CHAPTER ONE
LITERATURE REVIEW

1.1 Introduction

Scientific and technical translation is very important in its effects on people's lives. Therefore, a technical translator is required to have special expertise in the relevant field in addition to his or her general language capability. A translator's failure to achieve an appropriate equivalent translation will result in an incorrect translation which may be misleading in most fields but can have very serious consequences in the field of medicine. The common use of English language in science in general, and in medicine in particular, makes the use of other languages very limited. It is well known that English is the leading language of medical sciences communication in English has been indispensable throughout the history of medicine. For instance, the use of English in higher education in most Arab countries (except Tunisia, Morocco, Algeria, Lebanon and Syria) as the medium of instruction and communication is well documented. Although, Arabic is the official language in all Arab countries, English is still used as the language of teaching in most Arab medical universities except Syria and some Arab countries in North Africa. Thus, English terminology is used academically and its use is crucial. Hence, there is a great demand for the study of scientific and technical translation from English into Arabic and vice versa. Such a demand is included in the national strategies of Arab academies in order to solve the problems of accessing scientific and technological information by the production of pamphlets and dictionaries. This chapter is going to study the definitions, types, problems of translating medical terminology.

1.2 What is Translation?

Traditionally translation is considered to be change of form, that is a change of surface structure from a source language in to a target language. A rather simple definition of language, suggested by Catford (1965: 20) is the replacement of textual Material Source Language (SL) by equivalent textual material in another language Target Language (TL). In this respect, Catford is more concerned with formal or the pragmatics of the text to be translated.

A good translation is one in which the merit of the original is so completely transfused in to another language as to be distinctly apprehended and as strongly felt by a native of the country to which that language belongs as it is by those who speak the language of the language of the original (Bell, 1966: 40).

Most definitions of translation describe an aim being sought from translation others are instructions on how to translate, or a list of factors that should be taken into consideration when translating.

In brief, it seems that definitions differ form one another in certain aspects. While some definitions present the aim of translation, other describe the profession it self, the translator as a mediator in a communication process, or consider the general aspect of interlingual transfer.

1.3 Technical Text

A technical text is characterized by a certain volume of specialized terminology. Technical translation is concerned with the translation of these technical terms. In this regard, Ghazalla (1995:163) defines technical translation as: "the translation of scientific and technical terms of all kinds: medical, physical, chemical, mathematical, mechanical, technological, biological, agricultural, computer and other terms of the various branches of science."

It can be assumed that (STT) is distinguished from other forms of translation by Specialized Technical Terms which represent the main source of difficulty and challenge even for speakers of the SL. The more technical terms appear in the SL; the more problems arise in translating these terms into the TL. Additionally, the more knowledge a translator possesses about the subject matter in the ST, the more accurate a translation he/she will produce in the TT.

Moreover, with regard to technical texts, Bell (1966: 65) suggest that "The term 'technical' is not confined to natural science and technology. Any specialist field has its own genre-marking characteristics. To conclude, a text which contains technical terms is called a technical text.

The job of the technical translator is to deal with these technical terms, grasp these terms, understand their meaning in the Source Language (SL) and then to be able to choose the appropriate equivalent in the Target Language(TL).

All types of translation require the translator to be complete in both the SL and TL and to possess a good understanding of all language terminology. There is also another requirement, which is that the translator needs be knowledgeable in the subject matter and in the specialized terminology of the technical fields concerned. The more knowledge the translator possesses the better he/she will be able to translate technical texts; such technical terms cannot be ignored as they carry the meaning of the text.

1.3.1 Features of Translating Scientific and Technical Texts into Arabic

Montgomery (2000: 87-88) argues that information which has come into the world via the translation of technological and scientific knowledge has helped in a large way when it comes to the evolution of civilization and the development of the field of science and technology. Today's world is typified by the phrase ' the age of information' and the desire to have as much information as possible makes translation essential.

There is a need not only for publishing technical texts in other languages than English, but also for structuring and phrasing them so that they are easily readable (Ghazalla, 1995:82-83), with regard to technical translation many factors come to the fore such as terminology (including non-equivalence problems), translator's knowledge of the field of translation and the subject matter of the technical texts, and standardization issues.

It is important for the translator to be a ware of and to be trained in dealing with the technical terms that he/she comes across in translating technical text. In this regard, Sanchez (2010:186) suggests that training in technical translation is an important criterion to help technical translators. He says "a training programmer can be devised for translation studies which can give the students the knowledge and the abilities that they require to become professional in such a complex field of research".

With regard to technical translation there is also an argument that has been advanced that it very much confined to the cultural boundaries within which it takes place.

There are large numbers of checks that must be conducted because inter-cultural incongruity means that the same thing can be interpreted

differently across various cultures. For example, the word fighting could be rendered into Arabic as ***qital*** or ***Jihad*** depending on the groups who are fighting or the reasons for the fighting. Muslims, for example, prefer to use ***jihad*** if the fighting is between Muslims and Non-Muslim enemies. This is the case even with regard to a science that is based a round terminology that has exact specific definitions and the existence of a hierarchical system for every term in the field.

Sometimes there is no consistency with regard to scientific and technical translation within the same language. In consistency means using different translation of/for the same SL term throughout a text or across relevant texts. Rogers (2008: 90) points out. That, terminological inconsistency can be interpreted as the use of different forms for the same referent e.g. synonyms, or ethnographic variants and geographical variants in the same text or set of related texts, as well as hyponyms. A good case in point is that of Arabic itself, where there are large variances of terms when one moves form one region to another, and a large part of a translated piece can be lost in translation because of the lack of standardization. For example, in the ***Maghreb*** countries which are influenced by the French language, the use ***السيدا alsida*** as an equivalent for ***AIDS***, whereas in eastern Arab countries, which are influenced by English they use ***aydz***.

Also in respect of technical and scientifically terms, it should be stated that acronyms and abbreviations are common in English technical texts, especially in medical texts, whereas they are rarely used in Arabic. USA, WHO, HIV and Laser are examples of acronyms and abbreviations.

Cronin (2003:152) argues that, "*alongside specialized terminology and numbers, acronyms and abbreviations are among the most attention–grabbing and potentially intimidating aspects of a technical text for translators."*

Technical language is a form of formal language and draws its vocabulary, grammar and all its linguistics features form ordinary language vocabulary is not the only features of a technical text that one should pay heed to. Style and grammar are other features that govern the words in a technical text.

Al-Kharabshed (2003: 96) points out, that the language of science is characterized by the use of present tense abbreviations, collocations and compounds, e.g.

- ***The cartilaginous structure from the thoracic cage (rib cage), which surrounds. The thoracic cavity and supports the pectoral (shoulder) girdle.***

Also it can be noticed that relative clauses are usually reduced in English technical text, e.g. ***"…. most conditions are progressive, causing the muscles to gradually weaken over time"***.

The most important features of the language of science and medicine are accuracy, precision and objectivity.

1.4 Medical Terminology

Medical translator must deal with a great number of medical terms during their work. Medical terminology is defined as a set of words which accurately describe human body and its processes in a scientific manner. Medical terms are often based on the concept of word roots, prefixes and suffixes. A word root contains a primary meaning of a medical term. Majority of words are derived from Latin or Greek language therefore two different roots are used to create words describing anatomical structures whereas Greek roots are used to create words describing a disease, treatment or condition. For example, the Greek root ***nephr*** is used in terms that that describe a ***kidney disease***; the Latin root ***ren*** describes an anatomical structure of a ***kidney***. Sometimes a word root is combined with a vowel and then we may talk about a combining form (Dudley and John, 1998: 49-50).

A suffix is defined as a word and therefore changing its meaning. In medical terminology suffixes usually denote a pathology, surgical procedure or symptom. Katamba (1993: 89-90) provide the following example of suffixes:

- ***itis (inflammation); e.g. gastritis – inflammation of the stomach***
- ***megaly (enlargement); e.g. gastromegaly – enlargement of the stomach.***

A prefix is defined as a word element which is added to the beginning of a word root. A prefix changes word's meaning and usually describes a position, direction or negation. An example of a prefix is **hyper-** meaning excessive, not normal which can be observed in a word ***hyperthermia*** which is understand as condition of excessive heat (ibid: 4).

While translating medical terms, the basic knowledge of how they are constructed can be very helpful. They suggest three steps to be taken while defining medical words:

1. Define the suffix, or last part of the word.
2. Define the first part of the word (which may be a word root, combining form, or prefix).
3. Define the middle parts of the words.

Medical translators must have basic knowledge of Latin and Greek root words, suffixes and prefixes as a large number of medical terminology is based on them. Without this knowledge, translating medical terms may be impossible, or at least very difficult. There are many different kinds of medical translations which require various skills. Some of them must be done according to formal regulations. Medical translators cannot forget about them, the same as they should be aware that their work is very important and they cannot allow themselves to make the smallest, as it can be fatal.

1.5 Medical Translation Quality

Translation quality is a complex issue because, apart from accuracy and correct language use, it involves such factors as client satisfaction and compliance with contractual requirements, and is largely determined by text type, function and expectations in the community related to translation (Gouadec, 2010: 90). Medical translation quality assurance involves designing efficient control methods for error detection, readability testing and commissioning adequately qualified professionals to perform medical translation. Hence, one of the critical issues seems to be what qualifications (and training) are required of professional translators of medical texts, and what steps can be taken in order to ensure adequate translation quality. There are no generally applied regulations concerning medical translation, or translator training; there are however guidelines developed by translators' associations, including the International Medical Interpreters Association (IMIA), developed to support translators, interpreters and their clients.

1.6 Methods Used in Translating Medical Terms into Arabic

Since foreign discoveries need to be named in Arabic in order to be read and understood by Arabic speakers. Arab terminologist tries to produce and give names for each foreign medical term. Moreover, Arabic

translators are involved in finding suitable Arabic terms equivalent to the terms created by Arab terminologists for each given foreign term to be understood by Arabic readers.

The need to translate medical terminology into Arabic stems from the fact that the medical field in Arabic countries is dominated by the English language. The language used in the practice of medicine in medical diagnoses, progress reports prescriptions etc, are all written in either English, or French, not Arabic.

Attempts have been made to make medical texts originally coined in a foreign language appear in Arabic. Arab terminologists and lexicographers are or have been worried that Arabic might be badly left behind. They have made many efforts to deal with this issue. They established many institutions to deal with the issues of translations and Arabization.

The following are three methods used by Arabic translators to translate English medical terms in to Arabic:

1.6.1 Translation

Translation is the replacement of an English term with a correct Arabic term that has the same meaning in both languages. A great number of medical terms are translated into Arabic equivalents which are part and parcel of Arabic language stock. Many of these terms can be checked in English Arabic medical dictionaries. Consider the following example of translations:

- ***Measles: الحصبة*** ***alhasba***
- ***Diarrhea: الاسهال*** ***al-ishal***
- ***Asthma: الربو*** ***al-rabw***
- ***Diabetes: مرض السكري*** ***marad al-sukkari***
- ***Tuberculosis: (TB): مرض السل*** ***marad al-sull***

But the replacement of English word by an Arabic word may lead to literal translation. Literal translation is a direct translation which involves word for word translation. It is common in technical translation in general and specifically in medical translation. Cardos de Camargo (cited in Cronin, 2003: 119) shows that "*literal translation is actually one of the most frequently used translation strategies in technical text*".

Translating medical terms literally into Arabic may give acceptable translations in many cases, especially in translation medical terms which consist of one word such as ***eye عين, influenza بردة, cancer سرطان, patient مريض***. It also may work in translating some medical compounds, collocations and abbreviations. Consider the following example:

- ***ENT Department*** ***قسم اذن انف و حنجرة***
- ***Skin diseases*** ***امراض الجلد***

One the other hand, literal translation may not work in rendering some medical terms into Arabic, especially some compounds and collocations, e.g. ***hay fever*** is not translated literally as a kind of fever in Arabic it is rendered as:

- ***حساسية الربيع hassasiyyt al-rabi*** (Which literally means ***spring allergy***, as it usually appears in spring).

It follows that medical translation is guided by certain strategies relating to the systemic differences between the two languages concerned and the type of language used in any individual text. Such strategies are applicable in translating medical terms into Arabic. To sum up, 'translation' means the transmission of medical terms into Arabic, using words that already exist in the Arabic language and which give the same meaning as that in the SL. In this method of translation only Arabic words are used.

1.6.2. Transliteration

The phonetic transcription from a source language of a word by the usage of differing script is called transliteration. To transliterate is to write a letter or word using the closet corresponding letters of a different alphabet or language (Compact Oxford English Dictionary, 2008: 1101).

In short, it is a letter for exchange. There are many examples in the medical filed:

- ***Bacteria*** ***بكرتيا*** ***baktirya***
- ***Malaria*** ***مالاريا*** ***malaria***
- ***Bilharzias*** ***بلهارسيا*** ***bilharsya***

However, Ghazalla (1995: 90-91) calls this method of translation a poor method. He argues that in this case, transcription is the poorest and worst method of translation for it means to open the door widely to allow

foreign words to invade the Arabic language. Therefore, it has to be avoided by all means by students, except in two cases:

1. When the foreign term has not been given an. Arabic equivalent yet, e.g. ***vitamin فيتامين fitamin***, ***radar رادار radr***. In such a case, it can be used temporarily until it is given an Arabic equivalent. This is what should have happened to words like:

- ***Computer كمبيوتر / حاسوب kumbyuter / hasub***
- ***Virus فيروس / جرثومة مغذية fayrus L jarthuma muaghdhdhiy***

2. In the case of foreign names such as the names of inventors. Transliteration is common in the medical field and most transliterated terms have been adopted in Arabic although some of them have an equivalent in Arabic such as:

- ***Cholera كوليرkulira***
- ***It has an Arabic equivalent: الهيضاء al hida***

But ***كوليرا kulira*** still exists in Arabic and is commonly used.

- ***Pancreas بنكرياس binkariyas***

Although ***al-muthakilla*** is an Arabic equivalent for ***pancreas***, the transliteration of the term, ***بنكرياس binkariyas***, is commonly used in Arabic.

Arabic translators may tend to use transliteration for various reasons:

1. Some medical terms are names of persons, formula or places and the names cannot be translated into Arabic.
2. They may rely on transliteration when they cannot find an Arabic equivalent for the foreign term.

To avoid this problem, Baker (2011: 20-21) argues that, it is useful to add an explanation to loan words when they are unfamiliar to the TL reader. This would be either by explaining what the product is as in:

The word ***schizophrenia*** could be translated as:

- ***مرض انفصام الشخصية marad infisam al-shakhsiyya , al-shlzufriniya***

The word Myoglobin could be rendered into Arabic as:

- ***"الصبغ البروتيني الميوغلوبين" al-sabagh al-brutini al-miyughlubin***

Or by explaining the function of the product as in:

- ***Tyrocidin could be translates as "المادة المضادة للجراثيم الثيروسيدين"***
  Al-madda al-mudada lil-garathim al-tlrusidin

By adding an explanation to the transliteration term, it will be easier for the TL reader to understand the intended meaning of the term.

1.6.3 Arabization

The term Arabization or التعريب Al-Tarib appeared during the Islamic caliphate during the eight century (Abbasid rule) to mean different things all of which are related to Arabic. It means:

- The teaching of Arabic to non Arabs.
- The fluency gained in Arabic by a non Arab.
- The inclusion of foreign words and concepts into Arabic having undergone some phonological and structural charges in accordance with Arabic language rules (Al-Isawi, 1996: 66).

Al-Ma'ni (2000: 110) agrees with Al-Sawi and says "Arabization is an attempt to transfer a word or a term from a foreign language in to Arabic with no changes being made except for any change to pronunciation to suit the sound system of Arabic".

The first attempt at the Arabization of medical terms in the Arab world was in Damascus University in Syria in 1919. Later, the issue of using Arabic in medical institution in the Arab world was discussed in many conferences. One of them was in April 1932 in Egypt at a conference organized by Arabic academies.

Ghazalla (1995:165) calls this method "naturalization" states, *"it is to take the English term and adapt it to Arabic alphabet and grammar, by changing one or two of its letter into Arabic ones, and having singular, plural, masculine, feminine or verb forms of it*". For example:

- ***Biological (adjective) بيولوجي biyuluji***
- ***Biologist (noun) اخصائي بيولوجيا/ biyulujiyyun / baiulujiat***
- ***Biologically (adverb) بيولوجيا baiulwjiyan***

1.7 Analysis of English Medical Terms

Some English medical terms which are of Latin or Greek origin such as ***anthelmintic***, ***erythrocyte***, ***hypergammaglobulinaemia***, and many

more, are complex and hard for English native speakers to understand. On the other hand, there are many simple medical terms that consist of a single free morpheme, such as ***fever, kidney***, ***cancer***, and many more, which are easy to understand and then translate. Additionally, they can be found in bilingual dictionaries.

There are also common medical terms (lay terms) which are used by people at large who are aware of their meanings, such as ***flu, hay fever, blood test, eyes, etc.***

In medical reports, doctors usually use scientific medical terms, but on leaflets and advertisements which are written to be read by the public, they usually use lay medical terms, scientific and complex medical terms usually cause the main problems for the translator of medical texts.

The following examples show popular medical terms which are used by medical staff and patients and the corresponding scientific medical terms which are used by medical staff.

Table (1)
Some Lay Terms with their Corresponding Scientific Medical Terms

Lay terms (popular terms)	Scientific terms
Tummy	Abdomen
Fit	Epilepsy
Baby (during pregnancy)	Fetus
Bleeding	Hemorrhage
Toothache	Dentalgia
Long-sightedness	Hypermetropia

Newmark (1988: 63-64) believes that there are two kinds of scientific terms, which are academic and professional terms. He suggests that there are three categories of English medical terms based on medical vocabulary, which are:

1. Academic: This includes transferred Latin and Greek words associated with academic papers, e.g., **'phlegmasia alba dolens'.**

2. Professional: Formal terms used by experts, e.g., ***'epidemic parotitis', 'varicella', 'scarlatina', 'tetanus'.***

3. Popular: Layman's vocabulary, which may include familiar alternative terms, e.g. ***'mumps', 'chicken-pox', 'scarlet fever', 'stroke', 'lockjaw'.***

1.7.1 The Word Root

The root is the main part of a word and contains the essential meaning. Hutton (2006: 2) states that "roots are the basic medical words. More are derived from early Greek and Roman (Latin) words. Others have their have their origins in Arabic, Anglo-Saxon and German. "for example, the primary root of the term ***cytogenesis*** is ***cyt*** which comes from the Greek word ***kytos***, meaning ***cell***. The suffix ***genesis*** means origin so ***cytogenesis*** means the origin and development of cells. Many terms can be built up from the same root; consider these examples:

- ***Electrocardiogram***
- ***Cardiology***
- ***Pericarditis***

All the above terms are related to ***cardio*** which means ***heart***; ***electrocardiogram*** means a ***record of the heart***, ***cardiology*** refers to the study of the ***heart***, ***cardiovascular disease*** is a disease affects the heart and blood vessels, ***perdicardities*** means an in inflammation of the outer layer of the heart (Webster's Medical Dictionary, 2007).

A root can also be found in the middle of a term such as in ***periadentitis***, the root "***aden***" is a Greek word meaning ***gland***, the prefix ***peri*** means ***surrounding*** and the suffix ***itis*** means ***inflammation***, so ***periadenitis*** means an inflammation of the area surrounding a gland. Sometimes the root can be used at the end of words such as ***hymphocyte*** which means a ***white blood cell*** formed in the ***bone marrow and distributed throughout the body in lymphatic tissue*** (Stedman's Medical Dictionary, 2006). ***Cyte***, which means ***cell***, is the root. Medical terms may contain more than one root. The term ***neurocyte*** consists of ***neuro*** meaning ***nerve*** and ***cyte*** meaning ***cell***. The meaning of ***neurocyte*** is, therefore, ***nerve cell***.

Some medical terms have more than two roots as "***neuroencephalomyelopathy***" which is a ***disease of the brain***, ***spinal cord*** and ***nerves***. The term ***neuroencephalomyelopathy*** can be divided into three root is ***neur-o-encephal-o-myelo*** and the suffix ***pathy***. Knowing which part of the term is the root and understanding the meaning of the root helps to get meaning of the whole term.

1.7.2 Prefixes

A prefix is a part of a word. It is found at the beginning of a word, as in ***antibody***, ***peranum***, ***oronasal*** etc. Each prefix has a meaning, for example, ***anti*** means ***against***, ***hydro*** means ***water***, ***pre*** means ***through*** etc.

Prefixes usually add to change or modify the meaning of the word root for example, the word ***natal*** means ***pertaining to birth*** adding the prefix "***ante***", which mean ***'before'***, changes the meaning: ***antenatal*** means ***pertaining to before birth***. The prefix "***ab***" which means ***from***, away from, when added to a word such as ***normal***, will change the meaning of the word. ***Normal*** becomes **abnormal** which is the opposite of normal. The same prefix may be added to different words. For example, the prefix "***anti***" means ***against*** if added to these words.

- ***Bacterial – antibacterial means bacteria killer.***
- ***Biotic – is a substance which has the ability to destroy the development of a living organism.***
- ***Helminitic – anthelminitic meaning pertaining against worms.***

It is very useful to understand the prefixes used with medical terms in order to assist in tackling the problems of medical translation.

1.7.3 Suffixes

A suffixes often found at the end of a term to give it a new meaning the suffix "***cide***" when added to the word "***fungi***" changes the word into "***fungicide***" which means ***fungus killer***. When the suffix ***logy***, the study of is added to the word root ***laryng*** which means ***larynx***, if forms the term ***laryngology*** which means "***the study of the causes and treatments of disorders of the larynx***" (Mosby's Medical, Nursing and Allied Health Dictionary, 1998: 917).

Each suffix has a meaning, for example, the suffix "***ectomy***" means. "***a cutting out***","***emia***" refers to " ***a boold condition***". Understanding the meaning of each suffix helps to understand the meaning of whole word.

A medical term must have at least one root but does not have to have a prefix and a suffix, for example, the term "***erythrocyte***" meaning "***red blood cell***". It can be divided into two roots: "***erythr*** means ***red***" and "***cyte*** mean ***cell***".

1.8 Errors in Medical Translation

An incident which exemplifies a health-threatening potential of an error in written medical translation is a series of knee replacement surgeries, described by Fakler and et al. (2007:1). The operations involved an erroneous use of the knee prosthesis in Germany in the years 2006-2007, as a result of which 47 people were harmed. Two different types of that knee prosthesis are available — for use with or without cement. The source language label on the package of the prosthesis included the information that the femoral component was "non-modular cemented," which was incorrectly translated as "non-cemented" or "without cement" (Ibid: 2). For over 12 months, medical professionals who performed or assisted in the operations were unaware of the fact that prosthesis elements had not been implanted in the correct manner. In this particular case patients suffered as a result of a very basic translation error, but it should be noted that it was the combination of human and system failure which contributed to this series of health-threatening incidents. Apparently, control mechanisms had either failed or had not existed at all (Ibid: 3). This case is merely an example which illustrates the potential clinical impact of an error in a medical translation undetected due to insufficient translation quality control.

It is not only mistranslation that may have clinical consequences. Readability is also a critical issue. Patients do not follow written treatment guidelines when they lack clarity (Nisbeth and Zethsen 2012: 74), which can be the case in translated Patient Information Leaflets (PILs). Failure to comply with recommended use instructions may be potentially health threatening.

Adequate quality assurance procedures thus help eliminate errors and improve clarity of translated medical documents by ensuring the provision of qualified professionals and control measures for the detection of mistranslations, discrepancies or cohesion issues.

The reality of medical translation shows that translators must assume sole responsibility for the quality and accuracy of medical translations, which seems to be one of the factors behind the often poor or substandard quality of medical translation, rather than merely the question of medical versus linguistic educational background of the translator.

In the absence of medical translation certification scheme, medical translators themselves need to decide if they are qualified enough to perform the specialized translation tasks that they are considering to take on. On the other hand, it seems that both a medical professional and a

medically knowledgeable linguist can successfully translate medical texts, provided they have sufficient skills, training and experience. The ideal pattern would involve medical professionals editing texts translated by linguists and linguists editing texts translated by medical professionals, as the quality of medical translation can be assured by means of implementing special standards or procedures for error control to support competent translators.

1.9 Standardization of Arabic Medical Terms

Arabic is a very rich language with regard to synonyms and terms but this is not always the case for medical terms which are known not to follow certain rules that would facilitate their extractions into Arabic. The problems of standardization a further complicated by the existence of several different varieties of Arabic including classical Arabic, modern standard Arabic and different dialects of colloquial Arabic.

When translating medical text Arab translators face the problem of the non-standardization of medical terms across the Arab world. For example, the term ***haemoglobin*** could be translated into Arabic as ***خضاب الدم khudab al-dam, يخضور الدم yakhdur al-dam, or الهيموغلوبين al-hlmughlubin.*** As another example, ***vertebral column*** could be rendered into Arabic as ***العمود الفقري al-amud al-faqari, or العمود الشوكي al-camud al-shawki, or السياء al-siya, or الصلب al-salb.***

Also the lack of co-ordination between Arab countries with regard to the issue of standardization of scientific and technical terms in general and medical terms specifically widens the problem of standardization in the Arab world. Scieny (1987: 221) explains that, there are many official and unofficial agencies involved in producing Arabic scientific and medical terminology, which leads to the common problem of multiplicity of terms. In contemporary times, the emphasis of Arabic academies which facilitate translation should be to revamp static rules so that there is more flexibility in the language of Arabic to help in better functional and practical translation.

1.10 Qualifications of Medical Translators and Interpreters

Particular qualifications which should be required of medical translators and interpreters are subject to debate, and there are controversies regarding academic (medical or pharmaceutical vs.

linguistic) background of medical translators (Fischbach 1998; O'Neil 1998; IMIA 2009; Nisbeth Jensen and Korning Zethsen 2012). It is indisputable, however, that handling medical translation demands specific skills.

According to O'Neil (1998:3), medical documents should be translated by professionals who have "a native or near-native, formal level of language proficiency, analytical capabilities, and deep cultural knowledge in the source and target languages", at least college level formal education in the source and target languages, preferably including translation theory and practice. Such professional medical translators should have expert knowledge of the subject matter terminology, understand the Source Text (ST), have proficient writing skills and adequate skills in using specialized, professional dictionaries and glossaries. Their professional expertise should also include the ability to conduct terminology research (Ibid: 3).

Translating medical texts, just like translating any other text, requires writing skills, while writing is not usually the key feature of medical curricula, and neither are translation strategies. Even though this is still widely debated, linguistic proficiency seems to be necessary because a Target Text (TT) produced by a physician with no theoretical training in medical writing may not be sufficiently reader-friendly (O'Neil 1998:73).

A medical translator's command of medical English and his or her writing skills should also involve a range of genres and registers. A translator should be able to transfer medical information for patients in a way which will foster understanding, i.e. without using unnecessary jargon, complicated syntax, or rarely used vocabulary. Translating documents which are written for medical professionals, on the other hand, requires specific terminology and discourse markers typical of similar texts produced in the target language. Therefore, a translator's linguistic competence involves general and specialized languages. Ideally, a medical translator would not be a medical professional, but an especially trained translator, i.e. a linguist who underwent appropriate training, a view which is also supported by IMIA.

One reason why it would be unrealistic to expect every medical text to be translated by a specialist medical professional is that "there will always be more medical translations than can be handled by the relatively few physicians who translate [and] medical translation will perforce be done by non-physicians" (O'Neil 1998:69). What is more, medical texts concern a range of areas of medicine and pharmacology, therefore it would be even more difficult for translation assignments to.

CHAPTER TWO
PROCEDURES AND DATA COLLECTION

2.1 Introduction

This chapter is allocated to the description of the empirical part of this study. It contains the procedures adopted for data collection. In fact, it is meant to define the population and sample of this study; gives a full description of the test with its subsections; identifies a special scoring scheme to ensure stability of the scores and to ensure face and content validity of the test. Finally, this chapter ends with a set of conclusions that the researchers came up with.

2.2 Sample of the Study

The sample of this study includes fourth year students studying at the **College of Medicine / Diyala University**, for the academic year 2017-2018. They constitute a total of (**122 students**) divided into three sections. Only a random sample of (**40**) students were chosen to conduct the test.

2.3 The Test

The test used to elicit information in this study is a test which comprises two questions; the first question was to translate a medical text from English into Arabic with focusing on the underlined terms and the second question was to translate five medical terms into Arabic. Below there is a detailed description of the test, its selection and scoring scheme.

2.3.1 Description of the Test

The test format consists a test which comprises a medical text and five medical terms (**see Appendix 1**) graded from simple to difficult. The first text shows (**Gastritis**) (Ghazala, 1995: 160-161), the students were asked to translate this text from English into Arabic. The second test was a group of medical terms taken from medical leaflets (Internet: 2017). The students were required to use a specialized dictionary so as not to give another meaning for the term.

2.3.2 The Test Aims

This test aims at identifying and measuring the nature of difficulties faced by undergraduate students at Colleges of Medicine when rendering or trying to render translations of texts or any terms related to the field of medical translation.

2.3.3 The Scoring Scheme

In order to ensure reliability of the results, a special scoring scheme was set that depends on the answers of the students. The total of test papers was scored out of (**60**) marks, of which (**40**) marks were allocated for the first question, and (**20**) marks were allocated for second question which includes translating medical expressions. A full mark was given for each answer and zero was given for an incorrect translation.

2.3.3.1 Preparing a Model Answer

A model answer has been made which deserves the full-mark which is (**60 marks**) for all of the two tests. A full-mark which is (**40 marks**) was given to question one **(4 marks)** for each underlined expression and (**20 marks**) were allocated for question two divided into (**4 marks**) for each expression. The researchers corrected the papers of the samples using the model answer so as to arrive to the correct translation (**see Appendix 2**).

2.4 Data Analysis and Discussion

The data will be analyzed focusing on the responses received for each question asked to the students. The following tables (1) and (2) shows the degree of familiarity and unfamiliarity of students of Translation with medical texts:

Q1: Translate the following text into Arabic paying special attention to the underlined terms: -

<u>Gastritis</u>

Reasons:

This disease may occur as a result of consuming poisonous substance or a large amount of food in single meal, poor body structure, or during

recuperation after serious illness. It may be resulting from not chewing the food well. In this case a doctor is ought to be called immediately after the onset of **symptoms** and to carefully follow abide by his instructions.

Symptoms:

Gastritis is an inflammation of the **mucous membrane** of the stomach. It causes painful **heartburn** in the mouth of stomach, and vomiting when eating or drinking. The patient may sometimes experience **hiccups** and his pulse becomes weak. He may also experience **pallor**, dizziness and coolness in his **limbs**. Moreover, the movement of the **diaphragm** causes pain to the patient, then he will suffer from shortness of breath and feels, every now and then, **mordant thirst**, despite his immediate vomiting of water he drinks.

Table (1)
Percentage of Student's Familiarity and unfamiliarity with English Medical Terms

Text	Number of correct Answers	Average of Correct Answers
1. Title (Gastritis)	**37**	**93%**
2. This disease may occur as a result of consuming poisonous substance or a large amount of food in single meal, poor body structure, or during recuperation after serious illness.	**15**	**38%**
3. It may be resulting from not chewing the food well. In this case a doctor is ought to be called immediately after the onset of symptoms and to carefully follow abide by his instructions.	**39**	**98%**
4. Gastritis is an inflammation of the mucous membrane of the stomach	**29**	**73%**
5. It causes painful heartburn in the mouth of stomach, and vomiting when eating or drinking.	**27**	**68%**
6. The patient may sometimes experience hiccups and his pulse becomes weak.	**40**	**100%**

7. He may also experience <u>pallor</u>, …….	**17**	**43%**
8. ….. dizziness and coolness in his <u>limbs</u>.	**27**	**68%**
9. Moreover, the movement of the <u>diaphragm</u> causes pain to the patient, ……..	**32**	**80%**
10. …… then he will suffer from shortness of breath and feels, every now and then, <u>mordant thirst</u>, despite his immediate vomiting of water he drinks.	**34**	**85%**
Total of all correct answers	**297**	
Total of all translations	**400**	
Percentage of correct answers	**74%**	

The figures of the responses presented in table (1) above show that the percentage of error in selecting the appropriate style of medical style of the study sample equals 53%. It indicates that 53% of study sample individuals answered correctly and selecting the suitable medical translation. This percentage is more than middle and confirms that level of difficulty faced by the students in selecting the suitable medical style is more than middle. This is a good average but students are required to focus more on using specialized medical dictionary and to check the translation of any term if there is a doubt.

Q2: Translate the following medical terms into Arabic: -

1. **Bulbar conjunctiva =**
2. **Mycobacterial infection =**
3. **Tuberculosis =**
4. **Fundoplication =**
5. **Meningitis =**

Table (2)
Percentage of Student's Familiarity and unfamiliarity with English Medical Terms

Term	Number of correct	Average Correct Answers
The first item (Bulbar conjunctiva)	**10**	**25%**
The second item (Mycobacterial infection)	**19**	**48%**
The third item (Tuberculosis)	**34**	**85%**
The forth item (Fundoplication)	**25**	**63%**
The fifth item (Meningitis)	**02**	**5%**
Total of all correct answers	**90**	
Total of all translations	**200**	
Percentage of all answers	**45%**	

Table (2) presents the percentage of correct answer in selecting the appropriate terms in medical translation of the study samples. It is clear from the statistics in the table that the highest percentage in correct in selection of the appropriate term in medical translation was in term (3) with a percentage equals 85%, followed by item (4) with a percentage equals 63%, followed by item (2) with a percentage 48%, followed by (1) with percentage (25%), and finally the lowest answers were in item (5) with percentage (5%). These figures indicate that some items were difficult terms encountered by the students; whereas other items were simple. Some of these answer was difficult because of bad usage of the dictionary in providing the unsuitable translation.

2.5 Conclusions

The researchers reached to the following conclusions:

1. Political and diplomatic languages belong to the category of the special languages used in social sciences.

2. Translating medical texts is a great challenge. Medical translation belongs to a prominent group of technical translation. It is one of the most difficult translations and requires excellent knowledge of English as well as very good knowledge of medical terminology and medicine in general.

3. During the test, some students rely more heavily on the use of

electronic and general dictionaries which leads sometimes to wrong translation of terms especially specialized terms.

4. Students faced difficulty in translating the terms and the percentage was less than medium with (45%), while they done better in question one in translating the underlined terms in the text with percentage (74%).
5. Non-professional translators should cooperate with medical professionals in order to avoid mistakes, which may be disastrous. One should bear in mind that rendering medical texts it is often more than just translating words from one into another language; it is working with terms concerning someone's health and even life.

6. The translator must be aware of complexity of medical translation and take into consideration all areas of difficulties.

7. The results of the study alert us to the fact that employing inexperienced translators and bilinguals (who speak English and other language) without providing training for them may constitute a risk for the communications between patients and health sectors. In other words, translators who are interested to work in the medical field need to be trained better before they start their job.

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Appendix (1)

The Main Test

Q1: Translate the following text into Arabic paying special attention to the underlined terms: -

Gastritis

Reasons:

This disease may occur as a result of consuming poisonous substance or a large amount of food in single meal, poor body structure, or during **recuperation** after serious illness. It may be resulting from not chewing the food well. In this case a doctor is ought to be called immediately after the onset of **symptoms** and to carefully follow abide by his instructions.

Symptoms:

Gastritis is an inflammation of the **mucous membrane** of the stomach. It causes painful **heartburn** in the mouth of stomach, and vomiting when eating or drinking. The patient may sometimes experience **hiccups** and his pulse becomes weak. He may also experience **pallor**, dizziness and coolness in his **limbs**. Moreover, the movement of the **diaphragm** causes pain to the patient, then he will suffer from shortness of breath and feels, every now and then, **mordant thirst**, despite his immediate vomiting of water he drinks.

Q2: Translate the following medical terms into Arabic: -

1. **Bulbar conjunctiva =**
2. **Mycobacterial infection =**
3. **Tuberculosis =**
4. **Fundoplication =**
5. **Meningitis =**

Appendix (2)
Translation of Model Answer

Q1: Translate the following text into Arabic paying special attention to the underlined terms: -

Gastritis

Reasons:

This disease may occur as a result of consuming poisonous substance or a large amount of food in single meal, poor body structure, or during **recuperation** after serious illness. It may be resulting from not chewing the food well. In this case a doctor is ought to be called immediately after the onset of **symptoms** and to carefully follow abide by his instructions.

Symptoms:

Gastritis is an inflammation of the **mucous membrane** of the stomach. It causes painful **heartburn** in the mouth of stomach, and vomiting when eating or drinking. The patient may sometimes experience **hiccups** and his pulse becomes weak. He may also experience **pallor**, dizziness and coolness in his **limbs**. Moreover, the movement of the **diaphragm** causes pain to the patient, then he will suffer from shortness of breath and feels, every now and then, **mordant thirst**, despite his immediate vomiting of water he drinks.

Modal Answer:

"التهاب المعدة"

الاسباب :قد يحدث هذا المرض نتيجة تناول مادة سامة او كمية كبيرة من الطعام في وجبة واحدة، رغم ضعف البنية، او في **فترة النقاهة** عقب مرض خطير .وقد ينشأ المرض نتيجة عدم مضغ الطعام جيدا .وفي هذه الحالة يجب استدعاء الطبيب فور ظهور **الاعراض** واتباع ارشاداته بدقة بالغة.

الاعراض :مرض التهاب المعدة هو التهاب **بالغشاء المخاطي** للمعدة .ويسبب **الما حارقا** في فم المعدة، وقيء حال تناول الطعام او الشراب .وقد يعتري المريض **الفواق**، احيانا، ويصير نبضه ضعيفا، كما يعتريه **شحوب** ودوار وبرودة في **اطرافه** .وتسبب حركة **الحجاب الحاجز** الم للمريض، ومن ثم يعاني ضيقا في التنفس، ويشعر، بين أونه وأخرى، **بعطش محرق**، رغم قيئه للماء الذي يشربه فورا.

Q2: Translate the following medical terms into Arabic: -

1. **Bulbar conjunctiva =**
2. **Mycobacterial infection =**
3. **Tuberculosis =**
4. **Fundoplication =**
5. **Meningitis =**

Model Answer:

1. **Bulbar conjunctiva = التهاب العنبية**
2. **Mycobacterial infection = اصابات او عدوى بالفطريات**
3. **Tuberculosis = السل , الدرن**
4. **Fundoplication = جراحة المعدة**
5. **Meningitis = التهاب السحايا**