن ترجمة مصطلحات الحاسوب تحتاج إلى عمل مؤسسي بدلاً من العمل الفردي حتى يتوفر ترجمة موحدة لمصطلحات الحاسوب. وكذلك، أثبتت أن استراتيجيات الاستعارة والتعريب أفضل الاستراتيجيات للتغلب على مشكلة المكافئ اللغوي.

Chapter One

Introduction:

The increasing number of newly introduced disciplines of technology, medicine, engineering, chemistry, genetics…etc. puts various societies in front of a great challenge to meet the great demand of having these disciplines into their own languages, as using language in all aspects of life maintains it from shift or even death. However, the tendency for using these disciplines in universal languages, or as named 'lingua franca', does not serve these languages, and in turn their cultures, to keep alive in the long run.

Participating in the production process of these disciplines is the corner stone of having them in the participants' own language. Since various disciplines follow the naming conventions of their inventors or founders, it adds up to the difficulty of having these disciplines in languages other than their native ones. Nevertheless, it is not an option for many societies to participate in the production process; they need to have alternative options to have these various disciplines in their own languages, namely translation.

The early Islamic civilization depended highly on translation to pace through sciences, mainly physics, chemistry and medicine. It helped them

to participate in developing and adding up to these disciplines. They contributed largely to the scientific movement of the world. Their works are still read and studied in many of the reputed and prestigious universities of the world as they laid the basis of many of today's sciences. The '1001 inventions: Muslim Heritage in Our World' book and museum in London is solid evidence of the early Muslims contributions to the various disciplines of science and knowledge.

Translating the Muslim contributions into many languages was one of the factors that helped Europe in its revival and advancement. Many of the Manuscripts of the early Muslims are found in the British, German, and French Museums and libraries. These manuscripts are still read avidly by scientists who search for clues that can lead to new breakthroughs that may help in solving our present times problems.

In the Arab world there is a need for a new revival that helps us regain the place among other civilizations of this world; a revival that empowers the Arabs to be strong participants in the world's development. One of the suggestions to enable this revival to happen is to make foreign languages learning a policy in the educational systems of the Arab world; an idea which can be extremely dangerous on the situation of Arabic rather than to be useful. However, translation can be a suitable alternative for a new start, as it enriches the Arabic library with sources of different origins

and at the same time it helps in maintaining Arabic as first language choice of the Arab world.

Since computers become an integral part of most work and life disciplines across the world and particularly the Arab World, translating written works and terms related to them becomes a necessity. Nonetheless, the accelerated expansion process of computer technology and terms constitute a challenge to the field of translation to keep up with its progress. It is one of the fastest technologies in terms of development; there are new terms and concepts introduced every day. It is also a challenge to the users of this technology to identify and cope up with these terms.

Concepts and terms, whether in technology or any other discipline, constitute a dilemma to translators as they are, mostly, culturally connected to the source language, which may find no equivalence in the target language. Sometimes, they are related to fields and concepts that do not exist in the target language, which form another barrier to have them rendered in the target language.

However, as consumers, not producers, of computer technology, the Arab World faces a problem in rendering terms of such technology. In addition to the cultural aspect, computer terms are technically connected to the source language. Most of what is written about this technology is in

English or other languages. Further, the Arabic contribution to this field is so rare and of no great value, which forms another challenge for translators; the challenge of having the translated terms made popular and acceptable among the Arab users of computer technology, on both academic and technical levels.

Furthermore, there is the problem of the absence of institutional or official efforts to set the main guidelines across the Arab World. Scattered efforts based on individual views are not enough to revive this field of study. Standards and formal criteria governing and organizing translation efforts are urgently needed to provide translators with a well-defined vision for the future of translation in the Arab world, and suitable methods and strategies to be followed.

Translation becomes a discipline of study by itself; it has rules and tools, strategies and methods, theories and practices; it is an independent discipline that needs to be studied and mastered. It is not just knowledge of two different languages that makes someone able to translate; translators need to be aware of the techniques and strategies of translation.

1.1 Statement of the problem

In translating computer terms into Arabic, translators face the problem of not finding the suitable equivalence for these terms. Moreover,

many translators do not follow unified strategies in rendering and publishing computer terms, which result in avoiding using the Arabic equivalence, and opting for the original English terms in most cases.

1.2 Objectives of the study

This study aimed to investigate the problems and obstacles that Jordanian translators face in rendering computer terms. In addition, it aimed to investigate the strategies that are used by Jordanian translators in rendering computer terms. Moreover, the study aimed to evaluate the effectiveness of the rendered computer terms into Arabic.

1.3 Questions of the study

To achieve the above-mentioned objectives, the researcher tried to answer the following questions:

1- What problems do Jordanian translators face in rendering computer terms into Arabic?

2- What strategies do Jordanian translators use to overcome problems related to computer terms?

3- How effective are the computer terms translated into Arabic?

1.4 Significance of the study

As a result of the shortage of studies in this field, this study attempted to investigate some problems that translators encounter in rendering computer terminology. It shed light on the most problematic issues that encounter translators or computer users in the pan-Arab World to have well-translated terms. Thus, it is important because it might help in developing a strategy for translating computer terms into Arabic. Finally, it is hoped that this study will fill a gap in the computer terminology translation research and pave the way for further studies.

1.5 Limitations of the study

Results of the study cannot be generalized to the entire translation situation in the Arab World. There is a wide variety of terms and problems that the researcher cannot deal with due to the limited time and resources available to the researcher. The results are limited to the sample of the study and the instruments of the study which are not standardized.

1.6 Limits of the study

This study was conducted in Middle East University, Islamic Educational College, Princess Sumia University, and Jordan

Telecommunication Corporation in Amman, Jordan during the Academic year 2012 – 2013.

1.7 Definition of terms

Computer terms: are theoretically defined as technical words or expressions that are used in computer sciences. However, the operational definition of computer terms is the phrases, words, and contractions related to computer technology and all related fields; internet, information technology, hardware, programming, graphic design and many other relevant aspects.

Translation strategies: are theoretically defined as the translators' global approach or plan of action on a given text, according to their intention. However, the operational definition of translation strategies is the potentially conscious plans to solve problems of reaching a particular translation goal, such as, paraphrasing, approximation, borrowing, ellipsis, elaboration and explication, compensation, and domestication.

Chapter Two

Review of related literature

2.1 Review of theoretical literature

Newmark (1988) defines translation as “rendering the meaning of a text into another language in the way that the author intended the text”. (p.5) However he does not consider the fact that this process of transferring the meaning from the source language (SL) into the target language (TL) can affect the original meaning as a result of finding the adequate equivalence problem and how translators become so keen on transferring as many words as possible. He asserts that the key factor of the translator to be successful in rendering the meaning properly is not only his knowledge of the subject or the foreign language, but also being sensitive to language and the ability “to write his own language dexterously, clearly, economically and resourcefully.” (p.5)

He also adds that the competency of translating text is related to the nature of translation fields. He states that there are “three main areas of translation: (a) science and technology, (b) social, economic and/or political topics and institutions, and (c) literary and philosophical works”.

(p.152) By drawing this dividing line, he tries to show that the artistic works that are related to literary and philosophical area are the most difficult works to be rendered into the target language as they are culturally and linguistically bounded to the source language. However, he concludes that technical translation, which is related to science and technology, is "a non-cultural process as it is not confined to one particular community". (p.151)

The interdisciplinary nature of translation reflects the complication that any translator may go through; it is not just the knowledge of language or a certain field, but it is the skill to handle various texts of various fields to deliver information, mood and form. In this respect, Holmes (2000) reports that:

> the subject of translation has enjoyed a marked and constant increase in interest on the part of scholars in recent years, with the Second World War as a kind of turning point. As this interest has solidified and expanded, more and more scholars have moved into the field, particularly from the adjacent fields of linguistics, linguistic philosophy, and literary studies, but also from such seemingly more remote disciplines as information theory, logic, and mathematics, each of them carrying with him paradigms, quasi-paradigms, models, and methodologies that he felt could be brought to bear on this new problem. (p. 173)

Nord (2006) maintains that "the translation purpose determines the choice, method and strategy" (p. 142) for this reason the need for well-defined methods, procedures and strategies of translation becomes a vital

necessity. Translating strategies could vary according to the type and nature of the text in a way that reflects the dynamic nature of translation. Translators need to adopt various strategies that meet the requirements of various texts they render.

Krings (1986) defines translation strategy as "translator's potentially conscious plans for solving concrete translation problems in the framework of a concrete translation task," (p.18) this definition asserts the fact that strategies could be built by individual translators and be adopted by others. Though it can be misleading and problematic, it contributes to the development of translation strategies as well as general guidelines are followed.

Jaaskelainen (1999) defines strategy as, "a series of competencies, a set of steps or processes that favor the acquisition, storage, and/or utilization of information." She maintains that "strategies are heuristic and flexible in nature, and their adoption implies a decision influenced by amendments in the translator's objectives." (p.71)

Jaaskelainen (2005) divides strategies into two major categories according to their nature; she states that some strategies relate to what happens to texts; where the focus is on the final production, while other strategies relate to what happens in the process. She explains that product-

related strategies involve the basic tasks of choosing the SL text and developing a method to translate it. On the other hand, she clarifies that "process-related strategies are a set of (loosely formulated) rules or principles which a translator uses to reach the goals determined by the translating situation" (p.16). She categorizes them into two types, global strategies and local strategies: "global strategies refer to general principles and modes of action and local strategies refer to specific activities in relation to the translator's problem-solving and decision-making" (p.16).

Newmark (1988) states that the central problem of translating has always been whether to translate literally or freely. He emphasizes that "this argument has been going on since at least the first century BC up to the beginning of the nineteenth century," (p.45). He compares those writers who favoured some kind of free translation; "where translation reflects the spirit not the letter; the sense not the words; the message rather than the form; the matter not the manner" and those who found "the linguistic barriers were insuperable and that language was entirely the product of culture, the view that translation was impossible gained some currency, and with it that, if attempted at all, it must be as literal as possible." (p.45) He illustrates the argument of free and literal translations on basis of emphasis with his famous flattened V diagram:

SL emphasis TL emphasis

Word-for-word translation	Adaptation
Literal translation	Free translation
Faithful translation	Idiomatic translation
Semantic translation	Communicative translation

He differentiates translation methods and translation procedures. He states that, "While translation methods relate to whole texts, translation procedures are used for sentences and the smaller units of language" (p.81). To make it clearer, he introduces the most commonly used methods of translation which are word-for-word translation, literal translation, faithful translation, semantic translation, adaptation, free translation, idiomatic translation, communicative translation.

On the other hand, he goes further to discuss those procedures whose use always depends on a variety of contextual factors. These contextual factors need different translation procedures to handle, of these procedures he suggests, transference, naturalization, cultural equivalent, functional equivalent, descriptive equivalent, componential analysis, synonymy, through-translation, shifts or transpositions, modulation, recognized translation, compensation, paraphrase, couplets, notes.

Furthermore, he distinguishes technical translation from other forms of translation. Technical translation is primarily distinguished by terminology and does not include emotive language, connotations, sound effects, and metaphors. This makes technical text sound simpler to be

rendered; however, the reality is that it is not. New terms are almost the central difficulty in technical translation mainly when they are relatively context-free and appear only once, which adds up to their ambiguity.

Byrne (2006) finds it difficult to know where to begin to situate technical translation within a theoretical framework, taking in consideration the shockingly problematic diverse range of approaches, models, rules and theories. He illustrates this complexity by quoting Savory, who compiled a list of contradicted “rules” of translation from a variety of “authoritative” sources on translation. These rules state that a translation: must give the words of the original and the ideas of the original, should read like an original text and should read like a translation, should reflect the style of the original and possess the style of the original, should read as a contemporary of the original and should read as a contemporary of the translation, may add to or omit from the original, may never add to or omit from the original. Though these rules of a contradictory nature and at times puzzling, they cannot be dismissed completely since each one will find appropriate application in a specific translation context. He states that "the challenge for technical communicators is to ensure that all of the relevant information is indeed conveyed in such a way that the readers can use the information easily, properly and effectively." (p.10)

For this reason, to understand the nature of technical translation, translators should be familiar with the nature of technical writing. In this respect, Dobrin (1989) explains that “technical writing adapts technology to the user” (p.247) Nonetheless, Markel (2003) says that "technical communication is not meant to express a writer’s creativity or to entertain readers; it is intended to help readers learn or do something." (p.8)

Moreover, Byrne (2006) goes further to show that technical writing needs to be evolved with illustrations to be understandable. This makes it a part of a technical document which is "a collaborative process" that cannot be accomplished by only one person, as he states:

> In producing technical documentation, it is rare for just one person to be responsible for the entire process. Technical communication is a collaborative process involving technical writers, illustrators, editors, subject matter experts (SMEs; pronounced “smee”), designers, illustrators, usability specialists and, of course, translators. (p. 49)

He also summarises the characterisitcs of technical documents as follows: a) technical documentation always addresses specific readers; taking into account the age profile, job, experience, knowledge, seniority, tasks, problems, aims and objectives. The content, approach, structure, level of detail, style, terminology etc. are all tailored to this profile, b) Technical documents help readers solve problems, c) it is a collaborative

process, d) it uses design to improve the appearance and readability of documents.

Understanding the nature of technical documents along with the linguistic variations of these documents can be helpful for translators to translate them effectively. On the level of the linguistic variation, Byrne (2006) refers to a number of factors that determine the clarity and effectiveness of the technical text, of these factors, the word choice; namely the use of jargons, euphemisms, and neologisms.

Mancuso (1990) defines jargons as "specilazed terminology used by a specific disicipline. They are essential to avoid ambiguity and to accurately communicate ideas and concepts." (p.191) He asserts that as well as it is essential to use terminology (jargon) to avoid ambiguity, they should be properly identified.

Martin & Van der Vliet (2003) define terms as “linguistic expressions of concepts which are typically used within a particular knowledge domain, by particular members of the linguistic community, and in particular situations.” (p.71)

Longman Dictionary (2009) defines the word term as originally a Medieval Latin word, terminus, which refers to technical words or expressions that are used in a particular subject such as computer terms,

musical terms, and medical terms, however, the word terminology refers to the study of terms and their use in different disciplines.

Euphemisms, according to Byrne (2006):

> are figures of speech which are used to describe things using milder, less unpleasant terms. They are generally used to soften or lessen the impact of harsh or unpleasant words or ideas. Euphemisms are frequently longer words or phrases and their meaning or relation to the actual object or action being referred to is less than obvious. (p.86)

Neologism, according to Levchenko (2010):

> is a newly coined term, word, or phrase, that may be in the process of entering common use, but has not yet been accepted into mainstream language. Neologisms are often directly attributable to a specific person, publication, period, or event. (p.11)

UNESCO (2005) differentiates linguistically general-purpose language (GPL – or everyday language) from special purpose language (SPL – or specialized language). SPL covers the various domain communities, which are engaged in a subject-field or other kind of expertise. Members of these communities generally agree on their own linguistic conventions, which do not necessarily conform fully to GPL conventions. Since modern society is strongly under the influence of scientific-technical development, SPLs are increasingly having a strong impact on the development of the respective GPL. Moreover, it acknowledges that terminology is undeniably the major constituting

element of SPL as it plays a crucial role wherever and whenever domain-specific information and knowledge is generated. This appears clearly in research and development, recorded and processed databases, training and teaching, technology and knowledge transfer; translated or interpreted.

As there is a wide variety of disciplines and subjects emerging nowadays, the need for more terminology becomes a reality that cannot be avoided. According to Hartley (2008), terms are estimated by millions of words:

> A corpus which has been a model for much development in the field is the British National Corpus (BNC), which consists of 100 million words of contemporary written and spoken English covering a range of domains and genres. (p.106)

He also states that translators all over the world take care of about 1.5 billion words annually for more than 500 products in over 30 languages, with the requirement that the different language versions be released simultaneously, which adds up to the complexity of handling terminology properly.

For this reason, finding the ‘proper equivalence’ for terms in any technical text when being translated is a dilemma for the majority of translators. Computer terms, which form a big proportion of technical terms, cause headache to translators when being translated into Arabic as a result of the lack of proper equivalence. They are of a large diversity that

covers many subdivisions such as general computer terms, hardware terms, graphic terms, animation terms, programming terms, interface terms, Internet terms…etc. Johnsson (2012) maintains that computer-related terminology fields grow rapidly and new terms see the light almost every week.

For this purpose 'Terminology Management and Planning' is introduced as a new independent field of knowledge concerned with the expanded terminology development. TermNet (2012) explains that:

> This field is found to improve the clarity of information and reduce its ambiguity, thereby expediting all types of information exchange; it helps translating technical terminology into various languages, finding mono- and multi-lingual company-specific product nomenclature, creating accurate definitions for legal requirements and pushing forward standardization. (What is Terminology, 2012)

Today, Arabic is one of the official languages of the United Nations and, at the same time, English is not restricted to the English people anymore. In this respect, Swales (1984) states that:

> We can now see Arab professional communities (in both public and private sectors) as prime users of English as the main language of wider international communication, and nowhere more obviously in the Arab and Japanese businessmen conducting their business through the medium of English. (p.11)

He maintains that the Arab World is a large consumer of science and technology due to the richness of its geographical area. Of course,

computer technology is an essential part of science and technology, needed everywhere due to globalization, as the whole world has become a small village.

On the other hand, Renner (1998) argues that Arabic is not coping with new linguistic developments necessary for processing computer advancement and creating electronic computer repertoire of technical and semi-technical vocabulary. It is because of these circumstances that Arabic has become imbalanced when it comes to technical texts rendered from modern languages such as English into Arabic. Therefore, rendering technical texts from English into Arabic becomes extremely difficult because doing so requires not only cultural similarities between the source language and the target language, but also the two languages must be equally served in terms of technical vocabulary and structures.

Redawi (1999) asserts that it is because of the new circumstances, a translator, whether beginner or advanced, needs to be highly educated and qualified to cope with these conditions. Whether the translator accepts it or not, he will find himself working with information technology, including translating instructional manuals or booklets written in English, translating computer technical terms or even translating for big companies through the internet.

Although Arabic language is one of the old languages of the world, it suffers a lot nowadays as not being technically served. This can be one of the main reasons that delay the translation process of many terms related to computer in particular and to various types of technology in general. As a derivative language, Arabic can produce the right equivalences for various terms whether in technology or any other field of study when it comes to translation.

2.2 Review of empirical literature

Awawdeh (1990) attempted to identify major problems that translators may confront when translating a scientific – technical text from English as a source language into Arabic as a target language. He also tried to suggest some guidelines to handle these problems and establish principles and rules for translating scientific – technical texts. Through means of analysis for 26 translated texts from English into Arabic, representing various disciplines, and comparison of Arabic and European technical writing characteristics, the study come up with the broad categories of problems, such as, lexical problems, syntactic problems, morphological problems, cultural problems, metaphorical problems, and cohesive problems. Furthermore, he suggested a number of ways to deal with these problems, such as emphasizing the translator's competency and

standardizing scientific terminology on the national and regional levels. He also asserted that it is an institutional rather than an individual work.

Hussein & Zughoul (1993) investigated the extent to which Arabic journalistic writing depended on foreign borrowing, particularly on the lexical level, especially from English or through English. They extracted the loanwords in a sample of newspaper issues published in Jordan to establish a semi-exhaustive inventory of these borrowings. They established a frequency count of each of the borrowed items as to the number of occurrences in the body of the newspaper as well as in the announcements and advertisements. Then they analyzed the data linguistically on the basis of phonological, morphological and semantic changes that loanwords had undergone in the process of assimilation to the structure of Arabic. They found that the use of loanwords varied in frequency and scope from one domain to another. The structure of Arabic integrated these loanwords on the phonological and morphological levels. However, the loanwords underwent the processes of restriction, expansion, communization, and shift semantically. They identified about fifteen domains where loanwords were used. Those loanwords covered technology, industry, commerce, equipment, products, sports, art, finance and others. In technology-general domain they concluded that Arabic, as a language of consumers for western technology, borrowed most of the items

along with their designations. Of these loanwords, they mentioned (computer, BASIC, COBOL, FORTRAN, telex, teleprinter, facsimile, satellite, laser, disk, video, microfilm, and telecom).

Khuwaileh (2011) conducted a research on computer linguistic terms used wrongly or vaguely by Arab computer users in academic institutions and by English-Arabic translators. To serve the purpose of this research, the researcher inserted and contextualized a number of computer linguistic terms in texts or contexts. The terms were heavily used in word processors or statistical packages. Five translators were requested to translate those texts. Simultaneously, the researcher reviewed the computer books taught in two Arab countries, Jordan and the UAE, as these countries have witnessed good educational developments. After filtering out the translators' products from English into Arabic and after investigating the computer terminologies, the researcher found that many computer terms are problematic. He classified the types of problematic vocabulary items and then tabulated them under four categories: the vague, inaccurate, unchangeable and statistical ones. The researcher also found that those problematic words were difficult to translate because of the Arabic culture or the inefficiency of English Arabic Bilingual dictionaries.

Halloush (2000) examined the acceptability of the Arabicized medical terms by physicians and medical students and evaluated the efforts of the Academy of the Arabic Language in Jordan in the Arabicization of medical terms. Moreover, she investigated the problems that faced the process of Arabicizing medical terms, and presented several recommendations and possible solutions for these problems. She developed a questionnaire to investigate the different aspects of the study. She circulated the questionnaire to a sample of 100 recipients of physicians and concluded that:

1- The extent of acceptability of Arabicized medical terms is very low.
2- Most physicians and students of medicine in Jordan are not prepared yet under the current circumstances to accept and adopt Arabicized medical terms regardless of the physician's degree of specialty, place of work, gender, or language of education.
3- Most of physicians in Jordan call for a fundamental change in the current mechanism in which the Academy conducts its work as well as the attributes of Arabicized medical terms published by the Academy.

Gauton, Taljard & De Schryver (2003) proposed that the single biggest problem that translators who translate from a language such as English into the African languages had to contend with the lack of terminology in the African languages in the majority of specialist subject fields. The researcher undertook a preliminary study to compare and analyze the various translation strategies utilized by African-language translators in finding suitable translation equivalents for English terms foreign to the African languages. To this end, a multilingual corpus of ten parallel texts in all eleven of the official South African languages was studied. These parallel texts had been collected from the Internet. The combined size for all eleven parallel corpora was 348,467 running words, or nearly 32,000 words on average per language. The researcher found that although the number of keywords thrown up semi-automatically differed from language to language, there was a good correlation across the parallel corpora between the terms obtained in that manner. Moreover, the researcher found that the following translation strategies utilized by various translators. First, translation by means of loanwords with English spelling was retained. Such words were not transliterated, i.e. nativised in the sense that their phonology was adapted to reflect the phonological system of the borrowing language. Second, there was term formation through transliteration; as new scientific and technical terms were formed via a

process of transliteration by adapting the phonological structure of the loanword to the sound system of the borrowing language.

Suwais (2005) investigated the problem of IT translated terms into Arabic which can be vague, incomprehensible, and misleading. For the purposes of her study she set three objectives represented in identifying some problems in terminology translation from English into Arabic in the field of IT that may affect the quality of translation, discussing the main strategies (borrowing, loanwords, loan blends, and transliteration) used to translate information technology terms from Arabic into English, and identifying terminology that includes metaphors or other figures of speech, determining whether these metaphors are or are not maintained in Arabic translation. To achieve the objectives of the study, she designed a questionnaire which included 67 IT terms collected from various computer science and information technology sources. The terms were left in their original contexts and distributed to fourth year IT and MA translation students at Yarmouk University and to people specialized in computer engineering to translate. The analysis of the subjects' translations revealed that translators faced many problems in determining the accurate translation for each term. These problems included mistranslation, multiplicity, paraphrase and no translation. The analysis also showed that only 25.2% of the translations were correct while 74.8% were incorrect.

However, to render the given IT terms into Arabic, the subjects used different translation techniques which included transliteration, borrowing, loan translation and loan blends.

Balfaqeeh (2009), however, examined the openness of the Arab readers to other cultures, and how they became more interested in reading translated books within the sub-genre of technical texts. This type of genre is full of idioms and culturally-bound expressions that need to be carefully translated into Arabic. This research aimed to investigate translation strategies that were more acceptable to the readers: domesticated or foreignized strategies. The researcher adopted qualitative methods implemented in pair-in-depth interviews and a quantitative survey. The survey's questionnaire was developed on the basis of an observation of data collected from different books. The results showed that domesticated translation strategies were more acceptable to Arab readers. Moreover, Arab readers cared more about the core message and appreciated translated idioms and cultural expressions using Arabic equivalents, though literal translation and deletion gained minor preferences.

Alomoush & Al Faqara (2010) investigated the increasing spread of English loanwords into Jordanian Arabic vocabulary, especially among the young generation. They reported the findings of 334 English loanwords

into Jordanian Arabic and considered their implications for theories of loanword adaptation, reporting phonological, morphological and semantic adaptations of English loanwords. They showed that in most cases, the integration of English loanwords into the phonological and morphological systems of Arabic / Jordanian Arabic. Semantically, lexical borrowings were either extended or restricted in meaning.

Janulevičienė & Rackevičienė (2011) conducted a study to examine contemporary research in the legal terminology translation strategies. For this end they analysed and compared the translation strategies employed by the compilers of two English-Lithuanian and one English-Norwegian law dictionaries in translation of the English-Welsh law terms. They found that most legal terms were to be ascribed to the category of "culture bound-terms" and did not have straightforward equivalents in target language; therefore, their translation posed special challenges to the dictionary compilers. Their research led to the following conclusions: 1) The Lithuanian translators used formal or descriptive equivalents for the translation of the terms defining the specific English-Welsh law concepts. 2) Linguistically adapted borrowings and formal and descriptive equivalents 3) The Lithuanian dictionaries gave formal equivalents for all analyzed English-Welsh court names. The Norwegian dictionary, on the

other hand, presented more types of equivalents - formal, partial functional, descriptive equivalents and a borrowing in original form. 4) The results showed that the Norwegian translator used much more functional equivalents though they only partly revealed the meaning of the English terms. The Lithuanian translators preferred formal and descriptive equivalents. 5) Both the Lithuanian and Norwegian translators used explanations, but not in all cases. The analysis proved that, whichever translation strategy was used, the explanatory notes were very important supplementary translation means as they highlighted some semantic aspects of the terms which could not be revealed by equivalents.

In the light of the above mentioned theories and studies, the researcher investigated the problems which Jordanian translators faced when rendering computer terms, and to what extent these problems hinder the translation efforts and prevent the translation of computer terms into Arabic. The researcher, also, investigated the strategies which were already used by Jordanian translators and how effective these strategies were. By means of comparison, analysis, survey, and testing, the researcher figured out his results and reached recommendations that may help in adopting effective strategies that may reduce the number of obstacles of having computer terms translated into Arabic.

Chapter Three

Methods and Procedures

This chapter presents the methodology and the procedures followed in this study. It describes the population and the sample of the study and the instruments used along with their validity and reliability. Finally, it describes the procedures followed by the researcher throughout the study.

3.1 Population and sample of the study

The population of the current study is Jordanian computer users and computer terms translators. A sample of 100 computer users and 66 translators was selected purposively on the basis of availability and convenience and from various academic and working areas.

The sample of the current study involved respondents of computer users. They covered different demographic variables such as gender, age, occupation, level of education, type of school attended, and professional background. They also demonstrated the purposes they use computers for; whether work, study, or entertainment, and which language they actually

use or prefer to use computers with, as shown in Table (1) and Table (2) below.

Table (1)

Computer user' demographic information							
Age categories		Gender		Education		Computer use	
Age	%	Male	Female	Level	%	Type	%
18 - 22	45%	72%	28%	S. S	6%	study	34.1%
23 - 30	18%			diplomas	10%	work	33.6%
31 - 40	23%			bachelors	39%		
41 - 65	14%			post graduates	15%	entertainment	32.1%

Table Key: S.S = secondary school, Type = type of use

Table (2)

Using computer information										
Language computer used in	**Computer skills level**					**English language level**			**Language preference**	
	Professional	Good	Undecided	Average	Weak	Beginner	Intermediate	Advanced	Arabic	English
Arabic	**2**	**9**	**--**	**1**	**--**	**3**	**9**	**--**	**12**	**--**
English	**29**	**56**	**1**	**2**	**--**	**9**	**58**	**21**	**2**	**86**

The sample of the study included translators who covered different demographic variables such as level of education, type of translating job (full-time or freelance), field of translation, years of experience, computer competency and command of Arabic language, as shown in Table (3) below:

Table (3)

Translators' demographic information												
Job Type		Field		Education			Computer Competency			Arabic L. Level		
Full-time	freelance	Other	General	Diploma	Graduate	Post Graduate	Excellent	Good	Weak	Excellent	Good	Acceptable
68%	32%	0%	100%	23%	45%	32%	55%	45%	--	68%	22%	10%

3.2 The instruments of the study:

For the purposes of this study, the researcher used three instruments, two questionnaires and a translation test. For the purposes of gathering information related to translated-computer terms into Arabic, the researcher interviewed computer users of various backgrounds and levels of expertise. Then, the researcher designed a questionnaire which was created specifically to investigate the effectiveness of computer terms translated into Arabic, and what problems these computer users face when dealing with them.

At the same time, the researcher designed another questionnaire to investigate the problems translators face when translating computer terms into Arabic. The researcher also designed a translation test for the same translators who responded to the questionnaire to analyze the various strategies they followed and problems they faced in practice. However, only forty five translators of the selected sample agreed to complete the test.

3.2.1 Computer users' Questionnaire

The researcher designed a questionnaire for computer users which was created specifically to investigate the effectiveness of computer terms translated into Arabic. It also included variables such as the purposes of using computers, whether for work, study, or entertainment, and which language they use and prefer to use computers with.

The questionnaire included variables that were set to answer the third question of this study; "how effective are the strategies followed by Arab translators in rendering computer terms?" Statements (4, 6, 8, 11, 13, 15, 16, 17, 18, and 19) investigated the degree of confusion that may result from translating various computer terms. However, statements (1, 2, 3 and 12) investigated the need for standard glossary of computer terms. However, statements (5, 7, 9, 10 and 14) investigated the level of Arabic

language needed to be used in rendering computer terms. The above mentioned 19 statements covered the major areas needed for the purpose of this study.

The questionnaire was distributed to 100 participants who were selected randomly of various working and studying areas. All the copies were retained from the participants who showed interest and enthusiasm to participate in the study.

3.2.2 Translators' Questionnaire

The researcher also, designed a questionnaire for translators that was created specifically to investigate the problems that Jordanian translators face in rendering computer terms into Arabic.

The questionnaire included statements that were set to answer the first question of this study; what problems do Jordanian translators face in rendering computer terms into Arabic? Statements (1, 3, 4, 5, 7, 8, 9, 16, and 18) investigated the translators' awareness of various strategies that could be applied to translate computer terms. However, statements (2, 11, 14, and 15) investigated translators' access for various resources on the Internet. However, statements (6 and 13) investigated translators' competency of computer terms. Finally, statements (12 and 19) investigated the translators' awareness of the importance of mastering the

written formal Arabic. The above mentioned 19 statements covered the major areas needed for the purposes of this study.

3.2.3 Translation test

Furthermore, the researcher conducted a test for professional translators in order to investigate various strategies they followed to overcome problems they faced when translating computer terms into Arabic. For the purposes of this instrument, the researcher analyzed five glossaries of computer terms translated into Arabic. Then, out of 3000 terms which were put in a list, the researcher selected 40 terms randomly to design the test. After that, the researcher introduced the selected terms to translators in authentic contexts as they appear in technical writings found in the help sections of various applications and programs, such as programming, graphic design, Internet, and interface applications and embedded them into the test. The test included only 19 statements with terms embedded in them. The translators were given time and freedom to access various resources via the Internet to translate these sentences. They were put in the same conditions they have while doing the same task in real life. They were allowed to take the test back home or to office and return it the second day. Some of the tests were sent and retained through email to certain translators as a matter of convenience.

3.3 Validity of the instrument

To insure the validity of the questionnaire, university professors, who have teaching experience in linguistics and translation, were requested to determine the face and the content validity of the questionnaire. The referees committee is listed in Appendix (2).

The professors were asked to provide their comments, notes and recommendations on the appropriateness of the questions. The professors were responsive and provided the researcher with valuable suggestions and recommendations which were taken in consideration in the final version of the questionnaire by adding, deleting and substituting some items.

The instruments of the study were reviewed by the researcher and his supervisor to finalize the wording of the statements so as to answer the questions of the study.

However, professor Bader Dweik suggested that there should be an Arabic translation for the computer users' questionnaire as it would be presented to respondents who are native speakers of Arabic to ensure their understanding of the different statements of the questionnaire, and it was taken in consideration. In addition, he suggested rating the answers for the "How skillful are you in using computers?" question on the first page, to make it easier for the respondents to evaluate themselves. He also,

suggested reducing the answer choices of the "What is your level of English Language?" question into three choices, advanced, intermediate, and beginner, rather than five choices, which had been advanced, upper-intermediate, intermediate, pre-intermediate and beginner. This suggestion was agreed upon by three other referees and was thus incorporated in the final version of the questionnaire.

Dr. Wajeeh Abdullrahman, and Professor Bader Dweik commented on some word choices and suggested replacing them with more accurate and formal ones; of these, the word 'silly' in statement number 5 was replaced by the word 'absurd', the word 'makes' with the phrase 'leads to', the word "سخيفة" with the word "مستهجنة", and the phrase "بشكل دقيق" with the phrase "إشارة دقيقة". Professor Riyad Hussein, also, recommended reconsidering statement number eight of the computer users' questionnaire, as it involved some ambiguity, and statement number nine of the translators' questionnaire, as they objected to the expression of "classical Arabic" and recommended replacing it by "standard Arabic". However, the fundamental comment on the test by professor Riyad Hussein was to reduce the number of terms to be translated from 100 into 40, a suggestion that was considered by the researcher in the final version of the questionnaire.

3.4 Reliability of the instrument

For the purpose of achieving a high degree of reliability of the instrument, it was determined by means of test – retest.

3.5 Research design

3.5.1 Data collection and statistical analysis

Three instruments were used to collect data for this study, two questionnaires and a translation test.

In the first questionnaire, the participants were asked to provide some demographic data related to their work as translators, and to answer a five-point Likert scale, to show the degree of agreement to the provided statements. The questionnaire was analyzed according to four dimensions related to the degree of awareness of translation strategies, awareness of translation resources on the Internet, competency in computer science, and awareness of mastering written Arabic. The results were presented in simple tables of frequencies and percentages.

In the translation test, participants were asked to translate 40 computer terms which were inserted in nineteen sentences. The test was analyzed to find out what strategies were used to render each term, and whether the provided translations perform the meaning in the TL or not.

The results of the translation test were presented in simple tables showing the different translations of each term and the frequency of each translation strategy.

In the second questionnaire, the participants were asked to provide some demographic data related to them as computer users, and to answer a five-point Likert scale, to show the degree of agreement to the provided statements. The questionnaire was analyzed according to three dimensions related to the degree of confusion they find when dealing with translated computer terms into Arabic. The results were presented in simple tables that include frequencies and percentages.

3.5 Procedures of the study

The researcher went through the following steps in conducting this research:

1. Reading a number of previous studies that were related to translation, translation strategies and techniques, terminology, and computer terminology.
2. Setting forth the research questions which utilized readings from previous studies.
3. Preparing the questionnaires; one for computer users and the other for translators.

4. Designing a test for translators.
5. The validity of the instrument was achieved by asking university professors who have teaching experience of linguistics and translation to determine the face and the content validity of the questionnaire.
6. A test – retest procedure was conducted to determine the reliability of the instrument.
7. A letter of permission was obtained from the Middle East University to facilitate and give assistance to the researcher.
8. The questionnaires were distributed by the researcher in addition to a covering letter which explained the purpose of the study and the official approval to carry out this study.
9. The raw data, which were taken from the questionnaires, were recorded, analyzed, and interpreted.
10. The researcher interpreted the data, discussed the results, gave logical explanations for them, and compared the results of this study with the results of other studies by referring to previous literature and indicating with whom the results agreed or disagreed.
11. The main conclusions drawn from the findings were presented very briefly and simply.
12. The researcher presented some recommendations for further studies.
13. References were listed according to APA style.

14. Appendixes were attached at the end of the thesis.

Chapter Four

Results of the study

4.0 Introduction:

This chapter, which is divided into three major sections, presents the results of the study. Each section is devoted to one of the three research questions which are:

1- What problems do Jordanian translators face in rendering computer terms into Arabic?

2- What strategies do Jordanian translators use to overcome problems related to computer terms?

3- How effective are the computer terms translated into Arabic?

4.1 Results related to the first question:

The first question of the study "What problems do Jordanian translators face in rendering computer terms into Arabic?" results are presented in Table (4), Table (5), Table (6), Table (7), and Table (8).

Results of the 'The Problems Translators Face in Translating Computer Terms Questionnaire' were analyzed within the following four dimensions:

4.1.1 Translators' awareness of various strategies that could be applied to translate computer terms.

The translators' degree of awareness of various strategies is represented in statements (1, 3, 4, 5, 7, 8, 9, 16, and 18) of the questionnaire.

Table (4)

Respondents' awareness of various strategies to translate computer terms				
	Statements	**Agree**	**Neutral**	**Disagree**
1	Many computer terms cannot be translated into Arabic.	86.3%	0%	13.6%
3	Having a unified glossary of computer terms translated into Arabic helps in reducing confusion.	63.6%	27.2%	9%
4	Using loan words is better than translating terms into Arabic.	59%	9%	31.8%
5	Terms that are coined according to their function are easy to translate.	77.2%	18.1%	4.5%
7	It is easy to find equivalence in Arabic for computer terms.	18.1%	9%	72.7%
8	It is more appropriate to use functional equivalence rather than cultural equivalence.	77.2%	4.5%	18.1%
9	I use descriptive equivalence when I don't find the appropriate equivalence.	63.6%	36.3%	0%
16	Naturalization is an appropriate method of translating computer terms.	90.9%	4.5%	4.5%
18	I find difficulty in handling acronyms related to computer terms.	59%	27.2%	13.6%

Responses to the first statement show that while 86.3% of the respondents agreed that many computer terms cannot be translated into Arabic, 13.6% of them disagreed. However, none of the respondents were neutral.

Responses to the third statement show that while 63.6% of the respondents agreed that having a unified glossary of computer terms translated into Arabic helps in reducing confusion, 9% of them disagreed. However, 27.2% of the respondents were neutral.

Responses to the fourth statement show that while 59% of the respondents agreed that using loan words is better than translating terms into Arabic, 31.8% of them disagreed. However, 9% of the respondents were neutral.

Responses to the fifth statement show that while 77.2% of the respondents agreed that terms that are coined according to their function are easy to translate, 4.5% of them disagreed. However, 18.1% of the respondents were neutral.

Responses to the seventh statement show that while 18.1% of the respondents agreed that it is easy to find equivalence in Arabic for computer terms, 72.7% of them disagreed. However, 9% of the respondents were neutral.

Responses to the eighth statement show that while 77.2% of the respondents agreed that it is more appropriate to use functional equivalence rather than cultural equivalence, 18.1% of them disagreed. However, 4.5% of the respondents were neutral.

Responses to the ninth statement show that while 63.6% of the respondents agreed that compensation can be a suitable solution when there is no appropriate equivalence, none of them disagreed. However, 36.3% of the respondents were neutral.

Responses to the sixteenth statement show that while 90.9% of the respondents agreed that naturalization is an appropriate method of translating computer terms, 4.5% of them disagreed. However, 4.5% of the respondents were neutral.

Responses to the eighteenth statement show that while 59% of the respondents agreed that there is difficulty in translating acronyms related to computer terms, 13.6% of them disagreed. However, 27.2% of the respondents were neutral.

4.1.2 Translators' awareness of various resources, mainly dictionaries and glossaries of computer terms on the Internet.

The translators' degree of awareness of various resources, mainly dictionaries and glossaries of computer terms on the Internet are represented in statements (2, 11, 14, and 15) of the questionnaire.

Responses to the second statement show that while 36.3% of the respondents agreed that a unified glossary of computer terms translated into Arabic is available, 22.7% of them disagreed. However, 40.9% of the respondents were neutral.

Responses to the eleventh statement show that while 45.4% of the respondents agreed that glossaries of computer terms on the Internet give only one translation for the same term, 22.7% of them disagreed. However, 31.8% of the respondents were neutral.

Table (5)

Respondents' awareness of various resources on the internet				
	Statements	**Agree**	**Neutral**	**Disagree**
2	A unified glossary of computer terms translated into Arabic is available.	36.3%	22.7%	40.9%
11	Glossaries of computer terms on the Internet give only one translation for the same term.	45.4%	31.8%	22.7%
14	I find it difficult to have specialized dictionaries handling computer terms.	40.9%	27.2%	27.2%
15	There are many glossaries for computer terms translated into Arabic on the Internet.	45.4%	40.9%	13.6%

Responses to the fourteenth statement show that while 40.9% of the respondents agreed that it is difficult to have specialized dictionaries handling computer terms, 27.2% of them disagreed. However, 27.2% of the respondents were neutral.

Responses to the fifteenth statement show that while 45.4% of the respondents agreed that there are many glossaries for computer terms

translated into Arabic on the Internet, only 13.6% of them disagreed. However, 40.9% of the respondents were neutral.

4.1.3 Translators' competency of handling computer terms.

The translators' degree of competency of computer terms is represented in statements (6 and 13) of the Questionnaire.

Responses to the sixth statement show that while 77.2% of the respondents agreed that different terms referring to the same function with different applications cause a problem in translating them, 13.6% of them disagreed. However, 9% of the respondents were neutral.

Table (6)

Respondents' Competency in Handling Computer Terms				
	Statements	**Agree**	**Neutral**	**Disagree**
6	Different terms referring to the same function with different applications cause a problem in translating them	77.2%	9%	13.6%
13	The increasing number of computer terms makes it difficult to have them translated into Arabic.	63.6%	9%	27.2%

Responses to the thirteenth statement show that while 63.6% of the respondents agreed that the increasing number of computer terms makes it difficult to have them translated into Arabic, 27.2% of them disagreed. However, 9% of the respondents were neutral.

4.1.4 Translators' awareness of mastering written Arabic.

The translators' degree of awareness of mastering written Arabic is represented in statements number (12, 17 and 19) of the Questionnaire.

Table (7)

Respondents' awareness of mastering written Arabic				
	Statements	**agree**	**neutral**	**Disagree**
12	Mastering Arabic language is important to translate computer terms.	77.2%	0%	22.7%
17	Computer terms translated into regional Arabic dialects create confusion.	63.6%	31.8%	0%
19	Translators should master Arabic morphology to translate computer terms into Arabic.	54.5%	18.1%	27.2%

Responses to the twelfth statement show that while 77.2% of the respondents agreed that mastering Arabic language is important to translate computer terms, 22.7% of them disagreed. However, none of the respondents were neutral.

Responses to the seventeenth statement show that while 63.6% of the respondents agreed that computer terms translated into regional Arabic dialects create confusion, none of the respondents disagreed. However, 31.8% of the respondents were neutral.

Responses to the nineteenth statement show that while 54.5% of the respondents agreed that translators should master Arabic morphology to translate computer terms into Arabic, 27.2% of them disagreed. However, 18.1% of the respondents were neutral.

4.2 Results related to the second question:

The results of second question of the study "What strategies do Jordanian translators use to overcome problems related to computer terms?" are presented in Table (4).

The responses to the translation test are analyzed within the "translators' application of various strategies in translating computer terms" dimension, and whether the application of these various strategies produces translations that perform the meaning and the form of the SL term. The results of the test are presented in Table (9) below. However, the complete suggested translations by the respondents are presented in Table (8) below.

Term One: Word Options

The responses show that 47% of the respondents used naturalization, as they translated it (خيارات وورد) however, 53% used literal translation, as they translated it (خيارات النص).

Term Two: Display

The responses show that 73% of the respondents used descriptive equivalence, as they translated it (قائمة العرض) however, 27% used synonymy, as they translated it (عرض).

Term Three: Screen Tips

The responses show that while 47% of the respondents used equivalence, as they translated it (تلميحات الشاشة), 33% used literal translation, as they translated it (نصائح الشاشة). However, 20% of the respondents did not provide translation, as they used the English term.

Term Four: Shortcut Keys

The responses show that 80% of the respondents used equivalence, as they translated it (مفاتيح الاختصار) however, 20% used literal translation, as they translated it (الوصلة السريعة، الطريق المختصر).

Term Five: Down Arrow

The responses show that 53% of the respondents used descriptive equivalence, as they translated it (السهم المتجه للأسفل); however, 47% used equivalence, as they translated it (سهم الأسفل).

Term Six: Up Arrow

The responses show that 53% of the respondents used descriptive equivalence, as they translated it (السهم المتجه للأعلى); however, 47% used equivalence, as they translated it (سهم الأعلى).

Table (8)

Term	Suggested Translations		
Appearance	الشكل الظاهر	الإظهار	المظهر
Artwork	البيانات الفنية	الصور	العمل الفني
			البيانات
Back up	الدعم للملفات بعمل نسخة منها	انشاء نسخة احتياطية	قم بعمل نسخ احتياطية
	قم بتحميل نسخة إضافية	التراجع	عمل نسخ اضافية لضمان عدم ضياع العمل
Burn	نقل إلى الأقراص المدمجة	النسخ على الاقراص المضغوطة	إنتاج نسخ من الأقراص المدمجة
	النسخ إلى الأقراص المدمجة	وحرق الأقراص المدمجة للموسيقى	الأمر 'burn'
Rip	نسخ من الأقراص المدمجة	فصل عن الأقراص المدمجة	إزالة
	مزق الموسيقى من الأقراص المدمجة السمعية	الحصول على موسيقى من قرص مدمج	تقسيم
		اختصار موسيقى معينة من الأقراص المدمجة السمعية	الأمر 'rip'
Categories	صندوق التصنيف	مربع الفئات	مربع التصنيفات
	التصنيفات	صندوق الفئات	مربع الخيارات
Word Options	صندوق الوورد	خيارات الكلمة	قائمة الاختيارات في برنامج وورد
	خيارات الكتابة	خيارات ملف نصي	خيارات النص
	نافذة الخيارات للملف	خيارات Word	
Display	قائمة عرض	خيار العرض	العرض
	خانة العرض	لوحة العرض	إظهار
Shortcut keys	مفاتيح الاختصار	الاختصارات	رمز الاختصارات
	مفاتيح العرض		
Down Arrow		سهم الأسفل	السهم المتجه للأسفل
Up Arrow		سهم الأعلى	السهم المتجه للأعلى
Format	التشكيل	التهيئة	الأشكال
	التناسيق	النماذج	التنسيقات
			قائمة تنسيق
Print Preview	معاينة الطباعة	استعراض الطباعة	مراجعة الطباعة
	مستعرض الطباعة	عرض الصفحة قبل الطباعة	مراجعة قبل الطباعة
			المشاهدة الكاملة
Web Preview	عرض الويب	معاينة صفحة الويب	عرض صفحة متصفح الشبكة العالمية
	معاينة مواقع الشبكة	صفحة المستعرض	مراجعة الشبكة (الويب)
	مستعرض التصفح	معاينة الويب	معاينة متصفح الشبكة

العالمية		للإنترنت	
معاينة شبكة الإنترنت	الطباعة على شكل الويب	وإعداد الصفحة لتظهر على شكل صفحة إلكترونية	

Table (8) continued

Term	Suggested Translations		
Modify	خيار تعديل	تعديل	كلمة تعديل
		تغيير	قائمة "تعديل"
Themes	سمات	موضوعات	أنماط
	الأوجه	الثيمات (المواضيع)	النُسُق
			قسم الموضوعاتية
Gallery	المعرض	مكان الصور	الجالاري
		للتوجه إلى المنصة الرئيسية	معرض الصور
Create PDF Panel	إنشاء PDF	عمل ملف PDF	عمل لوحة امتداد PDF
	قسم مصنع PDF	لوحة إنشاء "البي دي أف"	اللوحة الخاصة بإنشاء PDF
	إنشاء ملف على شكل PDF	قائمة إنشاء PDF	إنشاء ملف على شكل صفحات إلكترونية PDF
Sandbox	منطقة حماية	المكان المخصص لتدابير حماية sandbox	المنطقة الآمنة
	منطقة الحماية المحددة	مجال الحماية	منطقة حماية برنامج
	منطقة ساندبوكس للحماية	في منطقة الحماية من الأتربة	منطقة وضع الحماية
Enable	تمكين	استطاعة	تفعيل
	ذو فاعلية	السماح لـ	
Windows Media Player	برنامج ويندوز لتشغيل الملفات	برنامج الوسائط المتعددة (ويندوز ميديا بلاير)	ويندوز ميديا بلاير
	برنامج المشغل الترفيهي الخاص بويندوز	مشغل الميديا	مشغل الإعلام الخاص بويندوز
	مشغل الوسائط للنوافذ	مشغل الأغاني ويندوز	مشغل الوسائط ويندوز
			برنامج Windows Media Player
Network	الشبكة	شبكة النت	الشبكة العنكبوتية
Sync	مزامنة	نقل	تركيب
	موائمة	تزامن	
Portable device	جهاز محمول	جهاز الكتروني محمول	جهاز متنقل
cookie	بيانات	كوكي	الكوكيز
	الفيروسات الحميدة	برامج التعريف	سجل التتبع
			ملف تعريف الارتباط
hacker	قناصين الشبكة	قراصنة الحاسوب	المتسللين
	مخترقي أنظمة الحاسوب	المتطفلين	قراصنة النت
malicious software	البرمجيات الخبيثة	برامج مصابة	برمجية ضارة
	البرامج المؤذية	برنامج خطير	برمجية غريبة
Firewall	جدار الحماية	نظام الحماية	فايروول

Table (8) continued

Term	Suggested Translations		
Scripts	البرامج النصية	النصوص	النصوص الكتوبة
	سكريبتس	السيناريوهات	العمليات
			مخطوطات
Illustrator	اليستراتور	المصور	عرض بالصور
	برنامج توضيح البيانات	التوضيح	رسوم
	الرسام	رسوم توضيحية	
word-processing	معالجة الكلمات	معالجة النصوص	معالج النصوص
			معالجة برنامج وورد
Spreadsheet	صفحات Excel	الجداول	ورقة العمل
	لوحة جدولية	فصل الصفحات	البيانات المجدولة
		الجداول الإلكترونية	ورقة
database-management	إدارة قواعد البيانات	إدارة المعلومات	إدارة المعلومات الأساسية
	إدارة البيانات	إدارة القاعدة	قاعدة البيانات
Data-driven graphics	معلومات مسحوبة	الصور المبنية على المعلومات	صور بناء على بيانات خاصة
Appearance attributes	وسائل العرض	سمات المظهر	خواص الوجهة
	خاصية الإظهار	طريقة العرض	المظاهر المنسوبة
			صفات المظهر
datalist	لائحة المعلومات	قائمة البيانات	قائمة المدخلات
	لائحة البيانات		
input	المُدخل	إدخال	عنصر الإدخال
Click	انقر	اضغط	اكبس
Press	انقر	اضغط	دوس

Term Seven: Categories box

The responses show that while 67% of the respondents used equivalence, as they translated it (مربع الفئات), 17% used literal translation, as they translated it (التصنيفات). However, 16% of the respondents used synonymy, as they translated it (مربع الخيارات).

Term Eight: Formats

The responses show that 60% used literal translation, as they translated it (نماذج، أشكال، هيئة); however, 40% of the respondents used equivalence, as they translated it (التنسيقات).

Term Nine: Print Preview

The responses show that while 49% used equivalence, as they translated it (معاينة الطباعة), 29% of the respondents used descriptive equivalence, as they translated it (عرض الصفحة قبل الطباعة). However, 22% of the respondents used literal, as they translated it (مراجعة الطباعة).

Term Ten: Web Preview

The responses show that while 40% of the respondents used descriptive equivalence, as they translated it (معاينة صفحة الشبكة العالمية), 40% of the respondents used naturalization, as they translated it (معاينة الويب). However, 20% used equivalence, as they translated it (معاينة الشبكة).

Term Eleven: Modify

The responses show that 73% used synonymy, as they translated it (تغيير، تعديل); however 27% of the respondents used descriptive equivalence, as they translated it (قائمة تعديل).

Table (9)

Strategies used by translators in translating computer terms								
Number	Term	Naturalization	Descriptive equivalence	Equivalence	Synonymy	Transference	Literal	No translation
1	Word Options	47%	-	-	-	-	53%	-
2	Display	-	73%	-	26%	-	-	-
3	Screen Tips	-	-	47%	-	-	33%	20%
4	Shortcut Keys	-	-	80%	-	-	20%	-
5	Down Arrow	-	53%	47%	-	-	-	-
6	Up Arrow	-	53%	47%	-	-	-	-
7	Categories Box	-	67%	-	17%	-	16%	-
8	Formats	-	-	40%	-	-	60%	-
9	Print Preview	-	29%	49%	-	-	22%	-
10	Web Preview	-	40%	20%	-	40%	-	-
11	Modify	-	27%	-	73%	-	-	-
12	Appearance	-	7%	40%	-	-	6%	47%
13	Themes	-	-	60%	17%	7%	-	16%
14	PDF	-	13%	-	-	9%	-	78%
15	Sandbox	-	58%	-	-	9%	13%	20%
16	Enable	-	-	54%	-	-	33%	13%
17	Back up	-	69%	-	7%	-	24%	-
18	Windows Media Player	-	58%	-	-	42%	-	-
19	Network	-	22%	78%	-	-	-	-
20	CDs	-	87%	-	-	13%	-	-

Table (9) Continued

Number	Term	Naturalization	Descriptive equivalence	Equivalence	Synonymy	Transference	Literal	No translation
21	**DVD**	-	36%	-	-	64%	-	-
22	**Stream**	-	-	27%	-	-	-	73%
23	**Rip**	-	31%	-	-	-	56%	13%
24	**Burn**	-	58%	-	-	-	4%	38%
25	**Sync**	-	-	47%	33%	-	-	20%
26	**Portable**	-	-	87%	-	-	-	13%
27	**Script**	-	20%	-	-	31%	49%	-
28	**Illustrator**	-	33%	-	-	20%	47%	-
29	**Word-processing**	-	-	76%	24%	-	-	-
30	**Spreadsheet**	-	-	40%	27%	-	13%	20%
31	**Database-management**	-	-	73%	-	-	27%	-
32	**Data-driven graphics**	-	51%	-	-	-	36%	13%
33	**Artwork**	-	-	67%	22%	-	-	11%
34	**Cookie**	-	29%	-	16%	55%	-	-
35	**Browser**	-	-	100%	-	-	-	-
36	**Hackers**	-	20%	80%	-	-	-	-
37	**Malicious files**	-	-	84%	16%	-	-	-
38	**Firewall**	-	-	93%	-	7%	-	-
39	**Press**	-	-	100%	-	-	-	-
40	**Click**	-	-	82%	18%	-	-	-
	Percentage	1.5%	22%	38%	7.9%	7.9%	12.8%	9.9%

Term twelve: Appearance

The responses show that while 47% of them did not provide any translation, as they used the term as it is, 40% used equivalence, as they translated it (المظهر), and 7% of the respondents used descriptive equivalence, as they translated it (المظهر العام), However, 6% of the respondents used literal translation, as they translated it (الظهور)

Term Thirteen: Themes

The responses show that while 60% of the respondents used equivalence, as they translated it (الموضوعات), 6% used transference, as they translated it (ثيم). However, 18% of the respondents used synonymy, as they translated it (النُسُق) and 16% of them did not provide any translation, as they used the term as it is.

Term Fourteen: PDF

The responses show that while 78% of the respondents did not provide any translation, as they used the term as it is, 13% of the respondents used descriptive equivalence, as they translated it (امتداد ملف). However, 9% used transference, as they translated it (بي دي أف).

Term Fifteen: Sandbox

The responses show that while 58% of the respondents used descriptive equivalence, as they translated it (منطقة الحماية), 20% of the respondents did not provide any translation, as they used the term as it is. However, 13% of the respondents used literal translation, as they translated it (الحماية من الأتربة), and 8% used transference, as they translated it (ساندبوكس).

Term Sixteen: Enable

The responses show that while 53% of the respondents used equivalence, as they translated it (تمكين، تفعيل), 33% used literal translation, as they translated it (السماح لـ، استطاعة). However, 13% of the respondents did not provide any translation, as they used the term as it is.

Term Seventeen: Back up

The responses show that while 69% of the respondents used descriptive equivalence, as they translated it (قم بعمل نسخة احتياطية), 24% used literal translation, as they translated it (ادعم). However, 7% of the respondents used synonymy, as they translated it (التراجع).

Term Eighteen: Windows Media Player

The responses show that while 58% of the respondents used descriptive equivalence, as they translated it (مشغل الوسائط الخاص بنظام ويندوز), 42% used transference, as they translated it (ويندوز ميديا بلاير).

Term Nineteen: network

The responses show that while 78% used equivalence, as they translated it (الشبكة), 22% of the respondents used descriptive equivalence, as they translated it (الشبكة العنكبوتية).

Term Twenty: CDs

The responses show that while 87% of the respondents used descriptive equivalence, as they translated it (أقراص مدمجة، مضغوطة), 13% used transference, as they translated it (سي دي).

Term Twenty One: DVD

The responses show that while 64% used transference, as they translated it (دي في دي), 36% of the respondents used descriptive equivalence, as they translated it (أقراص الفيديو الرقمي).

Term Twenty Two: Stream

The responses show that while 73% of the respondents did not provide any translation, as they used the term as it is, 27% of the respondents used equivalence, as they translated it (عرض، تحميل).

Term Twenty Three: Rip

The responses show that while 56% used literal translation, as they translated it (مزق، ازالة), 31% of the respondents used descriptive equivalence, as they translated it (نسخ موسيقى من أقراص مدمجة). However, 13% of the respondents did not provide any translation, as they used the term as it is.

Term Twenty Four: Burn

The responses show that while 58% of the respondents used descriptive equivalence, as they translated it (نسخ الموسيقى إلى أقراص مدمجة), 38% of the respondents did not provide any translation, as they used the term as it is. However, 4% used literal translation, as they translated it (حرق).

Term Twenty Five: Sync

The responses show that while 47% of the respondents used equivalence, as they translated it (مزامنة), 33% used synonymy, as they translated it (موائمة). However, 20% of the respondents did not provide any translation, as they used the term as it is.

Term Twenty Six: Portable Device

The responses show that while 87% of the respondents used equivalence, as they translated it (جهاز محمول), 13% of the respondents did not provide any translation, as they used the term as it is.

Term Twenty Seven: Scripts

The responses show that while 49% of the respondents used literal translation, as they translated it (السناريوهات، المخطوطات), 31% used transference, as they translated it (السكربتس). However, 20% of the respondents used descriptive equivalence, as they translated it (البرامج النصية).

Term Twenty Eight: Illustrator

The responses show that while 47% of the respondents used literal translation, as they translated it (المصور), 33% of the respondents used descriptive equivalence, as they translated it (برنامج معالجة الرسوم). However, 20% used transference, as they translated it (اليستريتور).

Term Twenty Nine: Word-processing

The responses show that while 76% of the respondents used equivalence, as they translated it (معالجة النصوص), 24% used synonymy, as they translated it (معالجة الكلمات).

Term Thirty: Spreadsheet

The responses show that while 40% of the respondents used equivalence, as they translated it (جداول البيانات), 27% used synonymy, as they translated it (جداول). However, 20% of the respondents did not provide

any translation, as they used the term as it is, and 13% of the respondents used literal translation, as they translated it (فصل الصفحات).

Term Thirty One: Database-management

The responses show that while 73% of the respondents used equivalence, as they translated it (إدارة قواعد البيانات), 27% used literal translation, as they translated it (إدارة البيانات الأساسية).

Term Thirty Two: Data-driven graphics

The responses show that while 51% of the respondents used descriptive equivalence, as they translated it (الرسوم المبنية على أساس البيانات), 36% used literal translation, as they translated it (البيانات المسحوبة صورتها). However, 13% of the respondents did not provide any translation, as they used the term as it is.

Term Thirty Three: Artwork

The responses show that while 67% of the respondents used equivalence, as they translated it (عمل فني), 22% used synonymy, as they translated it (البيانات الفنية). However, 11% of the respondents did not provide any translation, as they used the term as it is.

Term Thirty Four: Cookie

The responses show that while 55% of the respondents used transference, as they translated it (كوكي), 29% of the respondents used

descriptive equivalence, as they translated it (ملف تعريف الارتباط). However, 16% used synonymy, as they translated it (البيانات).

Term Thirty Five: Browser

The responses show that 100% of the respondents used equivalence, as they translated it (المتصفح). This significant result can be attributed to the early introduction of the term in Arabic as an appropriate equivalence.

Term Thirty Six: Hackers

The responses show that while 80% used equivalence, as they translated it (المتسللين، المتطفلين، القراصنة), 20% of the respondents used descriptive equivalence, as they translated it (مخترقي انظمة الحاسوب).

Term Thirty Seven: Malicious Files

The responses show that while 84% of the respondents used equivalence, as they translated it (البرامج الضارة), 16% used synonymy, as they translated it (البرامج الخبيثة).

Term Thirty Eight: Firewall

The responses show that while 93% of the respondents used equivalence, as they translated it (جدار الحماية), 7% used transference, as they translated it (فايروول).

Term Thirty Nine: Press

The responses show that 100% of the respondents used equivalence, as they translated it (اضغط، دوس). This significant result, also, can be attributed to the early introduction of the term in Arabic as an appropriate equivalence.

Term Forty: Click

The responses show that while 82% of the respondents used equivalence, as they translated it (انقر), 18% used synonymy, as they translated it (اضغط).

The given forty terms were translated by using various strategies as shown in Table (9). The results show that while 38% translators found equivalence, 22% of them used descriptive equivalence, 12.8% of them used literal translation, 9.9% did not provide any translation, 7.9% used transference, 7.9% of them used synonymy, and 1.5% used naturalization.

4.3 Results related to the third question:

The results of third question of the study "How effective are the computer terms translated into Arabic?" are presented in Table (9), Table (10) and Table (11). They are analyzed within the following three dimensions:

4.3.1.1 The degree of confusion resulting from translating computer terms into Arabic.

The degree of confusion resulting from translating computer terms into Arabic is represented in statements (4, 6, 8, 11, 13, 15, 16, 17, 18, and 19) as they appear in Table (10).

Responses to the fourth statement show that while 81% of the respondents agreed that there is no need to translate computer terms related to programming languages into Arabic, 11% disagreed. However, 8% of the respondents were neutral.

Responses to the sixth statement show that while 50% of the respondents agreed that there is no need to translate computer terms related to programming languages into Arabic, 31% disagreed. However, 19% of the respondents were neutral.

Responses to the eighth statement show that while 62% of the respondents agreed that computer terms can be more familiar to use if they are first introduced into Arabic, 24% were neutral. However, 14% of the respondents disagreed that they can be more familiar.

Responses to the eleventh statement show that while 65% of the respondents agreed that the problem of computer terms translated into Arabic lies in that they do not refer properly to the function of the tools they are assigned to, 24% were neutral. However, 11% of the respondents disagreed.

Responses to the thirteenth statement show that while 67% of the respondents disagreed that they find difficulty in understanding the terms without being translated into Arabic, 21% agreed. However, 12% of the respondents were neutral.

Responses to the fifteenth statement show that while 65% of the respondents agreed that the shortage of written computer content in Arabic makes it difficult to use translated terms, 22% were neutral. However, 13% disagreed.

Table (10)

Respondents' opinions regarding translating computer terms into Arabic				
	Statements	**Agree**	**Neutral**	**Disagree**
4	I find translated computer terms into Arabic confusing when working with various computer applications.	79%	15%	6%
6	There is no need to translate computer terms related to programming languages.	50%	19%	31%
8	Computer terms can be more familiar to use if they are first introduced to me in Arabic.	62%	24%	14%
11	The problem of computer terms translated into Arabic lies in not referring properly to the function of the tools.	65%	24%	11%
13	I find difficulty in understanding the terms without being translated into Arabic.	21%	12%	67%
15	The shortage of written computer content in Arabic makes it difficult to use translated terms.	65%	22%	13%
16	Translated computer books into Arabic tend to be short and brief which makes them unreliable.	42%	44%	14%
17	Translated books of computer into Arabic are up to date.	20%	39%	41%
18	The use of illustrating graphics helps in understanding the translated terms in Arabic.	79%	10%	11%

19	The translators' lack of knowledge concerning computer skills is apparent in their translations.	60%	30%	10%

Responses to the sixteenth statement show that while 44% of the respondents were neutral that translated computer books into Arabic tend to be short and brief which makes them unreliable, 42% agreed. However, 14% of the respondents disagreed.

Responses to the seventeenth statement show that while 41% disagreed that translated books of computer into Arabic are up to date, 39% were neutral. However, 20% of the respondents agreed.

Responses to the eighteenth statement show that while 79% of the respondents agreed that the use of illustrating graphics helps in understanding the translated terms in Arabic, 11% disagreed. However, 10% of the respondents were neutral.

Responses to the nineteenth statement show that while 60% of the respondents agreed that the translators' lack of knowledge concerning computer skills is apparent in their translations, 30% were neutral. However, 10% disagreed.

4.3.1.2 The role of a standard glossary of computer terms translated into Arabic in reducing confusion.

The role of a standard glossary of computer terms in reducing confusion is represented in statements (1, 2, 3 and 12).

Table (11)

Respondents' opinions regarding the role of a standard glossary of computer terms translated into Arabic in reducing confusion				
	Statements	**Agree**	**Neutral**	**Disagree**
1	Having a unified glossary of computer terms translated into Arabic helps in their widespread.	81%	8%	11%
2	There is no need to translate computer terms.	38%	21%	41%
3	I find it difficult to have specialized dictionaries handling computer terms.	34%	41%	25%
12	Computer terms translated into Arabic by international producers are less confusing than those translated locally.	53%	35%	12%

Responses to the first statement show that while 81% agreed that having a unified glossary of computer terms translated into Arabic will reduce confusion, 11% disagreed. However, 8% of the respondents were neutral.

Responses to the second statement show that while 41% of the respondents disagreed to translate computer terms into Arabic, 38% agreed. However, 21% of the respondents were neutral.

Responses to the third statement show that while 41% of the respondents were neutral that it was difficult to find specialized dictionaries handling computer terms, 34% agreed. However, 25% of the respondents disagreed.

Responses to the twelfth statement show that while 53% of the respondents agreed that computer terms translated into Arabic by international producers are less confusing than those translated locally, 35% were neutral. However, 12% of the respondents disagreed.

4.3.1.3 Arabic used for rendering computer terms.

The Arabic language, standard or colloquial, used for rendering computer terms is represented in statements (5, 7, 9, 10 and 14).

Responses to the fifth statement show that while 71% of the respondents agreed that translated computer terms into Arabic are absurd, 19% were neutral. However, 10% of the respondents disagreed.

Responses to the seventh statement show that while 71% of the respondents agreed that using loan words is better than translating terms into Arabic, 16% disagreed. However, 13% of the respondents were neutral.

Table (11)

Respondents' opinions regarding Arabic used for rendering computer terms				
	Statements	**Agree**	**Neutral**	**Disagree**
5	I find some translated computer terms into Arabic absurd.	71%	19%	10%
7	Using loan words is better than translating terms into Arabic.	71%	13%	16%
9	Translating terms into colloquial Arabic can make them easier to understand.	41%	15%	44%
10	Using more common words to translate computer terms into Arabic make them more acceptable.	68%	17%	15%
14	Reading computer content in Arabic with terms embedded as loan words is better to learn computer skills.	29%	24%	47%

Responses to the ninth statement show that while 41% of the respondents agreed that translating terms into colloquial Arabic can make them easier to understand, 44% disagreed. However, 15% of the respondents were neutral.

Responses to the tenth statement show that while 68% of the respondents agreed that using more common words to translate computer terms into Arabic make them more acceptable, 17% were neutral. However, 15% of the respondents disagreed.

Responses to the fourteenth statement show that while 47% of the respondents disagreed to reading computer content in Arabic with terms

embedded as loan words is better to learn computer skills, 29% agreed. However, 24% of the respondents were neutral.

Chapter Five

Discussion, Conclusions and Recommendations

5.0 Introduction:

This study investigated the problems that Jordanian translators faced when translating computer terms and the strategies they followed to overcome these problems. It also investigated the effectiveness of the computer terms translated into Arabic. This chapter presented a summary and a short discussion of the findings of the three questions. It also attempted to explain and interpret the results in light of the reviewed literature. The chapter concluded with recommendations and suggestions for future research.

5.1 Discussion related to the findings of the first question

"What problems do Jordanian translators face in rendering computer terms into Arabic?"

The problems that Jordanian translators faced when translating computer terms from English into Arabic are divided into four major dimensions related to the translators' awareness of various strategies that

could be applied to translate computer terms, second translators' awareness of various resources, mainly dictionaries and glossaries of computer terms on the Internet, third, translators' competency of handling computer terms, and finally, translators' awareness of mastering written Arabic.

In relation to the first dimension, it was found that 86.3% of the translators face a problem in finding the appropriate equivalence in Arabic for various computer terms, which definitely leads them to follow different strategies to translate computer terms. It was found that 73.5% of the translators are aware of the various translation strategies such as, borrowing, paraphrasing, domestication, approximation, and compensation.

However, the application of these strategies as shown in the test reflected a problem as they applied certain strategies to translate certain terms that led to confusion in performing the meaning. For example, the researcher found that approximation is used in place of paraphrasing; as in translating the term (Modify) into Arabic as (تغيير), while it should be translated as (قائمة تعديل), or paraphrasing in place of borrowing; as in translating (Illustrator) which is a software brand name (برنامج الرسام), while it should be used as (اليستريتور). See Appendix (2). This reflects that translators find a difficulty in when and how to use various strategies, which Newmark (1988) called it the skill the translator needs to overcome

the problem of not having the equivalence when rendering from SL into TL.

In relation to the second dimension, it was found that 40.9% of the respondents disagreed with regard to the availability of a unified glossary of computer terms translated into Arabic and 22.7% of them were unaware of the existence of such a glossary. Moreover, 40.9% of the respondents found it difficult to have specialized dictionaries handling computer terms. This means that the majority of respondents are unaware of various sources that form a major factor in having well-translated computer terms into Arabic; this may explain the multi translations of the same term.

Although there are tens of glossaries that handle computer terms translated into Arabic, few translators are aware of such online resources. Among these glossaries is the Microsoft's Language Portal, which includes a wide variety of terminology translated into Arabic in addition to many other languages. According to Microsoft (2013) such glossaries may reduce the amount of confusion as they are built and developed by specialists in both disciplines, computers and linguistics, for globalization, localization, authoring and general discovery. They contain approximately 25,000 defined terms, including English definitions, translated in up to 100 languages as well as the software translations.

In relation to the third dimension which deals with translators' competency of handling computer terms, it was found that 77.2% of the respondents find it confusing when translating the different terms that refer to the same function. This reflects the translators' lack of computer competency mainly when it is related to terms. If translators understand the function of the term, they will not find it difficult to translate it into the TL. This is what Newmark (1988) referred to as the translators' knowledge of the topic of translation. The demographic data of the questionnaire show that the respondents are not specialized in one certain field of translation, namely computers. They are all general practitioners of translation.

Another problem related to the dimension of translators' competency of handling computer terms was the increasing number of these terms. 63.6% of the respondents find it as one of the major problems because terms are developed almost every day. This was properly expressed by Hartley (2008) when he stated that terms were estimated by millions of words. Translators need to keep up with all updates, which is really not an easy task. They need more than the individual efforts to be paid in this direction as it is beyond their capacity and ability.

In relation to the fourth dimension that dealt with translators' awareness of mastering written Arabic; it was found that 77.2% of the translators are aware of the importance of mastering Arabic language to

translate computer terms, which reflects a minor problem in this concern. However, only 54.5% of them believe that translators should master Arabic morphology to translate computer terms into Arabic. For example, the term 'Appearance' is rendered by some respondents as (الظهور), while it should be translated as (المظهر). This reflects negligence towards the morphology of the target language. This may explain the difficulty of finding the proper equivalence of computer terms into Arabic. For this reason, Newmark (1988) emphasizes the role of mastering both SL and TL skills to be able to render such terms.

5.2 Discussion related to the findings of second question

"What strategies do Jordanian translators use to overcome problems related to computer terms?"

The findings show the most common strategies that Jordanian translators used to translate computer terms from English into Arabic. Although there were many strategies to be followed in rendering terms that do not have equivalence, they almost used approximation, avoidance, borrowing, domestication and paraphrasing.

The results show that 38% of the respondents managed to find equivalence for 24 terms given to them in the test. This can be explained by the translators' capability and access to various online resources.

However, various strategies were used to render different terms. The researcher reports them as follows:

Approximation

This strategy implies that the respondents used synonyms that are adjacent to the meaning of the term as a result of not finding the appropriate equivalence. This strategy is not successful all the time as it may lead to literal translation, which will definitely cause confusion to the computer user. 8% of the respondents used the technique of synonymy to translate only 12 terms of the whole group of terms given in the test to overcome the problem of not having a proper equivalence. However, it does not deliver the exact meaning in many cases, which resulted in creating a vague translated term. This, in turn, may lead to avoiding using such terms.

Avoidance

This strategy implies that the respondents avoided translating the terms as a result of lack of knowledge related to these terms. So they keep the terms as they are in their source language. This strategy meant that translators had a serious problem in the topic they are translating as well as the various strategies of translating computer terms. 10% of the respondents did not provide any translation for 14 terms of the whole group of terms given in the test. This is what Shiyab and Hussien (1995)

considered skipping as a result of incomprehensible input which in turn reflects the lack of knowledge in the subject of translation.

Borrowing

This strategy implies transferring terms as they are into the target language as respondents are not familiar with equivalence. This strategy involved introduction of English words into the target language, an issue that many consider as a threat to the target language. It succeeded in delivering both the meaning and the form of the term at the same time, so it does not create any kind of confusion for computer users.

Domestication:

This strategy involved transferring the term into the target language and introducing changes to either its morphology or sound system, or both. This strategy might be more successful than borrowing as it implies naturalizing the term into the target language and consider it as part of this language. However, it might be the most appropriate strategy for solving the problem of equivalence.

Literal translation:

This strategy implies that respondents translated the term literally which involved loss of the meaning and form at the same time. This

strategy caused confusion for computer users as they found it improper in referring to the function intended by the term.

Paraphrasing:

This strategy implies that the respondent used a rewriting technique to clarify the meaning. It is embodied in using descriptive equivalence. This strategy succeeded in delivering the meaning; however, it affected the form. Computer users need to have a translation that maintain both form and meaning at the same time to be able to use the translated term effectively, which Newmark (1988) emphasized strongly. This technique helped a lot in delivering the meaning but it did not maintain the form. This may cause a kind of confusion for computer users when using such translated terms.

5.3 Discussion related to the findings of third question

"How effective are the computer terms translated into Arabic?"

The findings show the problems resulting from translating computer terms and to what extent they are effective for computer users. In relation to the first dimension, the degree of confusion resulting from translating computer terms into Arabic, 79% of the respondents found computer terms translated into Arabic confusing, 65% of them found the problem was due to the translated terms into Arabic which do not refer to the function of

those terms. Moreover, only 20% of the respondents felt that the Arabic books related to computer are up to date, which may reduce the need for more terms to be translated into Arabic. In addition, 60% of the respondents found translators' lack of knowledge related to computer sciences was apparent in their translations.

However, the solution as expressed by 62% of the respondents lies in introducing computer terms in Arabic. It also can be in using illustrations as 65% of the respondents stated.

The results above may reflect lack of trust in the translated computer terms in Arabic as they do not refer to the function they are assigned to as well as the insignificance of computer works published in Arabic. Moreover, 67% of respondents who found no difficulty in understanding computer terms in English may not need the translation of such terms.

In relation to the second dimension, the role of a standard glossary of computer terms in reducing confusion, the findings showed that 81% of the respondents agreed that a unified glossary of computer terms translated into Arabic helps in reducing the confusion and using these terms more often. Fifty-three percent of the respondents believed that the translated terms into Arabic by international producers were more reliable than those translated by local translators because they were less confusing.

In relation to the third dimension, the level of Arabic language, standard or colloquial, required in rendering computer terms, it was found that 71% of the respondents found that computer terms translated into Arabic were absurd. This reflected their negative attitude and lack of trust towards translated terms into Arabic, which might be the reason that 71% of the respondents preferred having computer terms as loanwords rather than translated into the target language. Despite all of this, 44% of the respondents found colloquial Arabic inappropriate to translate computer terms.

5.4 Conclusions

Translators, whatever their background or experience, should master the skills that are related to the task of translation. The answers for the questions of the study are:

1- Many Jordanian translators are unaware of when and how to use various strategies related to translating computer terms.

2- Many Jordanian translators lack the knowledge needed in the field of computer science which is necessary to translate computer terms properly.

3- Many Jordanian translators are unaware of the online resources of computer glossaries and dictionaries that may help them in translating computer terms accurately.

4- Many Jordanian translators face a problem in mastering Arabic morphology which causes confusion in translating computer terms.

5- Translating computer terms into Arabic needs institutional rather than individual work to have unified translations for computer terms as a result of the increasing number of these terms.

6- Borrowing and domestication prove that they are the most suitable strategies in this stage to overcome the lack of equivalence. They maintain both, the form and the meaning of the term.

7- Paraphrasing represented in descriptive equivalence technique is the most commonly used strategy used by Jordanian translators.

8- There are many computer terms that have equivalence in Arabic; however, many translators are unaware of them.

5.5 Recommendations

Based on the previous discussions, results and conclusions, the researcher suggests the following recommendations:

1- Since the present study is limited to its sample of population, time and non-standardized tools, the researcher recommends that further studies to be conducted on translating computer terms because of the importance of the topic.

2- Translators should be aware of various methods, procedures and strategies that could be applied to render computer terms properly.

3- Borrowing and domestication strategies should be reconsidered highly in translating computer terms of no equivalence, as they offer a suitable solution for the confusion resulted from the translation of these terms.

4- Individual translation efforts in translating computer terms should be supplemented by institutional efforts as it is a job that exceeds the individual translator ability and capability.

5- Translators should be provided with all the research skills needed to access various resources on the Internet as they are rich and valuable with computer terms translated into Arabic.

6- Translators' competency in the target language, which is Arabic, grammar and morphology should be equal to those of the source language; English.

7- Translators should read and learn more about the field they translate, which is in this case computer science, to be able to render the terms properly and accurately.

8- Terms which have equivalence in Arabic should be circulated and generalized through the various channels of publishing.

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Appendices

Appendix 1: Microsoft's translation of computer terms

Microsoft's translation of computer terms					
No.	Term	Translation	**No.**	Term	Translation
1.	Appearance	المظهر	**25.**	In the Create PDF Panel	PDF
2.	Appearance attributes	سمات المظهر	**26.**	InDesign	أنديزاين
3.	Artwork	عمل فني	**27.**	Malicious software	البرامج الضارة
4.	Back up	ينسخ نسخ احتياطية	**28.**	Modify	تعديل
5.	Burn	نسخ على القرص المضغوط	**29.**	Network	الشبكة
6.	Categories	الفئات	**30.**	Photoshop	فوتوشوب
7.	CD	القرص المضغوط	**31.**	Portable	جهاز محمول
8.	Check	تحديد	**32.**	Press	اضغط
9.	Check Box	خانة الاختيار	**33.**	Print Preview	معاينة الطباعة
10.	Click	انقر	**34.**	Rip	نسخ من القرص المضغوط
11.	Cookie	ملف تعريف ارتباط	**35.**	Sandbox	وضع الحماية
12.	Database-management	إدارة قاعدة البيانات	**36.**	Screen Tips	تلميحات الشاشة
13.	Data-driven graphics	رسوم مستندة إلى البيانات	**37.**	Scripts	برامج نصية
14.	<datalist>	<datalist>	**38.**	Shortcut Keys	مفاتيح الاختصار
15.	Display	قائمة العرض	**39.**	Spreadsheet	جدول بيانات
16.	Down Arrow	سهم الأسفل	**40.**	Stream	دفق
17.	DVD	قرص الفيديو الرقمي	**41.**	Sync	مزامنة
18.	Enable	تمكين	**42.**	Themes	الموضوعات / السمات
19.	Firewall	جدار الحماية	**43.**	Uncheck	الغاء تحديد
20.	Formats	تنسيقات	**44.**	Up Arrow	سهم الأعلى
21.	Gallery	المعرض	**45.**	Variable	متغير
22.	Hackers	المتسللين / المتطفلين	**46.**	version	إصدار
23.	Illustrator	اليستريتور	**47.**	Windows Media Player	ويندوز ميديا بلاير
24.	<input>	<input>	**48.**	Web Preview	معاينة ويب

Appendix 2: Committee of referees

No.	Name	Rank	Affiliation	Major
1.	Rihayd F. Hussein	Professor	Middle East University	Linguistics
2.	Bader S. Dweik	Professor	Middle East University	Linguistics
3.	Ibrahim Abu Shihab	Associate Professor	Al-Zaytoonah University of Amman	Linguistics
4.	Wajeeh Abdullrahman	Associate Professor	Isra University	Linguistics
5.	Khalil Qatawneh	Associate Professor	Amman Arab University	Translation
6.	Mohammad Al-Masri	Associate Professor	Amman Arab University	Education
7.	Fawzi Abduh	doctor	Islamic Educational College	Statistical Analysis

Appendix 3: Instruments of the Study

Dear Professor,

I am, Ghassan Hazza, an MA student in Middle East University doing my MA thesis on **"Problems Jordanian Translators Face and Strategies They Use in Translating Computer Terms from English into Arabic**".

I would like you to examine my thesis instruments which consist of two questionnaires and a test, and to see if they are suitable to the purpose of the study and to delete or add any items that you deemed necessary.

While the first questionnaire examines the effectiveness of computer terms translated into Arabic, the second questionnaire examines the problems that translators face when rendering computer terms. Finally the test examines the strategies translators follow in rendering computer terms.

I thank you for helping me in evaluating and judging these instruments' validity.

Ghassan Hazza

Problems Computer Users Face with Translated Terms into Arabic Questionnaire

Dear participant, I am Ghassan Hazza, a student in Middle East University Department of English Language and Literature. I am conducting my research about **"Problems Jordanian Translators Face and Strategies They Use in Translating Computer Terms from English into Arabic**" as per the degree requirement. I thank you for taking part in filling out this questionnaire.

This questionnaire which consists of 19 items aims to find information about your experiences using translated computer terms into Arabic. I value your opinions and feedback on your experiences. All responses will be kept confidential. The questionnaire will take less than 10 minutes of your time. Thank you again for taking part.

Demographic Data

Statistical Information

Age:					
Occupation:					
Gender:	Male		Female		
Attended school or university:	private		Public		
Level of Education	High school		Diploma		Graduate
	M.A.		PhD.		other

Computer Use

I use computer to / for	study	work	entertainment

I mostly use computer in	Arabic	English	other, specify

I prefer to use computer in	Arabic	English	other, specify

Computer and Language Skills Proficiency

How skillful are you in using computers?	Professional 4	Good 3	Undecided 2	Average 1	Weak 0

What is your level of English language?	Beginner	Intermediate	Advanced

Please select a rating that best reflects your opinion.

No.	Item	*Strongly Agree*	*Agree*	*Undecided*	*Don't Agree*	*Strongly disagree*
1	Having a unified glossary of computer terms translated into Arabic helps in their widespread.					
2	There is no need to translate computer terms.					
3	I find it difficult to have specialized dictionaries handling computer terms.					
4	I find translated computer terms into Arabic confusing when working with various computer applications.					
5	I find some translated computer terms into Arabic absurd.					
6	There is no need to translate computer terms related to programming languages.					
7	Using loan words is better than translating terms into Arabic.					
8	Computer terms can be more familiar to use if they are first introduced to me in Arabic.					
9	Translating terms into colloquial Arabic can make them easier to understand.					
10	Using more common words to translate computer terms into Arabic make them more acceptable.					
11	The problem of computer terms translated into Arabic lies in not referring properly to the function of the tools.					
12	Computer terms translated into Arabic by international producers are less confusing than those translated locally.					

13	I find difficulty in understanding the terms without being translated into Arabic.					

No.	Item	*Strongly Agree*	*Agree*	*Undecided*	*Don't Agree*	*Strongly disagree*
14	Reading computer content in Arabic with terms embedded as loan words is better to learn computer skills.					
15	The shortage of written computer content in Arabic makes it difficult to use translated terms.					
16	Translated computer books into Arabic tend to be short and brief which makes them unreliable.					
17	Translated books of computer into Arabic are up to date.					
18	The use of illustrating graphics helps in understanding the translated terms in Arabic.					
19	The translators' lack of knowledge concerning computer skills is apparent in their translations.					

استبيان خاص حول المشاكل التي يواجهها مستخدمي الحاسوب بالتعامل مع المصطلحات المترجمة للعربية

عزيزي المشارك، أنا غسان هزاع، طالب دراسات عليا، في جامعة الشرق الأوسط، قسم اللغة الإنجليزية وآدابها. أقوم بدراسة حول **المشكلات التي يواجهها المترجمون الأردنيون والاستراتيجيات التي يستخدمونها في ترجمة مصطلحات الحاسوب من الإنجليزية إلى العربية**، كمتطلب تخرج لدرجة الماجستير. أود أن أعبر لك عن امتناني لقيامك بملئ هذه الاستمارة.

ويهدف هذا الاستبيان، والذي يتكون من 19 جملة، إلى جمع معلومات حول تجربة مستخدمي الحاسوب فيما يتعلق بمصطلحات الحاسوب المترجمة للعربية. نقدر ونحترم آرائك وما تقدمه من تغذية راجعة لنا حول تجربتك، لذا ستعامل كافة الإجابات بسرية تامة ولن تستخدم سوى لأغراض هذه الدراسة. سيستغرق ملء هذه الاستمارة حوالي 10 دقائق من وقتك، لذا نشكرك مرة أخرى على المشاركة.

البيانات الديموغرافية

معلومات إحصائية

العمر:	
الوظيفة:	

الجنس:	ذكر	☐	أنثى	☐
المدرسة / الجامعة التي تلتحق بها:	خاصة	☐	حكومية	☐

المستوى التعليمي	ثانوية عامة	☐	دبلوم	☐	جامعي	☐
	ماجستير	☐	دكتوراه	☐	غير ذلك	☐

معلومات حول استخدام الحاسوب

استخدم الحاسوب	للدراسة	☐	للعمل	☐	للتسلية	☐

أخرى، حددها	الإنجليزية	العربية	استخدم الحاسوب غالباً باللغة

أخرى، حددها	الإنجليزية	العربية	أفضل استخدام الحاسوب باللغة

معلومات حول مهارات الحاسوب و اللغة:

ضعيف	متوسط	لا أعرف	جيد	محترف	كم أنت ماهر في استخدام الحاسوب؟

متقدم	متوسط	مبتدئ	ماهو مستوى مهارتك في اللغة الإنجليزية؟

يرجى اختيار الدرجة التي تعكس رأيك.

الرقم	السؤال	أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة
1	العمل على ايجاد قائمة موحدة لمصطلحات الحاسوب المترجمة للعربية يساعد على تعميمها واستعمالها.					
2	لا حاجة لترجمة مصطلحات الحاسوب على الإطلاق.					
3	اجد صعوبة في الحصول على قواميس متخصصة في مصطلحات الحاسوب.					
4	أجد مصطلحات الحاسوب المترجمة إلى العربية مربكة عندما اتعامل مع التطبيقات المختلفة للحاسوب.					
5	أجد بعض مصطلحات الحاسوب المترجمة للعربية غريبة.					
6	لا يوجد حاجة لترجمة مصطلحات الحاسوب المتعلقة بالبرمجة.					
7	استعارة مصطلحات الحاسوب كما هي في لغتها الأم، أفضل من ترجمتها.					
8	يمكن أن تكون مصطلحات الحاسوب المترجمة للعربية أكثر شيوعاً لو أنها قدمت للمستخدم قبل المصطلحات الإنجليزية.					
9	إن ترجمة مصطلحات الحاسوب للعربية العامية يسهل من فهمها.					
10	إن استخدام كلمات أكثر شيوعاً يجعل مصطلحات الحاسوب المترجمة للعربية أكثر قبولاً.					
11	تقع مشكلة مصطلحات الحاسوب المترجمة للعربية في عدم إشارتها لوظيفة أدوات البرامج بشكل دقيق.					
12	إن مصطلحات الحاسوب المترجمة للعربية عالمياً، أفضل من تلك المترجمة محلياً.					
13	أجد صعوبة في فهم مصطلحات الحاسوب دون ترجمتها للعربية.					
14	تساعد كتب الحاسوب العربية والتي تستخدم مصطلحات الحاسوب ككلمات مستعارة في تطوير مهارات الحاسوب لدي.					
15	إن النقص في المحتوى العربي المتعلق بالحاسوب يزيد من صعوبة استخدام المصطلحات المترجمة للعربية.					
16	يميل مترجمو كتب الحاسوب إلى الاختصار في كتبهم، مما يقلل الاعتماد عليها.					
17	كتب الحاسوب المترجمة للعربية مواكبة لما ينشر في العالم.					
18	يساعد استخدام الرسوم التوضيحية في فهم مصطلح الحاسوب المترجم للعربية.					
19	تظهر قلة المعرفة بمصطلحات الحاسوب لدى المترجمين بوضوح في ترجماتهم.					

The Problems Translators Face in Translating Computer Terms Questionnaire

'The Problems Translators Face in Translating Computer Terms Questionnaire'

Dear translator, I am Ghassan Hazza, a student in Middle East University Department of English Language and Literature. I am conducting my research about **"Problems Jordanian Translators Face and Strategies They Use in Translating Computer Terms from English into Arabic"** as per the degree requirement. I thank you for taking part in filling out this questionnaire.

This questionnaire consisting of 19 items aims to find information about your experience in using translated computer terms into Arabic. I value your opinions and feedback. All responses will be kept confidential. The questionnaire will take less than 10 minutes of your time. Thank you again for taking part.

Demographic Data

Statistical Information

Type of translation job:	Full-time	☐	Freelance	☐		
Gender:	Male	☐	Female	☐		
Field of Translation:						
Years of Experience						
Level of Education:	Diploma	☐	Graduate	☐	Post graduate	☐

Computer and Language Skills Proficiency

How do you rate your computer competency?	Excellent 4	V. good 3	Good 2	Acceptable 1	Weak 0

How do you rate your level of written formal Arabic language?	Excellent 4	V. good 3	Good 2	Acceptable 1	Weak 0

Please select a rating that best reflects your opinion.

No.	Item	Strongly Agree	Agree	Undecided	Don't Agree	Strongly disagree
1	Many computer terms cannot be translated into Arabic.					
2	A unified glossary of computer terms translated into Arabic is available.					
3	Having a unified glossary of computer terms translated into Arabic helps in reducing confusion.					
4	Using loan words is better than translating terms into Arabic.					
5	Terms that are coined according to their function are easy to translate					
6	Different terms referring to the same function with different applications cause a problem in translating them					
7	It is easy to find equivalence in Arabic for computer terms.					
8	It is more appropriate to use functional equivalence rather than cultural equivalence.					
9	I use descriptive equivalence when I don't find the appropriate equivalence.					
10	I find standard Arabic inappropriate for translating computer terms.					
11	Glossaries of computer terms on the Internet give only one translation for the same term.					
12	Mastering Arabic language is important to translate computer terms.					
13	The increasing number of computer terms makes it difficult to have them translated into Arabic.					
14	I find it difficult to have specialized dictionaries handling computer terms.					
15	There are many glossaries for computer terms translated into					

	Arabic on the Internet.					

No.	Item	Strongly Agree	Agree	undecided	Don't Agree	Strongly disagree
16	Naturalization is an appropriate method of translating computer terms.					
17	Computer terms translated into regional Arabic dialects create confusion.					
18	I find difficulty in handling acronyms related to computer terms.					
19	Translators should master Arabic morphology to translate computer terms into Arabic.					

Translators' Test

Translate the following sentences into Arabic

1. Press ALT+F, I to open the **Word Options** dialog box.

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2. Under **Display**, clear the **Show shortcut keys in ScreenTips** check box.

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3. In the **Categories** box, **press DOWN ARROW** or **UP ARROW** to highlight the category that contains the command or other item that you want to assign a keyboard shortcut to or remove a keyboard shortcut from.

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4. To change the overall look of your table of contents, **click** a different format in the **Formats** list.

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5. You can see what your choice looks like in the **Print Preview** and **Web Preview** areas.

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6. To change the way heading levels are displayed in the table of contents, click **Modify**.

---

7. In the "**Appearance**" sections, click **Get themes** in the "Themes" section to go to the **gallery**.

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8. In the Create **PDF** panel on the right, click Select File to Convert to PDF and locate the file you want to convert.

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9. In the **Sandbox** Protections area, check or uncheck **Enable** Protected Mode at startup.

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10. Before performing any of these tasks, **back up** all personal files (for example, Photoshop or InDesign files you created).

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11. You can use **Windows Media Player** to find and play digital media files on your computer or **network**, play **CDs** and **DVDs**, and **stream** media from the Internet.

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12. You can also **rip** music from audio CDs, **burn** CDs of your favorite music, **sync** media files to **portable** device, and find and purchase content on the Internet through online stores.

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13. **Scripts** are a sequence of operations your computer performs. These operations may involve only **Illustrator**, or they may involve other applications, such as **word-processing**, **spreadsheet**, and **database-management** programs.

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14. **Data-driven graphics** make it possible to produce multiple versions of **artwork** quickly and accurately.

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15. **Appearance attributes** are properties that affect the look of an object without altering its underlying structure.

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16. The <**datalist**> element specifies a list of pre-defined options for an <**input**> element.

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17. A **cookie** is a **variable** that is stored on the visitor's computer. Each time the same computer requests a page with a browser, it will send the cookie too.

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18. Higher security levels can help protect you from **hackers** and web attacks.

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19. Set **firewall** security options to help protect your computer from hackers and **malicious software**.
