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**Faculty of Letters and Foreign Languages**

**Department of English**

**THIRD-YEAR STUDENTS' DIFFICULTIES IN  
TRANSLATING  
COMPUTING TERMS FROM ENGLISH INTO ARABIC**

Dissertation Submitted in Partial Fulfillment of the Requirements for the Master  
Degree in Applied Language Studies

By: Meriem SOUALMIA

Supervised by: Dr. Elkhlar ATAMNA

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## **Dedication**

This thesis is dedicated to my wonderful parents, who have raised me to be the person I am today. You have been with me every step of the way, Thank you for all the unconditional love, guidance, and support that you have always given me, helping me to succeed. Thank you for everything. I love you!

To my sisters Souhaila and Mouna,

To my brothers Noureddine and Mohamed,

To my precious grand mother THELJA,

To all my family and dearest friends.

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## **ABSTRACT**

The present study seeks to investigate third year English language learners' difficulties in translating scientific terms and to draw attention to the role of adopting the appropriate method that may produce high quality translation using purely Arabic vocabulary.

The data was gathered by means of a research tool in the form of a written translation test. The analysis of the data confirms that students' mistakes are due to their ignorance of appropriate methods they to be used to translate scientific terms and to their unfamiliarity with the computer sciences peculiar language.

As a result, some pedagogical implications have been provided as a starting point towards resolving this problem and helping the students cope with scientific terminology in the process of translation.

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## **General Introduction**

Scientific translation is not like other translations, it goes beyond just rendering words from one language into another. It is rather considered a tool that helps people around the world develop and progress in the field of science. Thus a translator needs to ensure an accurate delivery of information and shows faithfulness and commitment to the source and the target language, so that the translated information can be used easily and help in developing other countries.

One of the main problems that translation trainees may face is how to deal with translating scientific terms from English into Arabic, and in choosing the best method to achieve a high quality translation of those terms which may enrich the Arabic language.

## **Aim of the Study**

The present research attempts to highlight the common mistakes, if any, 3<sup>rd</sup> year students at the English Language Department University of Constantine make when attempting to translate scientific terms from English into Arabic. To highlight the method they most often use in translating such terms, and whether this method is the source of the difficulties they face and whether it is reliable enough to ensure good results and serve Arabic language.

## **Research Questions**

In attempting to investigate the translation problems encountered in translating English scientific terms into Arabic by 3<sup>rd</sup> year learners of English, it is necessary to answer the following questions:

- 1- What are the terminological obstacles students face in translating the scientific terms from English into Arabic?
- 2- What kind of method students use in translating scientific terms?

### 3- Is this method responsible for the mistakes they commit?

#### **Hypothesis**

In an attempt to answer the questions raised by this study, it is hypothesized that the difficulties students face when translating scientific terms, may be accounted for by their ignorance of the importance of adopting the appropriate method that ensures a high quality translation.

#### **Structure of the Study**

The present study consists of two main chapters, a theoretical and a practical one.

Chapter one is divided into two parts, the first part attempts to highlight the main aspects concerning translation in general and the second part is devoted to tackle scientific translation and terminology. It also deals with the methods used in translating scientific terms and ends with a brief account of computer sciences in the Arab world.

Chapter two is devoted to the description, interpretation and analysis of the data collected and ends up with some pedagogical recommendations that may be considered as a solution for the terminological problems in translating scientific texts.

#### **Research Tools**

In order to test the hypothesis and get the required information, the data will be collected through the use of a test.

The test is composed of one exercise in which third year English students will be asked to translate fifteen sentences from English into Arabic.

#### **Participants**

Third year English language students at Mentouri University Constantine will be the chosen population sample to conduct this study. Thirty students will be chosen randomly from

the total population of students enrolled for the academic year 2009/2010. The choice of third year students is motivated by the fact that they have been studying translation for two years now and, hence, are supposed to have a good mastery of translation from English into Arabic.

## **CHAPTER ONE: Translation and Scientific Translation**

### **Introduction**

The following chapter is divided into two parts; the first part will be mainly to discuss the different perspectives and conceptions concerning translation and its types, and the second part will be devoted to talk about scientific translation and scientific terminology. The first part starts with a literature review of the different definitions of the translation concept introduced by many theoreticians, and a brief discussion of translation types and strategies will be mentioned. Whereas the second part will shed light on scientific translation, with particular emphasis on science and terminology; stating their definition and characteristics. As well as, it will discuss scientific translation and its major problems in coining new terms into Arabic. Scientific register is so vast and is commonly used in a large number of branches; therefore this part will be concerned only terms of computer sciences. Moreover, since the Arabic language is concerned, a brief comparison of linguistic differences will be made between Arabic and English language.

## **Part One: Translation**

### **1.1. Definition of Translation**

Defining translation has always been a problematic issue in the sense that one finds more than one definition, each one reflects a different perspective and a theoretical basis in which scholars seek the same goal namely, equivalence. In common practice, one can usually identify two different senses of translation. One aims at transferring ideas and messages via rewording or paraphrasing, as an in everyday life when a layman tries to explain or express ideas in a different way by using different words only even if within the same language. The other sees translation as an act of transferring messages from a source language into a target language, be it oral or written, for the sake of establishing equivalence to get the appropriate meaning (Yowell & Lataiwish, 2000).

Some scholars' definitions of translation focus on the approach of preserving the original or source text effect; to others (Nida and Taber, 1969/1982) translation consists of reformulating the message of the source text into the closest equivalent of the target language. They gave priority to meaning preservation as much as possible then focusing on the style.

For others (Catford, 1965), translation is to substitute a piece of writing in one language by its corresponding piece of writing in another language. As for Ghazzala (1995), translation is any process that results in transferring the meaning from one language into another. For him the main goal is to deliver meaning of the source language by using the equivalents available in the target language.

Hatim and Munday (2004) define translation from two different perspectives. First as a process, translation is an act of taking a text from one language and transforming it into another. In this sense, Hatim and Munday focus on the part of the translator. Second as a product, translation focuses on the results achieved by the translator, the concrete product of translation.

## 1.2. Types of Translation

At this level, translation will be looked at from the viewpoint of classification of types and methods. According to Hatim and Munday (2004), Jacobson in his seminal paper (1959/2000) distinguishes between three main types of written translation: Intra-lingual translation, inter-lingual translation, and inter-semiotic translation.

Intra-lingual translation is the translation of textual materials within the same language and may include rewording or paraphrasing. Inter-lingual translation is to translate textual materials from one language into another. It is also referred to as the proper translation. Whereas inter-semiotic translation is the translation or the interpretation of the verbal signs by non verbal signs as translating ideas or emotions into a painting or in symphony of music.

In addition, each theorist looks at these types of translation differently and classifies them in different ways. For Ghazzala (1995), for example, literal versus free translation is a sufficient classification. According to him, all the available typologies can be squeezed into these two types. All in all, the available typologies may include the following (Ghazzala 1995: 5)

1. Semantic versus communicative translation.
2. Formal versus dynamic translation.
3. Non-pragmatic versus pragmatic translation.
4. Non-creative versus creative translation.

Even though, Ghazzala (1995) discussed only the literal and free translation, he started by literal translation which, according to him, is of two types:

1. Word-for-word translation;
2. Direct translation.

The first type aims at translating individual words only taking no consideration of the grammatical or other linguistic differences. Hence word-for-word translation involves

extreme fidelity to the wording of the source text and forces the translator to set the exact equivalents. On the other hand, the second type, direct translation, considers the grammar and the linguistic differences.

Many theoreticians, including Ghazzala (1995), claimed that this type could be a very dangerous method because it may destroy the meaning. In this sense, Chukovsky said that “its adoption frequently leads to a complete distortion of the meaning of the original” (1984:6). Lefevere (1975) argued that this method has severe limitations.

On the other hand, free translation is to translate under no limitation, translate freely; it is also referred to as sense-for-sense translation. In free translation, the translator focuses on producing a natural readable target text. It is more target text oriented than literal translation; free translation does not take much consideration to preserve the source text wording. Catford (1965:25) suggested that free translations should be *unbounded*.

### **1.3. Translation Strategies**

Strategies are sets of procedures that are used to translate; each one has a scale of facility that may be more helpful than the other. Bosco (1997) classified translation techniques or strategies into two types, direct and oblique.

#### **1.3.1. Direct Translation Techniques**

Direct translation techniques are used when there are conceptual elements that can be transposed into the target language. Bosco (1997) classified those techniques as follows

1. Borrowing
2. Calque
3. Literal translation

### 1.3.1.1. Borrowing

Bosco (1997) defines borrowing as the attempt to take words from one language and put them in another language alphabet. These words are naturalized to suit the grammar and the pronunciation of the target language. Eventually these words become part of the lexicon system of the target language as in Arabic language. For example

1. Computer كمبيوتر
2. Microwave الميكرويف

Also the English language has borrowed numerous words from different languages. For example,

1. *Résumé* and *café passé* from French
2. *Kindergarten* and *hamburger* from German

### 1.3.1.2. Calque

Calque or loan translation is the literal translation. It is to translate a phrase borrowed from another language literary, preserving the source language structure and the manner of expression which may not be familiar to the target language. For example, *champions' league*, *week-end* and *cool* are new borrowed expression used in French and Arabic.

### 1.3.1.3. Literal Translation

Literal translation is to translate from the source language into the target language and to preserve the same effect and wording of the source text, only the language is changed. In literal translation, changes which may affect the source text structures are not allowed. This method usually works with languages from the same family as the following example shows.

1. J'ai parlé au parlement hier → I gave a speech in the parliament yesterday.



### 1.3.2. Oblique Translation Techniques

As for oblique, Bosco (1997) claimed that these techniques are used when the translator cannot translate elements from the source language without adjusting or changing the meaning, the grammatical and stylistic elements of the target language. Oblique translation includes:

1. Transposition
2. Modulation
3. Reformulation or equivalence
4. Adaptation
5. Compensation

#### 1.3.2.1. Transposition

Transposition is to involve changes at the parts speech order when translating, especially at the grammatical level. Zakhir (2008) said that this type is used frequently, because of the wide range of possibilities it offers for translators. Also, it is seen as a solution for *untranslatability*. For example:

1. *A red car* → سيارة حمراء; *A beautiful girl* → فتاة جميلة.

2. *Blue ball* → *boule bleue* in French.

#### 1.3.2.2. Modulation

Modulation is a type of translation where the translator adds changes to the grammatical and semantic structure of the source language to suit the target language without affecting the meaning, because it has to convey the same idea of the source text, and yet it should not carry awkwardness to the reader of the target text. According to Zakhir (2008), Vinay and Darbelnet(1977) distinguished between two major types of modulation, *recorded modulation*, also called *standard modulation*, and *free modulation*.

Recorded modulation is usually used in bilingual dictionaries. Thus, it is a ready type to use. The elements translated by standard modulation are fixed, it is obligatory to keep them as they are. For example:

1. It is easy to understand → من السهل أن افهم

It does not suit the Arabic language, and stylistically inappropriate to translate it as,

من الصعب ألا افهم

Free modulation is considered to be more practical, because it has many possibilities to change the expression of the source language to suit the target language, for instance, translators can change the negative form into the positive form. For example

1. It is difficult → Ce n'est pas facile

### **1.3.2.3. Equivalence**

This technique requires the translator to be creative, especially in the case of translating idioms, proverbs, or slogans of advertising. This process allows the translator to reduce or expand the number of words, but not to drop crucial information. It is also used to make implicit expressions in the source language explicit in the target language. For example:

1. Give the devil his due → اعط كل ذي حق حقه

2. A hungry man is an angry man → كاد الفقر أن يكون كفرا

### **1.3.2.4. Adaptation**

In this type, the translator attempts to make textual materials that are specific to a given language culturally appropriate to another language. As Bosco (1997:2) said "It is a shift in cultural environment". For example:

1. like father like son → هذا الشبل من ذاك الأسد

### **1.3.2.5. Compensation**

Compensation is a strategy used to replace items that cannot be translated from the source text by others in the target text, that is, to express the meaning using different items not available in the source text but have the same sense.

Louise M. Haywood from the University of Cambridge claims (cited in Bosco, 1997:P.10)

We have to remember that translation is not just a movement between two languages but also between two cultures. Cultural transposition is present in all translation as degrees of free textual adaptation departing from maximally literal translation, and involves replacing items whose roots are in the source language culture with elements that are indigenous to the target language. The translator exercises a degree of choice in his or her use of indigenous features, and, as a consequence, successful translation may depend on the translator's command of cultural assumptions in each language in which he or she works.

Finally, each one of the above procedures has its own characteristics, advantages and disadvantages, thus translators are free to use any one if they see its efficiency in translating a given text. Moreover, it is allowed to use more than one strategy in one text. However, according to Zakhir (2008), these procedures should not be used haphazardly; the translator has to state the reason behind choosing a certain strategy. Also the cultural gaps between languages should be taken into consideration when adopting any of these procedures in translation.

## **Part Two: Scientific Translation and Terminology**

### **2.1 Scientific Register**

#### **2.1.1. Definition of Science**

Many definitions have been given to the word science. Cambridge Advanced Learner's Dictionary defines science as:

1. (Knowledge obtained from), the systematic study of the structure and behaviour of the physical world, especially by observing, measuring and experimenting, and the development of the theories to describe the results of these activities.
2. A particular subject that is studied using scientific methods.

In addition, The Academic Press Dictionary of Science and Technology gives the following definition: Science is:

1. The systematic observation of natural events and conditions in order to discover facts about them and to formulate laws and principles based on these facts.
2. The organized body of knowledge that is derived from such observations and that can be verified or tested by further investigation.
3. Any specific branch of this general body of knowledge, such as biology, physics, geology, or astronomy.

Also, Miguel & Ramirez (2007:2) define science as “A way of exploring and explaining the natural world using a process designed to reduce the chance of being misled.”

Following the same sense, science is defined by the Chambers Dictionary as “knowledge ascertained by observation and experiment, critically tested, systematised and brought under general principles” (Chambers 1993).

Generally speaking, science is a word that refers to the organized approach of attaining knowledge, using a scientific method that helps to organize thought, procedures and

then come into clear, faithful and reliable results, free of subjectivity and personal involvements.

### **2.1.2 Definition of terminology**

Webster's new world college dictionary defines *Terminology* as follows:

1. the terms or system of terms used in a specific science, art, etc.; nomenclature  
lexicographer's terminology
2. the systematic study of terms"

On the other hand, Cambridge Advanced Learner's Dictionary defines *terminology* as: "Special words or expressions used in relation to a particular subject or activity". Terminology is viewed as a structured set of concepts and their labels in a particular subject field, it can be considered the infrastructure of specialized knowledge. Technical writing and scientific papers are thus impossible without properly using terminological resources. Scientifically speaking, it is concerned with the study and use of the systems of symbols and linguistic signs employed for human communication in specialized areas of knowledge and activities. Terminology refers to all specific terms and expressions used in a specific register as the terms: *endocrine system*, *cells*, and *hormones* which are specific terms generally used in scientific texts. *Poem* and *Prose*, however, refer mainly to literary texts.

#### **2.1.2.1. Scientific Terminology**

Scientific terms are not simple words; they are special and complex ones. Scientific terms are the most significant feature in science, they discriminate it from other registers (literary).

These terms make scientific texts incomprehensible for lay people; they are directed to experts of the science. Thus scientists use them to dignify their written works, in that William Zinasser (1976) explained that each jargon has its own list of terms which lay people would not understand easily. He (1976:15) wrote "Every profession has its growing arsenal of jargon to

fire at the lay man and hurls him back from its walls.” Furthermore, Ilyas (1989:109) claimed that scientific terminology varies from the regular and literary words since ‘they do not accumulate emotional associations and implications’.

## **2.2. Definition of Scientific Translation**

Scientific translation is mainly about translating terms in the fields of science and technology of all kinds, medicine, physics, chemistry, mathematics, computer sciences...etc from one language into another (Ghazzala 1995).

Scientific translations do not involve literary texts; they only deal with texts from the world of electronics, medicine, law, economics, engineering, chemistry, computer science, automotive engineering, geology, etc. The number of technical fields is infinitely large, and terminology is expanding and changing daily.

The scientific translation is considered as one of the most important issues, as the world develops, new technology appears, and along with them emerge new terms to which finding an equivalent may pose a problem. As Nida (1964) said in this point; it is not easy at all to translate scientific terms that emerged in western developed countries languages into a language of third world countries which are still having financial and social problems.

### **2.2.1. The Aim of Scientific Translation**

Byrne (2006) claims that, scientific translation primary goal is to deliver scientific information; it aims at presenting well expressed information, that may be used *easily, properly and effectively*. He referred to scientific translation as a *communicative service*, which offers new information for new audience, since scientific translation is regarded as communicative service; it certainly involves three main people, which are the author, the translator and the reader. He added also, that it is much more than just rendering source text language and style. Its main concern is to ensure delivering information accurately and correctly, in that it insures that the reader may use this information easily.

### **2.2.2. Requirements of Scientific Translator**

Scientific translators are not like other ordinary translators. There are certain qualifications that they should have in order to accomplish a good translation of scientific texts as well as to deliver the exact information. This is because scientific translation is not just to transfer ideas or information, but rather to transfer technology and new invention that may help other countries. According to the biomedical writer Bethany Thivierge (2002:188) “The work of scientific translators is to achieve one primary goal: to write information in a clear, concise, and accurate manner”. He claimed that there are nine requirements that a scientific translator should observe:

1. Work appropriate for the intended audience.
2. Respect for choices made by the author.
3. Respect for references.
4. Understanding of sciences.
5. Understanding of languages.
6. Constructive questions.
7. Work suitable for publication.
8. Familiarity with current practices.
9. Timely exchange of work.

Following the same sense, Al-Hasnawi (2010) also discriminated six characteristics -taken from the London Institute of Linguistics- that the scientific translator should have:

1. Broad knowledge of the subject-matter of the text to be translated;
2. A well-developed imagination that enables the translator to visualize the equipment or process being described;
3. Intelligence, to be able to fill in the missing links in the original text;

4. A sense of discrimination, to be able to choose the most suitable equivalent term from the literature of the field or from dictionaries;
5. The ability to use one's own language with clarity, conciseness and precision
6. Practical experience in translating from related fields.

Byrne (ibid) also claimed that scientific translator is communicating via the translated texts, in that he should look further than the source text only to get more information from different sources, to ensure an effective target text which serves the communicative purpose. Consequently, the translator becomes according to Göpferich (1993) and Amman & Vermeer (1990:27) “the intercultural or cross-cultural scientific writer”. Byrne(2006:17) goes further and claimed

... The need for translators to conduct research so as to understand not just the text but also the subject while at the same time ensuring, by means of revisions and corrections, that the text conforms to target language norms and target audience expectations.

### **2.2.3. English-Arabic Scientific Translation**

Translation of science from English into Arabic poses huge linguistic obstacles. One of these obstacles, yet a significant one, runs as follows: Translation of scientific terms is considered by Al-Hassnawi (2010) as a real *intellectual challenge*. It requires skills, intelligence, and mastery of both English and Arabic.

Arabic suffers a serious shortage of vocabulary that covers the fields of technology and science; therefore, translators should consider this problem before anything else. Moreover, Esmail Seiny (1985) mentioned that Krollman(1978) stated that terminology is responsible for 40% to 60% of the technical translator’s errors, and it takes up to 50% of his



precious time to set the appropriate terms. Beeston (1970: 115) explained the importance of having new terminology for the scientific field as:

The need for a large new vocabulary dealing with technological and scientific matters is, however, the least interesting feature of the new lexical development; more fascinating, though more elusive, is the evolution of new words for intellectual concepts.

Thus, scientific translation has become a crucial step towards the acquisition of new technologies and spread of technology all over the world, hence, the coinage of new scientific vocabulary is seriously required to enrich the Arabic language.

### **2.3. Terminology in Translation**

It is undeniable that terminology has a significant role in scientific translations, and it is a crucial feature in scientific texts. Byrne (2006:03) argued that “Terminology is, perhaps, the most immediately noticeable aspect of a technical text and indeed it gives the text the “fuel” it needs to convey the information”. Following the same sense, Yowell and .Lataiwish (2000) pointed out that terminology is considered to have a very crucial part in English-Arabic translation. Nowadays, the Arab world witnesses an important process of transferring new founded western terms. This process aims at finding an equivalent for the source language terms in the target language. In this sense, there are two types of technical terms.

#### **2.3.1 Cross-Cultural Recognized Terms**

Cross-cultural recognized terms are known as universal terms, i.e., these terms do not belong to a specific culture. These are terms that are of scientific or technical nature just like national organizations which are not restricted to a specific culture or language. The cross-cultural recognized terms do not impose serious translation problems. The equivalents for this

type are easily achieved since the cultural gap between source language and target language is smaller, no difficulties will arise. For example:

1. The security council → مجلس الأمن
2. Spaceship → مركبة فضائية
3. AIDS → مرض نقص المناعة المكتسبة

### **2.3.2. Cultural Specific Terms**

This type includes terms that are specific and related only to one language, i.e., the grammar terms, for example and cultural specific terms which pose critical problems in the translation process. Thus, it is not easy to find their equivalents. For example, the plural 'ren' in English grammar means more than one, while الجمع in Arabic grammar means more than two.

### **2.4. Misconceptions in Scientific Translation**

Yowell and Lataiwish (2000) claimed that terminology could be one of the most serious obstacles that may face translators of scientific texts, especially, if the target language is Arabic. For that, some purists demand forcefully that the translators, before attempting to coin new terms, should look for old Arabic archaisms that may be set as an appropriate equivalents for the new foreigner terms. However, only if such an equivalent is not found then the translator is allowed to invent a new item. Yowell and Lataiwish (ibid.126) discussed two misconceptions related to scientific translation. The first one is mainly concerned with the linguistic nature of the scientific term and the second is related to the nature of the language itself.

They argue first, the ineffectiveness of processing the search of old Arabic terms and classify it with modern concepts, to be exact equivalents for new foreign terms. They claim also, that it is worthless to waste time and energy looking for old Arabic terms. Besides any old Arabic archaisms can be modernized and given a new concept since the relation between the term and the referent is basically arbitrary.

Second, they discuss the view that sees language as a product and not a dynamic process. This misconception relates to the nature of language and aims that the translator must not attempt to invent or coin new terms before looking thoroughly for vocabulary of the language. This view sees language as “a reservoir of words” that has ready equivalents for each new foreign term. Yet, this process is not always possible, since vocabulary is an *open ended component of language*. The only aspect that should be necessarily considered by the translator is the coinage of new terms that correspond to the phonological and morphological rules of the target language. Yowell and Lataiwish (ibid.126) added: “The condition for a successful term is that it is accepted by the user of the language and thus it gradually becomes established.”

## **2.5. Strategies of Translating English Technical Terms into Arabic**

Dealing with terminology requires specific skills in the form of some strategies that are likely to be fruitful and serve the target language. In this respect, numerous options are available for translators to translate scientific terms into Arabic. On the other hand, several Arabic agencies have devoted themselves officially or unofficially to produce new set of terminology for Arabic that may facilitate the translation process when it comes to introduce new terms from the source language.

There are several methods of translating scientific terms into Arabic; each method differs from the other in the use and the results it produces. Those techniques will be discussed and “ordered from the poorest to the best” according to Ghazzala’s (1995:163) point of view.

### **2.5.1. Transcription**

Transcription or Arabization is one of the strategies widely used to translate scientific terms by introducing minor phonetic and morphological changes to the foreign term. It

consists of writing the English scientific terms using the Arabic alphabet with no alteration to their pronunciation in the source language. Take the following examples:

1. Microwave → ميكرويف,
2. Mega bite → ميغابايت
3. Tetra bite → تيترا بايت

The problem with transcription is that it does not give the meaning of the word in Arabic, besides the transcribed terms are not pure Arabic ones; they are just borrowed and shaped in Arabic letters. Using transcription neither serves the Arabic language nor enriches its vocabulary. In fact, it is just an offence to the Arabic language, because it implies that Arab translators are unable to invent new pure Arabic terms and prefer the easy way to translate scientific terms, thus, neglecting the significant statue of the Arabic language.

Following this line of thought, Ghazzala (1995) argued that this method should be avoided except in the case where translators could not find equivalent for the term in Arabic language. For example:

1. Sandwich → ساندويتش

Yet, if the terms have equivalent in Arabic, translators have to use them instead of transcription, for example:

1. Computer → حاسب
2. Virus → جرثومة

This method will be considered as a critical problem opposed to translators, if they use it for ordinary terms that have equivalents in Arabic as shown by the word 'email' *usually transcribed as* الاميل *and for which the phrase* الرسالة الالكترونية *can be used.*

### 2.5.2. Naturalization

According to Ghazzala (1995), naturalization is the attempt to adopt the English terms to the morphology of Arabic word structure and can be seen as evolution of the transcription method.

This method consists of adding new affixes to the foreign terms leaving their roots unchanged. The added affixes are to adjust the terms into the Arabic morphology as is the case of verbs, nouns, gender, adjectives and adverbs:

1. Technology → تكنولوجيا
  - a. Technologiste (n) → تكنولوجية. تكنولوجية
  - b. Technological (adj.) → تكنولوجي
2. Oxide → اوكسيد
  - a. Oxidised (adj.) → مؤكسد
  - b. Oxidizer (n) → مؤكسد
3. Biology → بيولوجيا
  - a. Biologist (n) → بيولوجي
  - b. Biological (adj.) → بيولوجي

Naturalization is considered by Ghazzala (1995) better than transcription, although it is still not convenient. Thus it is not pure Arabic, the basic or the roots of terms remain English even if they are naturalized.

This method does not consider meaning; the lay reader, for example, would not know the meaning of the word مؤكسد. To avoid this type of problem, Ghazzala (1995) supported another method that, in his opinion, would fulfill the appropriate translation of scientific terms and he simply suggested to translate, i.e., taking the scientific English terms and transfer them by using pure Arabic vocabulary. For example:

1. Technology → تقنية

## 2. Biology→ علم الأحياء

According to Baker (1987) transcription and naturalization have not received acceptance from the language purists because they threaten the identity of Arabic. Thus, translators are likely to come across a situation where they need to be more creative by following certain methods that may ensure the high quality and smoothness of translating scientific terms. In an attempt to get over this obstacle, Ghazzala (1995) suggested that coinage is the best method for translating scientific terms. As for Baker (1987); coining new terms is the only way that ensures the creation of new specialized glossaries for the Arabic language.

### 2.5.3. Coinage

This method aims at presenting new terms in the Arabic language via three main processes.

#### 2.5.3.1. Derivation

Baker (1987) said that the Arabic language is usually referred to as the language of derivation. She explained that the Arabic language word root system is built up on three fundamental consonant roots; each one holds a given meaning. The roots are used for the production of nominal and verbal forms by adding prefixes, suffixes, infixes and vowels. For example:

1. Data→ معطيات from أعطى to give
2. Generator→ مولد from يولد to generate.
3. Factory→ مصنع from صنع to manufacture
4. Studio→ مرسم from يرسم to paint

According to Ghazzala (1995) derivation *is based on measurements*; it aims at using certain measures found in the Arabic language to derive new terms. The most used ones are *machine-names*. For example:

### 1. مفعّل

a. Laboratory → مخبر

b. Anchorage → مرسي

### 2. مفعلة

a. Grease box → مشحمة

b. Butchery → مجزرة

### 3. مفعالة

a. Refrigerator → ثلاجة

b. Mixer → خلاطه

### 4 مفعال

a. Drill → مثقاب

b. Iron → مكواة

Baker (1987) supported this method and claimed that it makes understanding of the meaning of terms easier for the readers since they are inherited from the root, which is already familiar, used to derive that term. In other words, the derived terms are not new to the vocabulary, they already exist but in different forms. Furthermore, it is favoured by academics since it does not affect the identity of the Arabic language and the derivation process is based on pure Arabic vocabulary roots.

On the other hand, Ghazzala (1995) argued that derivation is still a restricted way because it cannot be applied to all the terms as some of them would not accept measures.

#### 2.5.3.2 Revival

Revival attempts to put back into use old Arabic words that were used but fade away with the time and assigns them new meanings. Baker (1987) said that this method uses Arabic lexicon instead of trying to introduce new concepts that may take time to be adopted. For example:

1. Train→ قطار originally used to mean a line of camels
2. Car→ سيارة originally used to mean the night travellers
3. Environment→ بيئة originally used to mean domicile
4. Newspaper→ جريدة originally used to mean the small palm stick was used to write on

Revival has proved its efficiency, however, it is still not easy to look for old Arabic words; it consumes time and effort and cannot be applied to cover all new introduced terms in the field of science. Using this method is not always successful because some of the attempts to revive archaic words did not suit modern Arabic vocabulary; they were “a subject of much ridicule” (Baker, 1987:186).

#### **2.5.4 Neologisms**

Neologisms aim at introducing new terms and concepts into the Arabic language by translating the meaning. This method according to Baker (1987) enjoys much acceptance. For example:

1. Computer programming→ برمجة الكمبيوتر
2. Software→ برمجيات
3. Hardware→ أجهزة
4. Phonetics→ علم الأصوات
5. word processing→ معالجة الكلمات
6. Psychoanalysis→ التحليل النفسي

Finally, there have been great efforts to bring new technical terms into Arabic, by any means available, yet these methods should not threaten the Arabic identity. Translators should consider the linguistic differences between English and Arabic, for that they need to coin terms that are linguistically suitable to Arabic.



## **2.6. Arabic Language and Challenges for Translating English Computer Terms**

When computer products are developed in western countries and distributed in Arabic speaking countries, they carry with them new terms that may have no equivalents in Arabic; therefore, linguistic issues concerning language development must be considered.

When new computer software develops, many technical terms have been introduced into Arabic through transliteration or coining. This phenomenon makes it challenging to find standards for technical terms commonly used in English. Over time, as more and more technical content is translated into Arabic, this challenge will decrease. Translation involving computer terminology is considered a huge challenge for the Arabs. For instance, “calculate” and “calculator” are ambiguous as are “compute” and “computer.” While it is not easy to express computing terms in Arabic, the translator needs to use pure Arabic terms that can accurately express the exact meanings of the source language terms. Basic linguistic differences between English and Arabic can make translation challenging in technical and scientific work. Basically, Arabic is a language that has developed primarily through literature, religious texts, and poetry. Very little modern scientific or technical writing has originated in Arabic, creating a shortage of equivalent terminology. The following table highlights some of the inherent differences in language structure that the linguist must overcome when translating scientific or technical content from English into Arabic. Al-Hassnawi (2010:P.6) sets linguistic differences that exist between English and Arabic as illustrated bellow:

<b>English</b>	<b>Arabic</b>
- Words are composite.	- Words are paradigmatic.
- Only few grammatical items are compound.	The majority of grammatical items are compound.
- Rigid word order.	- Flexible word order.
- Very few inflections	- Highly inflectional.
- Uses abbreviations, acronyms, formulae, and registers.	- Rarely uses abbreviations, acronyms, formulae, and clichés.
- Narrow range of gender distinction.	- Wide range of gender distinction.
- There is clear-cut tense-aspect distinction.	- There is no clear-cut tense aspect distinction.
- There is no dative or dual.	- Contains dative and dual.
- Scientific and technical terminology covers all relevant fields.	- Shortage of scientific and technical terminology that may cover all fields.
- Archaic expressions are almost outdated.	- Archaic expressions are still in use.
- Uses many compound lexical structures.	- Uses few compound lexical structures.
- Metaphor and other forms of figurative language are reserved for poetic use of language and certain related fields.	- Metaphor and other forms of figurative language are very much frequent even in Modern Standard Arabic.
- Adverbs are mostly formed by the affixation of (ly) to adjectives.	- Adverbs are formed by prepositional premodification of nouns and adjectives; English prepositions such as before, after, above, over, below, under, behind, and between are adverbs in Arabic.
- Capitalization is sometimes used for semantic implication e.g. Mosaic, Nativity.... etc.	- Does not use any form of capitalization.
- Does not use vocalization.	- Vocalization has a semantic function.
- Punctuation has a bearing on the interpretation of texts.	- Punctuation has little bearing, if any, on the interpretation of texts.
- A part from such suffixes as (-ling and -ette) there is no paradigmatic diminutive in English.	- Paradigmatic diminutive exists.
- It has no diglossia.	- Diglossia exists.
- There are about twenty configurations of vowel sounds.	- Few vowel sounds used mainly in vocalization.
- There are no pharyngeal or glottal sounds except in the aspirated (H) and the colloquial glottal stop.	- Pharyngeal and glottal sounds are among the standard phonemes in Arabic.

Table 1: English vs. Arabic

The above table shows that the differences that exist between Arabic and English play a significant role in scientific translation. Both of the languages belong to different language families. As for English language it belongs to Germanic languages while Arabic language belongs to Semitic, ultimately this leads to plenty of differences concerning vocabulary and grammar, and most of the language features. Al-Hassnawi deduced from this comparison, that Arabic language suffers a serious shortage of technical and scientific terminology, and it is in a great need of introducing terms that serve Arabic vocabulary, while English language is considered by AL-Hassnawi a highly sophisticated technological language.

### **Conclusion**

The aim of this chapter was to review some aspects concerning translation and scientific translation. It presented first the numerous translation strategies that are involved in translation process. Second it attempted to discuss the several issues concerning scientific translation, which yielded that translating scientific and technical terms is not a simple task for the translator, and he should bear in mind that, scientific translation is not just about translating information, but rather ensure that this information can be used easily by the reader. For that, this chapter showed how terminology is considered to be a serious obstacle in translation scientific terms from English language into Arabic; the translator should acquire a mastery of the two languages and a wide background knowledge, which may help in choosing the appropriate translation technique in order to ensure the accurate rendering of the English terms.

## **Chapter Two: Data collection, Analysis, and Results**

### **Introduction**

The main concern of this chapter is to confirm or refute the hypothesis underlying this study which hypothesises that the difficulties students face when translating scientific texts may be accounted for by their ignorance of the importance of adopting the appropriate method that ensures a high quality translation. This is attempted through the analysis of the data generated by the research tool.

### **2.1. The Choice of Population**

The participants in this study were third year students of English (L.M.D. 2009-2010) at the Department of English, Faculty of letters and Languages. The choice of this population was motivated by the fact that the participants have been studying English for three years and; therefore, are likely to have a fairly good command of English. They are also supposed to have no problems in translating scientific terms from English into Arabic because the course they follow includes two teaching units, ESP and translation. About 30 students have been chosen randomly from the total population to take part in this study.

### **2.2. The Corpus**

The corpus that was taken into consideration in this study was in written form, which was collected from (30) students written translation production of the test.

### **2.3. Description of the Test**

The research tool used in this study is test. The aim is to uncover the students' translation deficiencies as far as computer terms are concerned and to highlight the terminological problems they encounter in translating English computer terms into Arabic.

The test is in the form of a translation exercise which consists of fifteen short simple sentences taken from different texts from "Computer Basis for Idiots" (Joe Kraynak.2003). The sentences included were carefully and deliberately chosen to ensure that each contains at

least one computer term. The reason behind choosing sentences rather than a text is to avoid all others areas of difficulty which may arise as a result of a text textuality and to ensure a great amount of terms from different fields of the computer.

#### **2.4. Administration of the Test**

The test was administrated to the informants by their teacher. In order not to influence them, the researcher chose not to inform the informants of the aim of the test. The test was done as homework because the teacher is aware of the students' translation competence and has concluded that if it were taken in class, probably no one could manage to translate the computer terms embedded in each sentence.

#### **2.5. Analysis Procedure**

The outcomes of this research will help examine the students' translation of computer terms to see the terminological problems they encounter when translating an English source text into an Arabic target text. The following procedures were used in order to analyze the mistakes and problems the students faced during translation:

- The identification of the translation mistakes made by the students was based on the method they preferred to use.
- The total number of the terms to be translated was about twenty-five (25) terms. The mistranslated terms will be classified in tabular formats each of which shows the rate of the mistake in the form of percentages, number of its occurrences, method used to translate it, and a suggested translation.
- The suggested translation will be the standard on the basis of which the informants' mistakes are evaluated.
- The translation deviations will be classified in tables according to the translation method used by the informants.

## 2.6. The Analysis of the Results

### 2.6.1. Analysis of the participants' Translations

All the students responded to the test except three who did not hand back their work, which means that only 27 samples were analyzed. However, not all of them translated all the sentences. The following tables illustrate the students' translations, their frequency of occurrence, and the number of the students who participated in the translation. The translations differ from one student to another, but sometimes similar ones are found. The tables also indicate that the respondents' answers, when referred to in the present study, are reported without any modification, alteration or correction.

- **Sentence one:** "Home page is the first page retrieved when accessing a Web site."

Not all the participants translated the first sentence. Among the 27 participants, two did not attempt to translate it. The sentence contains two computer terms, each one has been translated using more than one method, which leads to more than one suggested translation. The tables below give more details.

#### 1. Term one: Homepage

The English term	Suggested Translations	frequency of Occurrences	Percentage %	The method used
1-Homepage	الصفحة الرئيسية-1	21	77.77%	Neologisms
	صفحة البداية-2	2	7.40%	
	الصفحة الأساسية-3	1	3.70%	
	No equivalent	3	11.11%	
Total		27	100%	

Table 2: Translation of the First Term **Homepage**

From the above table, it seems that most of the participants have no problem in translating the term "Homepage" using only Arabic vocabulary. As it is shown in the above

table, there are three suggested translations. The first one occurred 21 times with 77.77% of the total percentage, the second occurred only twice (2), with a percentage of 7.40%, whereas, the third one occurred only once with a percentage of 3.70%. However, three participants did not translate it. The analysis of these translations reveals that most of the participants used neologisms in order to render the term into Arabic; therefore, they succeeded to use pure Arabic terms rather than transcription. The first suggestion "الصفحة الرئيسية" seems to be the closest correct equivalent for "Homepage".

## 2. Term Two: Website

The English term	Suggested Translations	Frequency of Occurrences	Percentage %	The method used
2-website	الواب	6	22.22%	1-Transcription only for the word "web"
	موقع	7	25.92%	
	موقع الكتروني	5	18.51%	2-neologisms for the whole item
	الانترنت	2	7.40%	
	موقع الشبكة	2	7.40%	
	موقع معلوماتي	1	3.70%	
	موقع ويب	2	7.40%	
	No equivalent	2	7.40%	
Total		27	100%	

Table 3: Translation of the Second Term **website**

The above table shows that the majority of the participants translated the term "website" using different methods. The terms consists of two items "web" and "site", each was translated with the available equivalent found in Arabic. The analysis reveals seven suggestions. Some of the participants treated the term 'website' as if composed of two separate items; others translated it according to the transcription method using only one word as "الواب" which has no specific Arabic meaning. This type of translation occurred six (6) times

with a percentage of 22.22%. The term 'موقع' was also used separately. Although it does not convey the meaning of the term as a whole in English, it is the closest equivalent for the word "site". The two items have been translated as a whole only two time as موقع ويب. The other suggestions موقع الكتروني is not suitable because the term الكتروني was not in the source text, the same thing for the word الانترنت. As for موقع الشبكة and موقع معلوماتي, they can be considered as appropriate since they were translated using pure Arabic items, a method which favours the use of neologisms.

- **Sentence two:** "Connection speeds are measured in kilobits per second. "

All of the participants translated the second sentence. This sentence contains two computing terms; "connection speeds" and "kilobits".

### 3. Term One: Connection speeds

The English term	Suggested Translations	Frequency of Occurrences	Percentage (%)	The method used
1-Connection speeds	1- سرعة تدفق الانترنت	7	25.92%	neologisms
	2- سرعات التوصيل	7	25.92%	
	3- سرعة الاتصال	7	25.92%	
	4- سرعات الوصل	1	3.70%	
	5- الاتصالات السريعة	1	3.70%	
	6- سرعة الربط	2	7.40%	
	7- سرعة ذاكرة الكمبيوتر	2	7.40%	
	No equivalents	0	0%	
Total		27	100%	

Table 4: Translation of the Term **connection speeds**

As it is shown in the above table most of the students used the method neologisms to translate "connection speeds". It was translated using pure Arabic words. The results of the analysis revealed seven suggestions for the term. The first, second and third have the same



percentage 25.92%, the fourth and the fifth have a percentage of 3.70%, the sixth and the seventh occurred with percentage of 7.40%.

The term consists of two items “connection” and “speed”, the latter was given the same equivalent by all the participants "سرعة" or "سرعات" in plural. However, most of the suggestions were emphasised the term “connection”. The first suggestion “سرعة تدفق الانترنت” cannot be considered as an equivalent since it does not include the translation of “connection”. This suggestion is a translation of terms that did not exist in the source language which are “تدفق الانترنت”; hence it carries the implied meaning or idea of “connection speeds” which was about internet connection. The second one “سرعات التوصيل” also cannot be considered as a closest equivalent for “connection speeds”, because the term “التوصيل” carries the meaning of the word “to deliver” or “delivering”. The third one “سرعة الاتصال” also refers to another meaning which is “speed communication” which is not acceptable as a translation for “connection speeds”, the same thing applies to the fifth suggestion “الاتصالات السريعة”. The term “السريعة” is an adjective whereas in the source text it is a plural noun, whereas, the term “الاتصالات” refers to the meaning of the word “calls” in English language. The fourth suggestion “سرعات الوصل” and the sixth suggestion “سرعة الربط” could be acceptable because the terms “الوصل” and “الربط” have the meaning of “to connect”. The last suggestion “سرعة ذاكرة الكمبيوتر” cannot be accepted as an equivalent for “connection speeds” because it is a translation for another term which did not occur in the source text “computer memory speed”.

#### 4. Term Two: Kilobits

The English term	Suggested Translations	Frequency of Occurrences	Percentage (%)	The method used
2-Kilobits	كيلوبايت-1	27	100%	Transcription
	No equivalents	0	0%	
Total		27	100%	

Table 5: Translation of the Term **kilobits**

As it is shown in the above table, all the participants translated the term “kilobits” using one method which is transcription. This type of translation introduces no meaning for the word; it was rewritten in Arabic alphabet. Therefore, it yields one suggestion only. This may be due to the fact that it does not yet have an equivalent in Arabic vocabulary, and indeed the research for “kilobits” equivalent in Arabic revealed no available items which can be used as equivalent in Arabic language and which may carry an approximate meaning. However the term “kilobits” is a unit of measurement for computer memory, it consists of two items “kilo” and “bit”. The word “bit” means a unit of information in a computer that must be either 0 or 1.

- **Sentence three:** “Many businesses that offer wireless internet connectivity advertise as hotspots.”

70.37% of the participants translated the third sentence. This sentence contains two computer terms; “wireless” and “internet”. These terms have been analyzed in the participants’ translations as the tables illustrate.

## 5. Term One: Wireless

The English term	Suggested Translations	Frequency of Occurrences	Percentage (%)	The method used
1-Wireless	اللاسلكي-1	18	66.66%	neologisms
	No equivalents	9	33.33%	
Total		27	100%	

Table 6: Translation of the Term **wireless**

As the above table shows the term “wireless” was translated 18 times with a percentage of 66.66 %, which is clear that more than half of the students attempted to translate it, while the rest 33.33% did not translate at all. The method used was neologism, i.e., using pure Arabic vocabulary. The term “wireless” consists also of two items “wire” and “less”, this was taken into consideration while translating the term, thus, in Arabic one can discriminate between two items “سلكي” which is equivalent to “wire” and “لا” as an equivalent for “less” which is the only accepted translation.

## 6. Term Two: Internet

The English term	Suggested Translations	Frequency of Occurrences	Percentage (%)	The method used
2-Internet	الانترنت-1	19	70.37%	transcription
	No equivalents	8	29.62%	
Total		27	100%	

Table 7: Translation of the Term **Internet**

From the above table one can see that 70.37% of the participants attempted to translate the term “internet” and all of them used the transcription method. This is the only satisfactory translation so far; the participants failed to provide an adequate equivalent for this term which should be in pure Arabic vocabulary and carries its meaning in the source language. The term “internet” is defined as a large system of connected computers around the world; it is a worldwide network of connected computers. Therefore one can translated it as الشبكة الحاسوبية. This translation is an acceptable one since it carries the meaning of the term.

- **Sentence four:** “Web pages addresses are formally called URL (Uniform resource locators).”

The fourth sentence had the highest rate of participation, with a percentage of 96.29%. The sentence contains one computer term “URL (Uniform Resources Locators)”, the analysis of the given translations of this term is illustrated in the table below.

#### 7. Term: URL (Uniform Resources Locators)

The English term	Suggested Translations	Frequency of Occurrence	Percentage (%)	The method used
1- URL (Uniform Resource Locators)	1-المصدر	2	7.40%	1-Transcription 2-Neologisms
	2-URL	14	51.85%	
	3-م.م.م محرر المصادر المنتظم	3	11.11%	
	4-ال يو.ار.ال	3	11.11%	
	5-محلات المصدر الموحد	1	3.70%	
	6-محدد المصادر المنتظم	1	3.70%	
	No equivalent	3	11.11%	
Total		27	100%	

Table 8: Translation of the Term **URL (Uniform Resource Locators)**

As it is shown in the above table, the term was translated by 24 participants from the total number. They provided six suggestions and they used two methods; transcription and neologism. The term consists of four items; an abbreviation and three words. The first suggestion has a ratio of 7.40%, the second 51.85%, the third and the fourth 11.11%, and finally the fifth and the sixth 3.70%.

To starting with, the first suggestion “المصدر” can be considered as an equivalent for the first suggested term since it is a translation of only one item. The second one “URL” used by the majority with a total percentage of 51.85% shows that more than half of the students failed to translate it appropriately, in fact, it cannot be considered as a translation at all because the term is still in English and the participants used it in Arabic. The third suggestion “م.م.م محرر المصادر المنتظم” can be accepted as an adequate translation, no item was missing from the suggested translations and only Arabic vocabulary was used. However, it is not an exact equivalent for the English expression. The same thing applies to the sixth suggestion, “محدد المصادر المنتظم”, the intended meaning in both suggestions is not achieved. Also, the fourth suggestion “ال يو.ار.ال” is considered as inappropriate translation because it still has the source language pronunciation and it does not denote any meaning in Arabic. However, the translation of the fifth suggestion, “محللات المصدر الموحد”, could be the nearest equivalent; it carries the meaning of the source language term.

- **Sentence five:** “Click the outlook express icon on the windows desktop or in the quick launch toolbar.”

Less than half of the participants attempted to translate the fifth sentence, with a percentage of 40.74%, the lowest participation so far. Compared to other sentences, This one includes the highest number of computer terms; it contains five terms that will be analyzed in the following tables.

## 8. Term One: Click

The English term	Suggested Translations	Frequency of Occurrences	Percentage (%)	The method used
1-Click	1-اضغط	11	40.74%	Neologisms
	2-انقر	3	11.11%	
	No equivalents	13	48.14%	
Total		27	100%	

Table 9: Translation of the Term **Click**

The above table shows that the term ‘Click’ was translated by 14 participants who provided two different translations using the same method, “neologism”. The term was translated using only pure Arabic words. 40.74% of the total participants translated the term as “اضغط”, however, 11.11% translate it as “انقر”. The rest of the participants with a percentage of 48.14% did not translate it at all. Of the total number of the suggested translations only one could be the nearest equivalent for the term “click”. As for the first one “اضغط”, it carries the meaning of “press” in English; it is to push something firmly using the fingers, whereas? “انقر” is just to press something very briefly. Therefore, the second suggestion seems to be the nearest equivalent to the term “click”.

## 9. Term Two: Outlook Express

The English term	Suggested Translations	Frequency of Occurrences	Percentage (%)	The method used
2-Outlook express	1-السريع outlook	1	3.70%	1-neologisms
	2-مطلع نظام النقل السريع-	1	3.70%	2-Transcription
	3-الاتولوك	1	3.70%	
	4-المعبرة	1	3.70%	
	No equivalents	23	85.18%	
Total		27	100%	

Table 10: Translation of the Term **Outlook Express**

It seems evident from the above table that only four (4) participants attempted to translate the term “Outlook Express”. Each one provided a different equivalent for the term. The participants used two methods; transcription and neologisms. The first suggestion “السريع” is not suitable to be accepted as a translation, the participants translated only one item “السريع” and kept the second item “Outlook” in English as it is. The second translation is “مطلع نظام النقل السريع”. Here the participants tried to provide pure Arabic translations for the term. However, their suggestions were not successful because they do not carry the meaning of the English expression. The same thing applies to the fourth suggestion “المعبرة”. This is a pure mistranslation of the term because the participants understood the term as expressing an idea. The third suggestion “الاتولوك” is a mere transcription of the term; it does not carry any sense in Arabic at all. The term “Outlook Express” is used for free online mail; it is primarily a name of a company that offers a free emailing via the net. Therefore, it cannot be given an equivalent in Arabic language. The reason behind giving it to be translated is to test the participants’ ability and awareness of the internet terminology.

### 10. Term Three: Windows

The English term	Suggested Translations	Frequency of Occurrences	Percentage (%)	The method used
3- Windows	1- Windows	1	3.70%	Neologisms
	2- النافذة	8	29.62%	
	No equivalent	18	66.66%	
Total		27	100%	

Table 11: Translation of the Term **Windows**

Most of the participants (66.66%) made no translation attempt for the term “Windows” and those who translated it (29.62%) had no problems in finding the exact equivalent using one method which is neologism. The suggested translation is “النافذة”. This suggestion is successful as it uses a pure Arabic term and which is the closest equivalent for “windows”.

### 11. Term Four: Desktop

The English term	Suggested Translations	Frequency of Occurrences	Percentage (%)	The method used
4- Desktop	1- سطح المكتب	3	11.11%	Neologisms
	2- مكتب القراءة	1	3.70%	
	No equivalent	23	85.18%	
Total		27	100%	

Table 12: Translation of the Term **Desktop**

As it is shown in the above table, the majority of the participants (85.18%) failed to give an equivalent for the term “desktop”, while the rest provided two suggested translation. To put differently, three (3) participants were able to grasp the meaning of the English



expression and ended up with a successful Arabic translation as it illustrated in the table. On the other hand, the second suggestion “مكتب القراءة” is not a very successful translation, since it does not carry the meaning of the English expression, but it has the meaning of “reading desk”. The term “desktop” is specific to computing lexicography, “desktop” is the view in computer screen which is intended to represent the top of a desk which contains certain icons.

## 12. Term Five: Toolbar

The English term	Suggested Translations	Frequency of Occurrences	Percentage (%)	The method used
5-Toolbar	شريط-1	1	3.70%	Neologisms
	شريط الأدوات-2	1	3.70%	
	No equivalent	25	92.59%	
Total		27	100%	

Table 13: Translation of the Term **Toolbar**

The table above shows that only two students managed to provide equivalent for the term, while the rest (92.59%) failed to translate it. Each one from the two participants provided one suggested translation; the first one rendered the term “toolbar” into “شريط”, while the second one translated it as “شريط الأدوات”. Both of them used neologism as a method of translation. The second suggestion is a successful one, it is the nearest equivalent to the English term; it carries the meaning and it is a pure Arabic vocabulary. Toolbar is a window that contains a range of icons that access tools; so one participant from the total sample succeeded to provide an equivalent for the term.

- **Sentence six:** “Enter information for a different e-mail account.”

Most of the participants (88.88%) attempted to translate the sixth sentence. There is only one computer term in this sentence which is “Email account”. The term consists of two items. The table below shows the participation concerning translating this term

### 13. Term: Email Account

The English term	Suggested Translations	Frequency of Occurrences	Percentage (%)	The method used
1-Email account	1-بريد الكتروني	9	33.33%	1-neologisms 2-transcription
	2-البريد السريع	1	3.70%	
	3-ايميل	4	14.81%	
	4-حساب بريد الكتروني	3	11.11%	
	5-علبتك البريدية	1	3.70%	
	6-مواقع الكترونية	1	3.70%	
	7-حسابات	1	3.70%	
	8-رصيد الرسائل	2	7.40%	
	9-مختلف الرسائل	2	7.40%	
	10- Email	1	3.70%	
	No equivalent	2	7.40%	
Total		27	100%	

Table 14: Translation of the Term **Email Account**

The above table shows that the participants provided ten (10) suggested translations, and they used two methods in their translation; neologisms and transcription. From the ten suggestions, only the fourth one “حساب بريد الكتروني”, which occurred three times with a percentage of 11.11% succeeded to convey the required meaning of the English term because it is a complete translation of the term. Unlike the first suggestion “بريد الكتروني” which had the

highest percentage of occurrences 33.33% among the ten suggestions. This suggestion is a correct equivalent, but it is not a complete translation, there is one item missing which is “account”. The third suggestion “ايميل” occurred four times with a percentage of 14.81%. The term was transcribed and thereby carries no meaning in Arabic for it cannot be accepted as a translation. The rest of the suggestions are not close enough to be accepted as equivalents for the English term because either the rendering is not correct, like translating items did not exist in the source language, as in “البريد السريع”, “علبتك البريدية”, “مواقع الكترونية”, or it is not complete as in “رصيد الرسائل”, “مختلف الرسائل”. The last suggestion “email” cannot be accepted as an equivalent because it is not a rendering; the term is still as it is in the source language.

- **Sentence Seven:** “Click the screen name box, type your screen name, and then click the password box and type your password.”

To start with, 85.18% of the respondents translated the seventh sentence. This sentence contains one computing term “screen name box”, the term consists of three items. The analysis of the participants’ translations revealed nine different suggested translations; they used one method which is neologism.

#### 14. Term: Screen name box

The English term	Suggested Translations	Frequency of Occurrences	Percentage (%)	The method used
1- Screen name box	1- صندوق اسم الشاشة-	9	33.33%	Neologisms
	2- الإطار المخصص للاسم على الشاشة-	1	3.70%	
	3- خانة الاسم-	4	14.81%	
	4- الشاشة اسمها-	1	3.70%	
	5- مربع اسم الشاشة-	1	3.70%	
	6- مفتاح شاشة الاسم-	1	3.70%	
	7- الاسم-	1	3.70%	
	8- خانة الاسم المستعار-	4	14.81%	
	9- المساحة المخصصة لكتابة الاسم-	1	3.70%	
	No equivalents	4	14.81%	
Total		27	100%	

Table 15: Translation of the Term **Screen name box**

The suggested translations have different ratios of occurrence. The first one has the highest ratio with a percentage of 33.33% while the second and the fourth, fifth, sixth, seventh and ninth had a ratio of 3.70. Each one occurred only once. The third and the eighth occurred with a percentage of 14.81%. Starting with the first suggestion “صندوق اسم الشاشة”, it is clear that this is a literary translation. The participants attempted to translate the components of the term separately which ended up with meaningless rendering of the term. The same thing applies to the third suggestion “خانة الاسم”, the fourth suggestion “الشاشة اسمها”, the fifth suggestion “مربع اسم الشاشة”, and the sixth “مفتاح شاشة الاسم”. The seventh “الاسم” is not a full translation of the term; it is only a translation of one item which is “name”. The rest of the suggestions are acceptable translations of the term with the second one “الإطار المخصص للاسم على الشاشة” being the closest equivalent as it carries the meaning of the English term.

- **Sentence Eight:** “To remain signed in but hidden, click I am available and click invisible.”

The analysis of this sentence shows that 74.07% of the participants translated it. The sentence contains one computing term “signed in”. The participants came out with four suggested translations as it is shown in the table below.

#### 15. Term: Signed in

The English term	Suggested Translations	Frequency of Occurrences	Percentage (%)	The method used
1- Signed in	1- مسجلا دخولك-	9	33.33%	Neologisms
	2- اتصال-	8	29.62%	
	3- كمشترك-	1	3.70%	
	4- لك رمزا-	1	3.70%	
	No equivalent	8	29.62%	
Total		27	100%	

Table 16: Translation of the Term **Signed in**

It is evident that eight participants failed to give an equivalent for the English term. While the rest attempted to translate it using neologism as a method. Eventually, they provided four suggestions, the first one has the highest ratio of occurrence with a percentage of 33.33%, the second with a ratio of 29.62%, and the third and the fourth have the same percentage 3.70%. Only the first suggestion could be accepted as a closest equivalent; it has the source term meaning rendered into the target one. Whereas, the rest of translations are not appropriate since they carry a different meaning.

- **Sentence Nine:** “You can also click the Auto sign in option.”

92.59% of the participants translated the ninth sentence which includes one computer term. The term was translated using different methods: transcription, naturalization and neologisms. The analysis revealed nine different suggested translations as it is shown in the below table.

#### 16. Term: Auto sign in option

The English term	Suggested Translations	Frequency of Occurrences	Percentage (%)	The method used
1- auto sign in option	1- خيارات التسجيل	3	11.11%	Transcription Naturalization Neologisms
	2- رمز auto	2	7.40%	
	3- تسجيل الدخول التلقائي في	7	25.92%	
	4- الإشارة الأتوماتيكية في لوحة	1	3.70%	
	5- خدمة الرمز الآلي	1	3.70%	
	6- التسجيل الآلي	1	3.70%	
	7- الدخول الأتوماتيكي	1	3.70%	
	8- الزر الأتوماتيكي للاتصال	1	3.70%	
	9- الرمز في الخيار	5	18.51%	
	No equivalents	4	14.81%	
Total		27	100%	

Table 17: Translation of the Term **Auto sign in option**

As the analysis reveals, not all of the nine suggestions come close to convey the meaning of the English term. Only the third suggestion “تسجيل الدخول التلقائي في”, with the highest percentage of occurrences (25.92%) among the other suggestions, succeeded to convey the required meaning and it is translated using pure Arabic terms. Some of the suggested translations which kept some items of the source term as they are pronounced in the source language as in suggestions two, four, seven and eight the English term “auto” did not

change in the translation process they were merely transcribed and , therefore, did not succeed to give the meaning of the English term.

- **Sentence Ten:** “Open the messenger menu, point to Yahoo! chat and join a room.”

Except for one participant, all the students translated the tenth sentence. The sentence includes two computing terms “Messenger” and “Yahoo chat”. The terms were translated using two methods transcription and neologisms. The analysis reveals different suggested translation as the tables show.

### 17. Term: Messenger

The English term	Suggested Translations	Frequency of Occurrences	Percentage (%)	The method used
1- Messenger	1- الماسنجر	12	44.44%	Neologisms Transcription
	2- ألساع	1	3.70%	
	3- الرسائل	5	18.51%	
	4- الراسل	1	3.70%	
	5- Messenger	2	7.40%	
	6- المر اسل	3	11.11%	
	7- موصل الرسائل	1	3.70%	
	No equivalent	0	0%	
Total		27	100%	

Table 18: Translation of the Term **Messenger**

The participants provided seven suggested translations. The first one has a percentage of 44.44%, the second, fourth and seventh occurred with ratio of 3.70% for each, whereas the third one had a ratio of 18.51%, the fifth 7.40% and finally the sixth 11.11%. The first suggestion “الماسنجر” is a transcription of the English term; it does not convey the meaning of

the term and, therefore, is not an appropriate translation. The second one “الساع” which has been suggested by one participant is adequately rendered. It is in Arabic and it carries the exact meaning of the English term which the one who delivers messages. The third suggested translation “الرسائل” can be accepted as an equivalent because it refers to “letters” or “mails” which does not exist in the source language. Fourth suggestion “الراسل” refers to the “sender” of the message. The fifth suggestion “Messenger” is not a translation at all of the English term; the English term was used but written using Arabic letters and therefore is can be considered as a translation. The sixth suggested translation “المراسل” was also not successful to convey the source term meaning, it rather refers to “the correspondent”.

### 18. Term: Yahoo Chat

The English term	Suggested Translations	Frequency of Occurrences	Percentage (%)	The method used
2- yahoo chat	1- ياهو تحدث-	7	25.92%	Neologisms Transcription
	2- ياهو تكلم-	3	11.11%	
	3- ياهو دردش-	9	33.33%	
	4- Yahoo	4	14.81%	
	5- ياهو محادثة-	3	11.11%	
	6- ياهو راسل-	1	3.70%	
	7- دردشة الكترونية-	1	3.70%	
	8- غرفة محادثة-	1	3.70%	
	No equivalents	0	0%	
Total		27	100%	

Table 19: Translation of the Term **Yahoo Chat**

The table above shows that all of the participants attempted to translate “yahoo chat” into Arabic and thus eight translations were provided. Most of the participants’ suggestions



succeeded to convey the required meaning; however, only one could be the closest equivalent. To start with the term consists of two items “yahoo” and “chat”; the first item is a name of a company that offers free chatting and mailing via the net, hence, no equivalent is yet available in Arabic language for it. The results revealed that all the participants transcribed it into Arabic letters. On the other hand “chat” has many suggested translations as it is shown in the above table. The one that could be the closest equivalent is the fifth one “ياهو محادثة” with a percentage of occurrence 11.11%, i.e., only three students from the total sample succeeded to set the right equivalent. Furthermore, the analysis shows that four participants put the term “yahoo” as translation which is not accepted as a rendering at all. Also the sixth suggestion “ياهو راسل” is not a correct rendering of the term because the word “chat” is translated as “send” in Arabic.

- **Sentence Eleven:** “You can subscribe to mailing lists and newsletters on the web to have news emailed to you.”

Half of the population sample (51.85%) attempt to translate the eleventh sentence, in this sentence there is one computer term which is “emailed”, it was translated using two methods; neologisms and transcription. The analysis of the term translation is illustrated in the below table

## 19. Term: Emailed

The English term	The Suggested Translations	Total Number of Occurrences	Percentage of Translation (%)	The method used
1- Emailed	1- ترسل	1	3.70%	Neologisms Transcription
	2- الحصول على	2	7.40%	
	3- ترسل إليك عبر البريد الإلكتروني	1	3.70%	
	4- تستقبل الاميلات	2	7.40%	
	5- تبعث لك	1	3.70%	
	6- لتتقل الاخبار بالبريد الالكتروني	1	3.70%	
	7- جديد للبريد	18	66.66%	
	No equivalent			
Total		27	100%	

Table 20: Translation of the Term **Emailed**

66.66% of the participants did not translate the term, and left as blank. The rest came out with seven different suggestions. The first, third, fifth, sixth and seventh suggestions occurred only one time, while the second and the fourth occurred twice for each. The first suggestion “ترسل” and the fifth suggestion “تبعث لك” are in pure Arabic terms, even though both of them can not be accepted as an equivalent for the English term. Since they do not carry the whole meaning of it, both of translation carries only the meaning of “send”, while the English term aims at sending mails via the net. The same thing for the second suggestion “الحصول على” it does not convey the total sense of the source term. Whereas the third suggestion “ترسل إليك عبر البريد الإلكتروني” which is provided by only one participant, is an adequate rendering of the English term, this translation conveyed the meaning, and it is in pure Arabic words. Also the sixth suggestion “لتتقل الاخبار بالبريد الالكتروني” The fourth suggestion “تستقبل” is not a successful attempt, since the English term is transcribed and naturalized as “الاميلات”. The last suggestion “جديد للبريد” is a mistranslation of the English term; the word

“جديد” did not exist in the source term, also the source term is a verb whereas this suggestion is a noun.

- **Sentence Twelve:** “A blog is a publicly accessible personal journal that enables an individual to voice her /his opinion.”

This sentence has the lowest rate of participation with percentage of 37.03%, it contains one computing term “blog”. Only seven participants attempted to translate the term, they adopted transcription as a method of translation.

## 20. Term: Blog

The English term	The Suggested Translations	Total Number of Occurrences	Percentage of Translation (%)	The method used
1- Blog	1- البلوق	3	11.11%	Transcription
	2- Blog	4	14.81%	
	No equivalents	20	74.07%	
Total		27	100%	

Table 21: Translation of the Term **Blog**

As it is shown in the above table, the participants provided two suggested translations, three (3) participants translated as “البلوق”, and four (4) participants put it as it is in the source language “blog” in the Arabic sentence. Both of the suggestions can not be accepted as a translation, the first one is transcription of the term, thus it carries no meaning even if it is in Arabic alphabet. The second suggestion is not a translation, no rendering was introduced.

- **Sentence Thirteen:** “Scan incoming files for viruses.”

77.77% of the participants translated this sentence; it includes one computing term which is “scan”. The term was translated using neologisms as a method, the analysis of this term translation is provided in the below table

## 21. Term: Scan

The English term	The Suggested Translations	Total Number of Occurrences	Percentage of Translation (%)	The method used
1- scan	1- افحص-	17	62.96%	Neologisms
	2- مسح-	3	11.11%	
	3- فاقد-	1	3.70%	
	4- تأكد من خلو-	1	3.70%	
	No equivalents	5	18.51%	
Total		27	100%	

Table 22: Translation of the Term **Scan**

The above table shows that the students provide four different suggested translations. The first one “افحص” had the highest rate of occurrences with percentage of 62.96%, it a successful rendering of the English term, this translation is in pure Arabic language and it conveys the required meaning ; also the second suggestion which occurred three times with percentage of 11.11%, is a successful one too. Whereas the third one “فاقد” which occurred only once, is not acceptable as an equivalent since it refers to a meaning of another word “check”. The last one “تأكد من خلو” is not an adequate equivalent for the English term.

- **Sentence Fourteen:** “Purchase and install an antivirus program and keep it updated with the latest virus definition.”

Concerning this sentence, the rate of participation estimated to 70.37%, it contains three computing terms; “install”, “antivirus” and “updated”. These terms were translated using neologisms and transcription.

## 22. Term: Install

The English term	The Suggested Translations	Total Number of Occurrences	Percentage of Translation (%)	The method used
1-install	1-حمل	7	25.92%	Neologisms
	2-سجل	2	7.40%	
	3-نصب	2	7.40%	
	4-ضع	3	11.11%	
	5-ثبت	2	7.40%	
	6-ركب	2	7.40%	
	7-شغل	1	3.70%	
	No equivalents	8	29.62%	
Total		27	100%	

Table 23: Translation of the Term **Install**

Seven suggested translations were provided by the participants for the English term. The first one occurred with percentage of 25.92%, the second, third, fifth and sixth had the same rate of occurrences 7.40%. The fourth one occurred three times and the last one occurred once. From these seven suggested translations, only the third one “نصب” and the sixth one “ركب” are accepted as an adequate equivalent for the English term, while the rest are considered as mistranslations, they failed to achieve the appropriate meaning. As for the first suggestion “حمل” it refers to “download”, the second one “سجل” one refers to “register”. Furthermore, the fourth one “ضع” refers to “put”, and fifth one “ثبت” refers to “to fix”, and finally the seventh one “شغل” refers to “to work”

### 23. Term: Antivirus

The English term	The Suggested Translations	Total Number of Occurrences	Percentage of Translation (%)	The method used
1-antivirus	برنامج ملاحقة الفيروسات-1	1	3.70%	Transcription Neologisms
	البرنامج المضاد للفيروسات-2	14	51.85%	
	البرنامج مكافح الفيروسات-3	1	3.70%	
	البرنامج حماية الفيروسات-4	3	11.11%	
	No equivalents	8	29.62%	
Total		27	100%	

Table 24: Translation of the Term **Antivirus**

The analysis concerning the English term in the above table revealed that the participants came out with four (4) different suggested translations. This term consists of two items “anti” and “virus”, the suggested translations were primarily around “anti”, while all the participants provided the same suggestion for “virus” ; they translated it using transcription which yields the term “الفيروسات”, this translation is not accepted since there is a pure Arabic equivalent for the English term which is “الجراثيم”. Concerning the suggestions provided for “anti”, only the second one, which had the highest ratio 51.85%, is accepted as a successful rendering since it is the exact equivalent. While the rest of the attempts are not close enough and since the exact equivalent exist, no need to suggest them. The first one “ملاحقة” refers to another meaning which is “to pursuit” or “to hunt”. The third one “مكافح” refers to “fight”. And the last one “حماية” refers to “protect”.

## 24. Term: Updated

The English term	The Suggested Translations	Total Number of Occurrences	Percentage of Translation (%)	The method used
1-updated	1- مستحدثا-1	10	37.03%	Neologisms
	2- تجديد-2	4	14.81%	
	No equivalent	13	48.14%	
Total		27	100%	

Table 25: Translation of the Term **Updated**

The suggested translations for this term are considered as successful ones. Neologisms was adopted as a method, which yields to pure Arabic words and carry the meaning of the source item. The first suggestion occurred with the same percentage of 37.03%. The second one occurred with percentage of 14.81%.

- **Sentence Fifteen:** “Wi-Fi is a wireless network standard for connecting computers via radio frequency signals rather than network cables.”

the participation rate with percentage of 81.48% is higher comparing to the previous sentence, this last sentence contains one computing term which is “computer”, it was translated using neologisms and transcription methods, as it is illustrated in the below table

## 25. Term: Computer

The English term	The Suggested Translations	Total Number of Occurrences	Percentage of Translation (%)	The method used
1- computer	1- اجهزة كمبيوتر-	19	70.37%	Transcription neologisms
	2- الحواسب-	3	11.11%	
	No equivalents	5	18.51%	
Total		27	100%	

Table 26: Translation of the Term **Computer**

The process of translating this last term revealed three suggested translations; the first suggestions “اجهزة كمبيوتر” which has the highest ratio of occurrences 70.37%, is not accepted as an adequate equivalent, first it is transcribed i.e it is not in pure Arabic words, also it does not carry the meaning of the source term. On the other hand, the second suggestion “الحواسب” is an accepted equivalent; it is in Arabic and carries the meaning.

The students’ difficulties in finding the adequate Arabic equivalent words and expressions can be related to the specific terminology used in scientific text, and to their ignorance of the appropriate method that may ensure a good rendering of the scientific terms into pure Arabic vocabulary. Therefore, whenever they come across an obstacle in finding the Arabic terms using a good method, they end up with meaningless transcribed words and awkward sentences.

### 2.7. The Analysis of the Methods Used in Translating the Computing Terms

As it has been mentioned earlier, there are five techniques used in translating scientific terms; “Transcription”, “Naturalization”, “Derivation”, “Revival” and



“Neologisms”, each translator has the freedom in choosing any technique that he prefers, and ensures its efficiency in introducing new terms into Arabic language.

The analysis of the participants’ translations reveals that all of them adopted two techniques to translate the computing terms; which are “Transcription” and “Neologisms”. The most used one was “Neologisms” with percentage of occurrences 66.66%, and “Transcription” occurred with percentage of 33.33%. The analysis shows that there are some suggested translations that have been used both of techniques because there are some terms consist of more than one item, as in yahoo chat, email account, URL, outlook express, antivirus, auto sign in option, website, and some participants translated them separately. the total number of the terms exceeds 33 items.

The participants who did not translate any term have been not accounted, this result is good so far, it proves that a great number of the participants tend to use pure Arabic terms, even though they are still having problems in setting out the right equivalent.

<b>Term and strategy used in translation</b>					
	<b>Transcription</b>	<b>Naturalization</b>	<b>Derivation</b>	<b>Revival</b>	<b>Neologisms</b>
<b>1-Home page</b>	0	0	0	0	25
<b>2-Web site</b>	8(web)	0	0	0	19
<b>3-Connection speeds</b>	10 internet	0	0	0	17
<b>4-Kilobits</b>	27	0	0	0	0
<b>5-Wireless</b>	0	0	0	0	18
<b>6-Internet</b>	19	0	0	0	0
<b>7-URLuniform</b>	17	0	0	0	10
<b>8-Click</b>	0	0	0	0	14
<b>9-Outlook express</b>	2	0	0	0	2
<b>10-Windows</b>	1	0	0	0	8
<b>11-Desktop</b>	0	0	0	0	4
<b>12-Toolbar</b>	0	0	0	0	2
<b>13-E-mail account</b>	5	0	0	0	19
<b>14-Screen name box</b>	0	0	0	0	23
<b>15-Signed in</b>	0	0	0	0	19
<b>16-Auto sign in</b>	5 AUTO	0	0	0	18
<b>17-Messenger</b>	14	0	0	0	12
<b>18-Yahoo Chat</b>	25 YAHOO	0	0	0	27
<b>19-Emailed</b>	0	0	0	0	9
<b>20- Blog</b>	7	0	0	0	0
<b>21- Scan</b>	0	0	0	0	22
<b>22- Install</b>	0	0	0	0	19
<b>23-Antivirus</b>	19 VIRUS	0	0	0	19
<b>24- Updated</b>	0	0	0	0	14
<b>25- Computer</b>	19	0	0	0	3

**Table 27: Methods used in Translating the Computing Terms**

The above table displays that from five translation methods, the participants used only two; “Transcription” and “Neologisms”. The total number of the terms that have been transcribed is eleven (11), while the number of terms that have been translated using

Neologisms is twenty-two (22). Some of the terms that have been transcribed do not have any equivalent in Arabic language as: “Kilobits”, “Outlook express” and “Blog”, “Yahoo”, “web” and others have equivalents, but the participants did not bother themselves to pure Arabic term and they preferred the easy way. As in “computer”, “windows”, “messenger”, “internet”

## **2.8. Inexact Rendering**

There are certain rules that the translator should follow in translating any text, one of them is to show fidelity and faithfulness to the source text, to ensure the accurate delivering of the information to the target text, and otherwise, they will be considered as “traitors”. Aziz (1971:22) argued that the inexact translation take place when “the translator does not tell the whole truth; he either omits from, or adds to, the original sense”. Inexact rendering has three main aspects; under translation, over translation and mistranslation. The first aspect is to omit necessary features from the source text; it is called “Under translation”. The second aspect is to add more items that do not exist in the source text, thus it leads to involve extra meaning, it is known as “Over translation”. Whereas the third aspect is “Mistranslation”, it is simply to mistranslate and produce incorrect equivalents.

### **2.8.1. Under Translation**

Not all the participants were able to provide equivalents for all the terms, for that they preferred to omit. From the twenty-five (25) terms, only three “Connection speeds”, “kilobits” and “Yahoo chat” have been translated by all the participants, and they provided numerous suggested translations for each term as it has been shown in their analysis. The rest of the terms did not get a 100% of participation; they have been omitted by some participants as in the term “Toolbar”, where only two participants attempted to provide an equivalent for it. This of course due their incompetence in finding the equivalent by using an adequate method that provides

meaningful terms, and restricted knowledge of the subject matter and the unfamiliarity with the computing sciences that are developing every day.

### 2.8.2. Over Translation

Since the data that have been analyzed consists of only terms, the participants did not over translate, they tried to provide an adequate equivalent for each term, the participants did not overstate in their suggested translations.

### 2.8.3. Mistranslation

As it has been shown in previous analysis of the participant's translations, it seemed evident that all of them failed in providing a correct equivalent for each term, no one could provide correct translation for the all twenty-five terms, using a suitable method of translation to maintain the meaning. Each term has been translated, its analysis showed that at least there is one mistranslation, sometimes there have been more than one incorrect rendering for one term, the above table illustrates a case when the analysis revealed mistranslation:

The English Expression	The Participants translation	No. Of Occurrences	Suggested Translations
<b>install</b>	1- حمل	7	نصب
	2- سجل	2	
	3- نصب	2	
	4- ضع	3	
	5- ثبت	2	
	6- ركب	2	
	7- شغل	1	
	No equivalents	8	

Table 28: Translation of the Term **install**

The above table displays an example of the participants' mistranslation, the table shows that there are seven translation forms that have been given by 19 participants, only two students succeeded to provide the exact equivalent, while the rest were considered as mistranslations, and failed to achieve the appropriate meaning. As for the first suggestion "حمل" it refers to "download", the second one "سجل" one refers to "register". Furthermore, the fourth one "ضع" refers to "put", and fifth one "ثبت" refers to "to fix", and finally the seventh one "شغل" refers to "to work".

Another example that illustrates the participants failure to achieve a adequate equivalent, that should carry meaning and presented in pure Arabic items, is showed in the analysis of the term "computer" in the below table.

The English term	The participants translations	No. Of Occurrences	The Suggested Translations
1- computer	1- اجهزة كمبيوتر	19	الحاسوب
	2- الحواسب	3	
	No equivalent	5	

Table 29: Translation of the Term **computer**

As it is shown in the above table most of the participants who translated this term failed to set an accurate equivalent, they transcribed the term, in which results a meaningless word. Only three participants provided a successful rendering of the term, they used pure meaningful Arabic word. While five participants provide no translation for the term.

Ultimately, these mistranslations and omissions of the terms that have been given to be translated, is mainly due the students ignorance of the methods that are used in coining new terms into Arabic, which may help in producing a high quality translation, meaningful and can be used easily.

## **Conclusion**

This chapter was carried out to answer the questions that raised this study, concerning the difficulties students face while translating scientific terms and its relation to the method they used.

The analysis revealed that the difficulties student face, are due to their lack of background knowledge concerning the computing terms, as well as their ignorance to the importance of adopting a method that facilitates the translation process and assures a good translation production. Thus, some pedagogical recommendations will be suggested to be guideline for the students as well as for the teacher, which may help them in giving more attention to the methods of translating scientific terms, and be exposed more to the scientific translation theory, in order to achieve high quality translation.

### **3.1. Pedagogical Recommendations**

The outcome of this study shows that the students are not aware of the importance of adopting an accurate translation method while translating scientific terms, and the significance of rendering those terms into pure Arabic vocabulary, in order to deliver an adequate meaningful equivalents; and preserve the Arabic language identity, also they seemed careless about the major invention of foreign terms into Arabic language, which threatens its identity; as the world develops Arabs should be creative in the production of the terms for the new introduced terms;

In here some recommendation will be suggested that might make the translators more aware and reconsider the best method, which should carry meaning and aims at using in pure Arabic vocabulary.

The syllabus design concerning teaching translation for third year students does not include any course where the students will be introduced to scientific translation as a theory and the methods used to translate scientific terms. At this level they are practising only, till first year master, where they will be introduced to translation theory, even though, the syllabus does not contain the study of scientific translation and its methods. For that, the students should be equipped with the basic scientific translation standpoints, and be exposed, in earlier stages of their academic acquisition of the translation skills, to the vital role that methods of translating scientific terms play in facilitating the translation process, and help to produce adequate equivalents. Moreover, the students should be taught to be creative and avoid transcription of the foreign items, which decreases the quality of the translation, they need to learn the methods serve the Arabic language more, so they can translate and convey the required meaning easily.

## **General Conclusion**

The present study was carried out to investigate third year students' problems in translating English scientific terms into Arabic, and to find out the methods they use to render those terms, and whether these methods are responsible for difficulties they face.

The practical part of this research revealed two main results, the first one was that a great number of students use a translation method aims at using pure Arabic vocabulary, while others preferred another one which did not serve the Arabic language; in that they ended up with inaccurate rendering. The second result showed that even the students used an appropriate method, they could not provide adequate equivalents, and this was due to their careless and the restricted background of the computing field, and do not have a good mastery of the two languages. On the other hand it was proved that using a given method may lead to incorrect and unacceptable translation. This should be taken as a sign, that Arabic language suffers a serious lack of scientific vocabulary, thus one should pay more attention and give higher importance to scientific translation theory and its methods that would ensure the enrichment of Arabic language.

Ultimately, some pedagogical recommendations were given. It was suggested that teaching scientific translation theory and the methods that may facilitate the process of translation, may help in confronting the problems student face in translating scientific terms. It was suggested that teaching scientific translation theory and the methods that may facilitate the process of translation.



## Bibliography

Al-Hassnawi. A. R. A. *Aspects of scientific translation: English into Arabic translation as a case study*. Retrieved May 20, 2010 from <http://www.translationdirectory.com/article10.htm>

Amman, M. and H.J. Vermeer (1990) *Entwurf eines Curriculums für einen Studiumgang Translatologie und Translatorik*. Heidelberg: Institut für Übersetze und Dolmetschen

Baker.M. (1987) *Review of methods used for coining new terms in Arabic*. Meta: Journal des Traducteurs/ Meta Translators' Journal. Vol.32, 186-188. Retrieved May 20, 2010 from <http://www.erudit.org/documentation/eruditPolitiqueUtilisation>

Beeston, A. F. L. (1970) *The Arabic language today*. London: Hutchinson University

Bosco.G. (1997) *Translation techniques*. Retrieved May 20, 2010 from <http://www.interproinc.com/articles.asp?id=0303>

Byrne, J. (2006) *Technical translation: Usability strategies for translating technical documents*.

Dordrecht : Springer

Catford, J.C. (1965) *A linguistic theory of translation: An essay in applied linguistics*. Oxford: Oxford University Press.

Chukovsky, K.I. (1984) *The art of translation: Kornie Chukovsky's "A High Art" (edited & translated by Laurent G. Leighton)*, Knoxville, Tenn: University of Tennessee Press.

- Ghazala, H. (1995). *Translation as problems and solutions: A course-book for university students and trainee translators*. Valetta Malta: Elga Publication.
- Hatim, B., & Munday, J. (2004). *Translation: An advanced resource book*. London: Routledge.
- Ilyas, A (1989) *Theories of translation: Theoretical issues and practical implications*. Mosul: University of Mosul.
- Jacobson, R. (1959/2000) On linguistic aspects of translation. In R.A. Brower *On Translation*, Cambridge, MA: Harvard University Press, pp. 232-39
- Kraynak.J. (2003) *Computer basis for idiots*. Fourth edition. Penguin Group, Alpha
- Lefevere, A. (1975) *Translating poetry: Seven strategies and a blueprint*. Assen & Amesterdam: Van Goreum.
- Miguel .QBA A. Ramírez.C.(2007) *Science*.Colegio Americano De San Carlos. Mexico
- Nida, E. & Taber,C. (1969/1982). *The theory and practice of translation*. Leiden. : E. J. Brill
- Nida, E. A.(1964) *Towards a science of translating*. Leiden: E. J. Brill
- Sieny.M. (1985) *Scientific terminology in the Arab world: Production, co-ordination, and dissemination*. Meta: Journal des Traducteurs/ Meta Translators' Journal. Vol.30. 155-160. Retrieved May 20, 2010 from <http://www.erudit.org/documentation/eruditPolitiqueUtilisation.pdf>

Thieverage, B. (2002) *Translating scientific text: Practicalities and pitfalls*. Retrieved May 20, 2010 from

<http://www.councilscienceeditors.org/members/securedDocuments/v25n6p188.pdf>

Vinay, J. P., & Darbelnet, J. (2004) *A Methodology for translation*. In L. Venuti (Ed.), *The Translation Studies Reader* (pp. 84-93). London and New York: Routledge.

Yowell, A. (1971) *Some Pitfalls in Translation*. *Al-Rafidain Literary Review*, Vol. II, University of Mosul, pp.15-41

Yowell, Y.A. & Lataiwish, M.S. (2000) *Principles of Translation*. Libia: Dar Annahda Alarabiya.

Zakhir. M. (2008) *Translation procedures*. Retrieved May 20, 2010 from <http://www.translationdirectory.com/articles/article1704.php>

Zinaser W. (1976) *On writing well; an informal guide to writing nonfiction* New York: Harper & Row, p, 15,

## **DICTIONARIES and ENCYCLOPEDIA**

Arabic Computer Dictionary, English/Arabic, Arabic/English. (1986). Routledge.

Cambridge Advanced Learner's Dictionary. (2004). Cambridge University Press.

Chambers. (1993). *Chambers Maxi Paperback Dictionary*. Edinburgh: W&R Chambers.

Collin. S.M.H. (2004). *Dictionary of computing*. Bloomsbury Publishing. London.

## **Appendix**

### **The Test**

#### **Translate the following sentences into Arabic.**

1. Home page is the first page retrieved when accessing a Web site.
2. Connection speeds are measured in kilobits per second.
3. Many businesses that offer wireless internet connectivity advertise as hotspots.
4. Web pages addresses are formally called URL (Uniform resource locators).
5. Click the outlook express icon on the windows desktop or in the quick lunch toolbar.
6. Enter information for a different e-mail account.
7. Click the screen name box, type your screen name, and then click the password box and type your password.
8. To remain signed in but hidden, click I am available and click invisible.
9. You can also click the Auto sign in option.
10. Open the messenger menu, point to Yahoo! chat and join a room.
11. You can subscribe to mailing lists and newsletters on the web to have news emailed to you.
12. A blog is a publicly accessible personal journal that enables an individual to voice her /his opinion.
13. Scan incoming files for viruses.
14. Purchase and install an antivirus program and keep it updated with the latest virus definition.
15. Wi-Fi is a wireless network standard for connecting computers via radio frequency signals rather than network cables.

## المخلص

تهدف هذه الدراسة لبحث الصعوبات التي يواجهها طلبة سنة الثالثة بقسم اللغة الانجليزية لجامعة منتوري في ترجمة المصطلحات العلمية عامة و مصطلحات الإعلام خاصة من اللغة الانجليزية إلى اللغة العربية. بالإضافة إلى تسليط الضوء على الدور الذي تلعبه مناهج الترجمة العلمية في تحصيل ترجمة عالية الجودة باستخدام مفردات عربية بحتة. تم جمع معطيات البحث عبر فحص كتابي في الترجمة قدم للطلبة, و هذا في محاولة لتأكيد أو رفض ما تم افتراضه في هذا البحث.

من خلال تحليل المعطيات التي اخذت من ترجمات الطلبة تم التأكد من أن الأخطاء المرتكبة من طرف الطلبة كانت لسبب جهلهم في الاعتماد على طريقة ملائمة لتحصيل ترجمة علمية صحيحة, أين يستعملون فيها مفردات عربية ذات معنى. أيضا تم التوصل إلى أن سبب الصعوبات التي يواجهها الطلبة في ترجمة مصطلحات الإعلام الآلي هو قلة تداولها في دراستهم الأكاديمية للترجمة.

اعتمادا على النتيجة المحصل عليها من تحليل ترجمات الطلبة, تم وضع توصيات بيداغوجية لتكون نقطة انطلاق لإيجاد حل لهاته الصعوبات و تسهيل عملية ترجمة المصطلحات العلمية.

## Résumé

La présente étude cherche à enquêter sur les difficultés rencontrées lors de la traduction des termes scientifiques, et d'attirer l'attention sur rôle de l'adopter la méthode appropriée qui peut produire une traduction de haute qualité dans le vocabulaire arabe pur. Les données ont été cueillies par l'épreuve écrite comme un instrument de recherche, l'analyse des données source confirme que les fautes d'étudiant, sont en raison de leur ignorance de méthodes ils ont leur l'habitude de traduire les termes scientifiques et à leur non familiarité à la science informatique dans la langue anglaise. Car cette une implication pédagogique ont été fournis pour être une directive pour commencer à résoudre ce problème. Et l'aide les étudiants pour s'occuper de la traduction scientifique et la terminologie dans le processus de traduction.