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MINISTRY OF EDUCATION AND TRAINING

HAIPHONG PRIVATE UNIVERSITY

A STUDY ON SPECIALIZED TERMINOLOGIES TRANSLATION FOR INFORMATION TECHNOLOGY

GRADUATION PAPER

Student : Dang Quang Huy

Class : NA1804

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HẢI PHÒNG – 2018

NHIỆM VỤ ĐỀ TÀI TỐT NGHIỆP

1. Nội dung và các yêu cầu cần giải quyết trong nhiệm vụ đề tài tốt nghiệp

(về lý luận, thực tiễn, các số liệu cần tính toán và các bản vẽ).

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2. Các số liệu cần thiết để tính toán:

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CÁN BỘ HƯỚNG DẪN ĐỀ TÀI TỐT NGHIỆP

Người hướng dẫn thứ nhất:

Họ và tên: Đặng Thị Vân

Học hàm, học vị: Thạc sĩ

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Nội dung hướng dẫn: A study on specialized terminologies translation for Information Technology

Người hướng dẫn thứ hai:

Họ và tên:..

Học hàm, học vị:..

Cơ quan công tác:..

Nội dung hướng dẫn:...

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     Sinh viên   *Người hướng dẫn*

Hải Phòng, ngày   tháng   năm 2018

Hiệu trưởng

GS.TS.NGƯT _Trần Hữu Nghị_

PHẦN NHẬN XÉT CỦA CÁN BỘ HƯỚNG DẪN

1. **Tinh thần thái độ của sinh viên trong quá trình làm đề tài tốt nghiệp:**

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2. **Đánh giá chất lượng của khóa luận (so với nội dung yêu cầu đã đề ra trong nhiệm vụ Đ.T. T.N trên các mặt lý luận, thực tiễn, tính toán số liệu…):**

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3. **Cho điểm của cán bộ hướng dẫn (ghi bằng cả số và chữ):**

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Hải Phòng, ngày … tháng … năm 2018

Cán bộ hướng dẫn

(Ký và ghi rõ họ tên)

NHẬN XÉT ĐÁNH GIÁ

CỦA NGƯỜI CHẤM PHẢN BIỆN ĐỀ TÀI TỐT NGHIỆP

1. Đánh giá chất lượng đề tài tốt nghiệp về các mặt thu thập và phân tích tài liệu, số liệu ban đầu, giá trị lí luận và thực tiễn của đề tài.

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2. Cho điểm của người chấm phản biện : ………………………..

(Điểm ghi bằng số và chữ)

Ngày.......... tháng......... năm 2018

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ABBREVIATIONS

IT	Information technology
SL	Source language
TL	Target language
ESP	English for special purpose
EAP	English for academic purpose
EOP	English for occupational purpose

PART I: INTRODUCTION

I.1. Rationale

Information technology plays an undeniably vital part in our nowadays society as it has a great impact on every aspects of life and especially on the development of a country. As a developing country, Vietnam is trying to keep up with other nations in many aspects including Information technology. However, this is an absolutely large field with a thousand of specific terminologies that require learners a deep knowledge and constant researches. As a result, translation of IT terminologies may cause some difficulties for leaners when translating from SL to TL.

A number of Vietnamese learners get trouble in translating IT terms. I myself often become confused when coping with terms regarding this field. Hence, it is very necessary for me as well as learners to acquire certain accumulation of linguistic and cultural knowledge in both native language and foreign languages. Moreover, I am also interested in translation skills, especially in translation of IT terms. That is the main reason inspiring me to carry out this research. More importantly, studying this theme offers me a chance to have thorough understanding about technical translations.

I.2. Aim of the study:

The study on specialized terminologies translation for Information technology aims at figuring out an overview on translation strategies and procedures that are often applied as well as finding commonly used terminologies in Information technology field.

In details, my Graduation paper aims at:

- Collecting and presenting basic English terminologies in IT.
- Providing their Vietnamese equivalents or expressions.
- Preliminarily analyzing translation strategies and procedures employed in the translation of these English terms into Vietnamese.

Hopefully, this study can provide readers with overall comprehension about the information from written text and from visual forms of presentation related to Information technology terms, help them translate it effectively.

I.3.Scope of the study:

The terms used in IT field would require a great amount of effort and time to study. Due to limitation of time and knowledge, mistakes and shortcomings are unavoidable. Therefore, the study only focused on some basic translating strategies and contrastive analysis between English and Vietnamese IT terms.

I.4. Method of the study:

This Graduation paper is carried out by using the qualitative method, which approaches research concepts and methods from the academic field to provide insights into the problem and help develop ideas

All of the English – Vietnamese terms used in this study are collected from dictionaries and the internet, which give illustrations to help readers have better understanding about Information Technology field

I.5. Design of the study:

The study is divided into three parts:

- **Part I** is the Introduction in which rationale, aim of the study, method of the study and design of the study are presented.

- **Part II** is the Development that includes four chapters:

o   *Chapter I* is an overview of theoretical background which includes the definition, methods, procedures of translation in general and ESP translation, and definition of term.

o   *Chapter II* is an investigation into English-Vietnamese translation of IT terms and their Vietnamese equivalents which aims at finding the popular construction of IT terminologies as well as some commonly used ones.

- o   *Chapter III* focuses on some techniques applied in the translation of IT terminologies.
- o   *Chapter IV* finds out some difficulties faced by students when coping with IT terminologies.
  - **Part III** is Conclusion that indicates strengths and weaknesses of the study as well as some suggestions for further research.

PART II: DEVELOPMENT
CHAPTER I: THEORETICAL BACKGROUND

I.1.TRANSLATION THEORY:
I.1.1. Definition of translation:

The definition of translation varies upon linguists all around the world.

There are some typical concepts as follow:

- Translation can be defined as the result of a linguistic –textual operation in which a text in one language is re-contextualized in another language. As a linguistic-textual operation, translation is, however, subject to, and substantially influenced by, a variety of extra-linguistic factors and conditions. It is this interaction between ' inner' linguistic-textual and 'outer' extra-linguistic, contextual factors that makes translation such a complex phenomenon (House.J,2015).

- Translation is the replacement of the textual material in one language (SL) by equivalent textual material in another language (TL) (Catford,1965).

- Translation is made possible by an equivalent of thought that lies behind its different verbal expressions (Savory, 1968).

- Translation is to be understood as the process whereby a message expressed in a specific source language is linguistically transformed in order to be understood by readers of the target language (Houbert,1998).

- Translation is the transformation of a text originally in one language into an equivalent in the content of the message and the formal features and the roles of the original (Bell,1991).

- Translation is the interpretation of the meaning of a text in one language (the source text) and the production, in another language

of an equivalent text (the target text) that communicates the same message (Nida,E.A,1959).

I.1.2. Translation methods:

There is no standard or only one guaranteed method for translation. People have different methods regarding translation strategy and it all depends on some factors such as the purpose of the translation, the nature of readership and the text types.

According to Newmark, P (1988:45) there are eight methods of translation namely word-for-word translation, literal translation, faithful translation, semantic translation, adaptation, free translation, idiomatic translation and communicative translation.

I.1.2.1. Word for word translation:

The method of translation in which the SL (Source language) word order is preserved and the words translated singly by their most common meanings. Cultural words are translated literally. The main use of this method is either to understand the mechanics of the source language or to construe a difficult text as pre -translation process.

I.1.2.2. Literal translation:

This is a broader form of translation, each SL word has a corresponding TL word, but their primary meaning may differ. The SL grammatical forms are converted to their nearest target language equivalents. However, the lexical words are again translated out of context. Literal translation is considered the basic translation step, both in communication and semantic translation, in that translation starts from there. As pre-translation process, it indicates problems to be solved.

I.1.2.3. Faithful translation:

A faithful translation attempts to reproduce the precise contextual meaning of the original within the constraints of the TL grammatical structures. It "transfers" cultural words and preserves the degree of grammatical and lexical "abnormality" (deviation from SL norms) in the

translation. It attempts to be completely faithful to the intentions and the text-realization of the SL writer.

I.1.2.4. Semantic translation:

Semantic translation differs from faithful translation only in as far as it must take more account of the aesthetic value of the SL text, compromising on "meaning" where appropriate so that no assonance, word play or repetition jars in finished version.

I.1.2.5.Adaptation:

This method is the freest form of translation. It is frequently used for plays (comedies) and poetry: themes, characters, plots preserved, SL culture converted to TL culture and text is rewritten. The deplorable practice of having a play or poem literally translated and then rewritten by an established dramatist or poet has produced many poor adaptations, but other adaptations have 'rescued' period plays.

I.1.2.6. Free translation:

Free translation is the translation which is not close to the original, but the translation just transmits meanings of the SL in her/ his own words. It reproduces the matter without the manner, or the content without the form of the original. Usually it is a paraphrase much longer than the original. Therefore, the advantage is that the text in TL sounds more natural. On the contrary, the disadvantage is that translating is too casual to understand the original because of its freedom.

I.1.2.7. Idiomatic translation:

Idiomatic translation is used for colloquialism and idioms whose literalism is the translation, by which the translator does not transfer the literalism of the original, uses the translation of colloquialisms and idioms.

I.1.2.8. Communicative translation:

It attempts to render the exact contextual meaning of the original in such a way that both language and content are readily acceptable and comprehensible to readership. "… But even here the translation still has to

respect and work on the form of the source language text as the only material basic for his work" (Newmark,P ,1982:38).

I.1.3.Equivalence in translation:

Baker, M (In other word, 1992) explores the notion of equivalence at different levels, in relation to the translation process, including all different aspects of translation and hence putting together the linguistic and the communicative approach. She distinguishes:

- **Equivalence that can appear at word level and above word level**

When translating from one language into another. Baker acknowledges that, in a bottom up approach to translation, equivalence at word level is the first element to be taken into consideration by the translator. In fact, when the translator starts analyzing the ST she looks at the words as single units in order to find a direct 'equivalent' term in the TL. Baker gives a definition of the term *word* since it should be remembered that a single word can sometimes be assigned different meanings in different languages and might be regarded as being a more complex unit or *morpheme*. This means that the translator should pay attention to a number of factors when considering a single word, such as number, gender and tense.

- **Grammatical equivalence**

When referring to the diversity of grammatical categories across languages. She notes that grammatical rules may vary across languages and this may pose some problems in terms of finding a direct correspondence in the TL. In fact, she claims that different grammatical structures in the SL and TL may cause remarkable changes in the way the information or message is carried across. These changes may induce the translator either to add or to omit information in the TT because of the lack of particular grammatical devices in the TL itself. Amongst these grammatical devices which might cause problems in translation Baker focuses on number, tense and aspects, voice, person and gender.

- **Textual equivalence**

     When referring to the equivalence between a SL text and a TL text in terms of information and cohesion. Texture is a very important feature in translation since it provides useful guidelines for the comprehension and analysis of the ST which can help the translator in his or her attempt to produce a cohesive and coherent text for the TL audience in a specific context. It is up to the translator to decide whether or not to maintain the cohesive ties as well as the coherence of the SL text. His or her decision will be guided by three main factors, that is, the target audience, the purpose of the translation and the text type.

- **Pragmatic equivalence**

     When referring to implicatures and strategies of avoidance during the translation process. Implicature is not about what is explicitly said but what is implied. Therefore, the translator needs to work out implied meanings in translation in order to get the ST message across. The role of the translator is to recreate the author's intention in another culture in such a way that enables the TC reader to understand it clearly.

I.2. English for special purpose

I.2.1. Definition of ESP:

Strevens (1988: 1) says that "ESP is a particular case of the general category of special purpose language teaching". Defining ESP is a very difficult task and gains a lot of attention of many researchers. That is because different researchers have given different emphases to the variety of elements that characterize ESP.

According to Strevens (1988: 1-2), a definition of ESP needs to distinguish between four absolute and two variable characteristics:

- Absolute characteristics of ESP :

ESP consists of English language teaching which is:

1. Designed to meet specific needs of the learners.

2. Related in content (i.e., in its themes and topics) to particular disciplines, occupations and activities.

3. Centered on the language appropriate to those activities, in syntax, lexis, discourse, semantics, etc.

- Variable characteristics of ESP:

ESP may be, but is not necessarily:

1. Restricted as to the language skills to be learnt (e.g.: reading only, speech recognition only, etc.).

2. Taught according to any pre-ordained methodology (i.e., ESP is not restricted to any particular methodology – although communicative methodology is very often felt to be the most appropriate).

To clarify the meaning of ESP, Dudley-Evans (1988:4) gave an extended definition in terms of "absolute" and "variable" characteristics.

- Absolute Characteristics:

1. ESP is defined to meet specific needs of the learners.

2. ESP makes use of underlying methodology and activities of the discipline it serves.

3. ESP is centered in the language appropriate to these activities in terms of grammar, lexis, register, study skills, discourse and genres.

- Variable Characteristics:

1. ESP may be related to or designed for specific disciplines.

2. ESP may use, in specific teaching situations, a different methodology from that of.

3. ESP is likely to be designed for adult learners, either at a tertiary level institution or in a professional work situation. It could, however, be for leaners at secondary school level.

4. ESP is generally designed for intermediate or advanced students.

5. Most ESP courses assume some basic knowledge of the language systems.

The definition Dudley-Evans (1998) offered is clearly influenced by that of Strevens (1988), although he has improved it by removing the absolute characteristics that ESP is "in contrast with GE", and has included more variable characteristics. From then definition, it can be seen that ESP can but is not necessarily concerned with a specific discipline, nor does it have to be aimed at a certain age group or ability range. ESP should be seen simply as an "approach" to teaching according to Hutchinson and Waters (1987: 19) who state "ESP is and approach to language teaching in which all decisions as to content and method on the learner's reason for learning" and they suggested "The foundation of all ESP is the simple question 'Why does this leaner need to learn a foreign language?' " (1987: 19). With a specific purpose in mind, the learners know what they need to learn. To take an example, one of the characteristics of students of English drawn for Industry and Commerce is that they expect the English they are taught on a language course to be relevant to their jobs. Frequently they take part in an English course not because they have any particular interest in English but because their career within their company demands a high level of competence in English. Therefore it is clear that "an ESP course is directly concerned with the purpose for which learners need English which are usually expressed in functional term" (Brumfit, 1979: 71).

Thus, ESP can be seen from different angles and ESP course is purposeful and is aimed at the successful performance of occupational or educational roles. As Strevens (1988: 4) says "Tell us what you need to learn and for what purpose. We will then design a course which teaches you precisely that: no more or no less and we will do so by means of highly effective teaching methods".

I.2.2. Types of ESP

There are many types of ESP, according to Hutchinson & Waters (1987: 181) "ESP is just one branch of EFL (English as a Foreign Language)/ ESP, which are the main branches of English language teaching in general". According to the tree of ELT (English Language   Teaching) given by them (Hutchinson & Waters, 1987:17), there are two main types of ESP: EAP (English for Academic Purposes) and EOP/EVP/VESL (English for Occupational Purposes/ English for Vocational Purposes/ Vocational English as a Second Language). Robinson (1991: 3) presents two versions of the "ESP family tree". The first version divides ESP into two branches: EOP involving work-related needs and training and EEP (English for Economics Purposes)/ EAP involving academic study needs (figure 1). The second version divides ESP into three branches: Academic, professional and vocational referring to both work and study-related needs (figure 2).

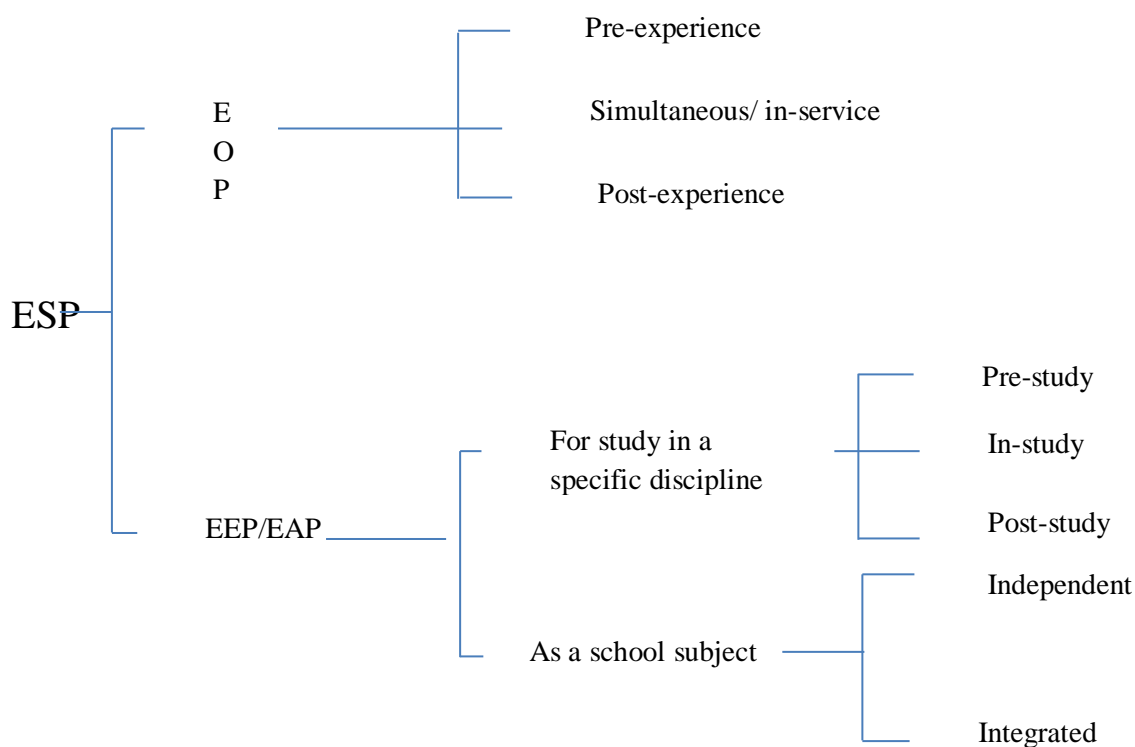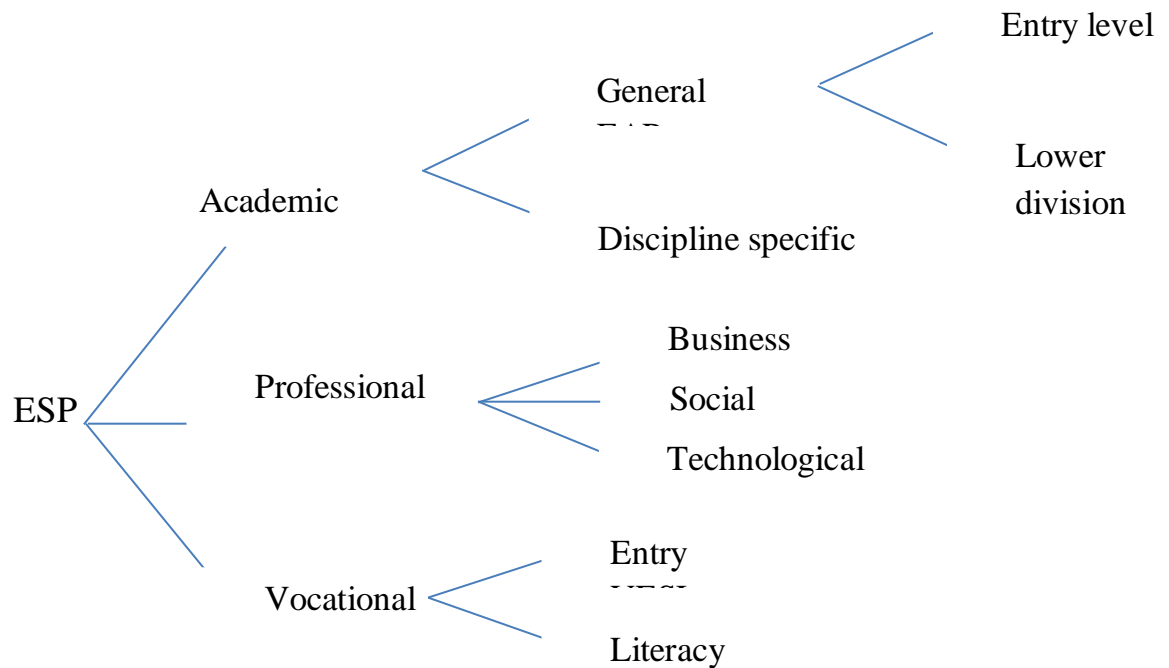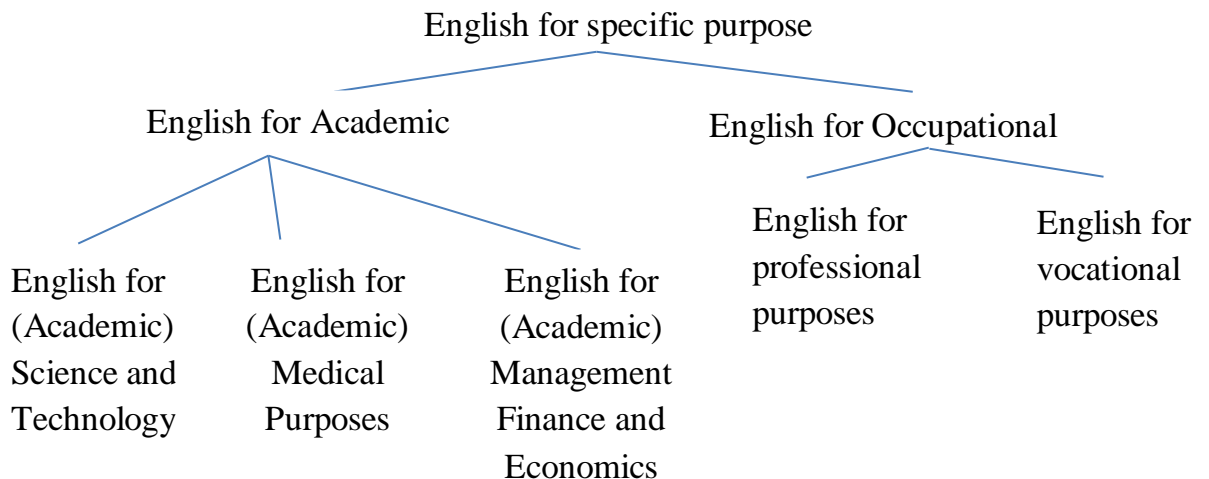Figure 1: The ESP "family tree" (Robinson, 1991:3)

Figure 2: ESP in the USA (Robinson, 1991:4)

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                                                              Entry level
                                        General
                            Academic    EAP
                                                              Lower
                                                              division
                                        Discipline specific

                                                    Business
                                        Professional    Social
ESP
                                                    Technological

                                                    Entry
                                        Vocational
                                                    Literacy
```

Another typical type tree diagram for ESP which divides EAP and EOP according to discipline or professional area is presented by Dudley-Evans (1998:6)

Figure 3: ESP classification by professional area (Evans & John, 1998:6)

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                        English for specific purpose

            English for Academic              English for Occupational

                                                    English for        English for
                                                    professional       vocational
                                                    purposes           purposes
English for     English for     English for
(Academic)      (Academic)      (Academic)
Science and     Medical         Management
Technology      Purposes        Finance and
                                Economics
```

Therefore, encompasses two types of instruction, EOP (English for Occupational Purposes) and EAP (English for Academic Purposes). Course in EOP trains individuals to perform on the job, using English to communicate such as hotel staff, air hostess, etc. EAP, on the other hand,

features a common core element known as "study skills" such as academic writing, listening to lectures, note-taking, making oral presentations, which enable learners to succeed in English language academic settings. However, it is difficult to make a clear distinction between these two types because, in Vietnam, English is taught only as a foreign language at every university but after graduating learners may use the language as an instrument for achieving multi-purpose activities in their workplace. This distinction, according to Hutchinson (1987: 16) is "not a clear-cut" because people can work and study simultaneously and in many cases the language learnt for immediate use in study environment will be used later when the students take up, or return to, a job.

I.2.3. Definition of technical translation

According to Wikipedia, ***Technical translation*** is a type of specialized translation involving the translation of documents produced by technical writers (owner's manuals, user guides, etc.), or more specifically, texts which relate to technological subject areas or texts which deal with the practical application of scientific and technological information.

In "Approaches to translation" (1981), Newmark differently distinguishes technical translation from institutional translation: ―Technical translation is one of the parts of specialized translation; institutional translation, the areas of politics, commerce, finance, government etc… is the other. He goes on to suggest that technical translation is potentially non-cultural and universal because the benefits of technology are not confined to one speech community. The terms in technical translation, therefore should be translated. On the contrary, institutional translation is cultural, so, in principle, the terms are transferred unless they are connected with international organization. Though having different approaches to technical translation, two authors view it as specialized translation with its essential element "special terms".

I.3. Terminology:

I.3.1. Definition:

Up to now there are various definitions of terminology by many linguists.

- According to Valeontis and Mantzari (2006, 1), *Terminology* has two fold meanings: (1) It is the discipline concerned with the principles and methods governing the study of concepts and their designations (terms, names, symbols) in any subject field, and the job of collecting, processing, and managing relevant data and (2) the set of terms belonging to the special language of an individual subject field".

- *Terminology* is the study of and the field of activity concerned with the collection, description, processing and presentations of terms, i.e. lexical items belonging to specialized areas of usage of one or more languages. (Gibbon, 1998).

I.3.2. General features of Terminology:

As a special unit in the lexical system of language, terminology has its own distinctive features. According to many linguists, terminology should have the following qualities: accurateness, systematism, internationalism, nationalism, popularity.

I.3.2.1. Accurateness:

The first quality of terminology is accurateness, that is, it expresses a specific concept or definition concretely and precisely so that it can help to avoid the misunderstanding one concept for another. It is necessary for each term in a typical professional scale, denotes only one concept in that system. The meaning of a term is normally the combination of linguistic signals not only the sum of its component's meaning. It is also claimed that each linguistic signal poses one basic nuclear meaning and vice versa a concept also has a typical linguistic signal in a concrete situation. New Mark (1998) also said that concept-words are notorious for their different meanings in various technologies. Therefore, when a term is created in a

specific field, it is necessary to take into account its homophone or synonymy which is often seen in linguistic.

With respect to the lexical meaning of words, normal word often bears characteristics of polysemy and synonym, whereas terminology must keep away from this. The semantics of ordinary word may change in different usage and contexts while that of terminology is fixed in specialized fields it is employed in.

For example, a normal and simple noun like "school" in general language has up to eight shades of meanings when used in different circumstances. However, the term "Java" in Information technology field is taken for only one meaning "a general-purpose computer-programming language that is concurrent, class-based, object-oriented and specifically designed to have as few implementation dependencies as possible".

As regards the accuracy of terminology in terms of form, terminology has no other form or outer cover other than its original one. We can hardly add any factors like prefix, suffix, etc… to a term to refer to the plural form, antonyms or any change in word meaning. For example, the above-mentioned word "Java" does not allow any transformation to its form. However, considering systematism, the form of a term could be changed, but in a special way.

I.3.2.2. Systematism:

It is the second criterion of a scientific term. As a part of language, each term has its own position in the system of concepts and belongs to a terminological system. Each term requires its meaning in the relationship with other terms in its system. Once separated from its system, it's meaning in vague. Therefore, systematism is seen as one of the most important features of terminology. There is the difference in the viewpoints about the characteristics of terminology among terminologists. Some say the typical characteristic of terminology is the systematic formation, whilst others claim that it is the feature of content. However, it

is the combination of both content and expression form. It is impossible to separate a concept from the system to make a term but it determines its position in the system.

Generally in Information technology field …, it is easy for us to realize this characteristic by the using suffixes to indicate position of people who play role in those documents. In Information Technology terminologies, their suffixes –or,-ee, - er, - ist" are used to indicate people.

For example:

The word "designer" basically means "người thiết kế" and "programmer" means "lập trình viên" in Vietnamese. It can be seen that the suffix "er" in those two words indicates the position of people in the system.

I.3.2.3. Internationalism:

As mentioned above, terms are special words expressing common scientific concepts together with the development, cooperation and scientific, technological exchanges among countries throughout the world, terms are internationalized. The globalization enables terminology to be used more popularly in different languages so as to make the international science develop faster. As a result of this process, there are a number of terms being internationalized in different languages. Based on the criteria of terminology, each language may require other principles in accordance with its culture. Accordingly, terminology in Vietnamese is not an exception; it has its typical characteristics including nationalism and popularity.

I.3.2.4. Nationalism:

It is undeniable that term is special linguistic unit of a language used in specific profession; it clearly belongs to national language. As a result, terminology in Vietnam should be imbued with Vietnamese culture, and characteristics of Vietnamese language. They should be appropriate to Vietnamese people from the lexicology to grammatical composition.

I.3.2.5. Popularity:

It is characteristics of terminology which can bring scientific and technological progress to all people. As a component of linguistics, terminology plays an important role in pushing up the development of science, hence it should be comprehensible to all people in its way of reading, writing, speaking and memorizing.

I.3.3.The creation of Terminology:

According to the International Standardization Organization (ISO, 1988), the following factors are of essential consideration in the creation of terminology are:

Firstly, terms must persistently show typical features of the concept they denote so as to bring about the exact reference. In addition, they need to be economical to avoid giving rise to homonymy. Besides, terms should be lexically systematic and conform to the phonological and morphological rules of the language. Furthermore, terms should follow the common rules of word-formation of the language, that is, they should allow composition and derivation where are necessary. Lastly, the meaning of term should be context-free. Term creation including primary and secondary, is under various influences and subject to different motivation. When a new concept appears, primary term formation is created meanwhile secondary term formation appears to name monolingual revision of given terminology or the term in the TL after a process of transferring knowledge from one linguistic community to another.

It is common knowledge that technical terminology is volatile due to the changes and continual development of science and technology. Both primary and secondary term formation in technology is affected by a proliferation of variants and synonyms which occur to satisfy the need for popular version of scientific term and product differentiation.

I.3.4. the distinction between terms and words:

To distinguish between terms and word, we should need to know the definition of each.

Word is a set of letters that when modified and combined according to laws of grammar (syntax) may constitute a sentence, an imperative or other aspect of language. Most often words are terms, because they provide meaning (through representation) and hence our understanding.

Term is a word that has meaning (semantics) and most often refers to objects, ideas, events or a state of affair. A term is (in addition to being a word) a point of reference, whereas a word is only a constituent of language. Hence, all terms are words, but only some words can be terms. A term refers to something, either abstract or concrete. Because a term refers to something (e.g. object, event, relation) it represents that something. Terms can easily be spotted if they can be associated with other terms, hence forming a set of terms - a terminology. Thus, to spot the difference between a term and a word requires that the term represent something.

CHAPTER II: AN INVESTIGATION INTO ENGLISH – VIETNAMESE TRANSLATION OF IT TERMS AND THEIR VIETNAMESE EQUIVALENCE

II.1. Definition of Information technology:

Information Technology (IT) is a business sector that deals with computing, including hardware, software, telecommunications and generally anything involved in the transmittal of information or the systems that facilitate communication.

IT involves many things. Take, for instance, an IT department in a company. There are many people with many jobs and varied responsibilities. These responsibilities range from keeping systems and data secure to keeping networks up and running. There are people who input data, people who manage databases and people who do programming. There are also the decision makers, such as Chief Information Officers (CIOs), who decide how an IT department will operate and what components will be purchased .

IT also includes the management of data, whether it is in the form of text, voice, image, audio or some other form. It can also involve things related to the Internet. This gives IT a whole new meaning, since the Internet is its own realm. IT involves the transfer of data, so it makes sense that the Internet would be a part of IT. IT has become a part of our everyday lives and continues to proliferate into new realms.

II.2. Language in Information Technology:

A language is considered to be a system of communicating with other people using sounds, symbols and words in expressing a meaning, idea or thought. Primarily there is a distinction between one language and another; usually it may be through country boundaries, population culture, demographics and history. Each country through combinations of blending cultures, environment and other factors has evolved their own unique style

of a language. And the most popular language is English, which is used in many fields, such as: science and technology communicating, marketing, business, etc. ; especially in Information technology field, a field plays important role generally in every country, especially in Vietnam.

Some terminologies used in Information Technology might be similar with other fields like science, marketing ... Many terminologies can be used with the same meaning with other fields. However, there are some special technical terminologies that only make sense in the context of Information Technology sector. Therefore, to translate these idiomatically, we should be aware of the language base and the knowledge about trade (commerce), business, economics and other relevant aspects.

II.3.The popular construction of IT terms

The terms that make up the language of Information Technology are quite available and their words building are also based on different ways but majority of terminologies are in single terms and compound terms. This study will provide readers some of the most common IT terms.

II.3.1. Single terms:

Single terminologies are those that consist of just one word which can be found in a text. As the below illustrations:

English	Explanation	Vietnamese
Argument	A reference or value that is passed to a function, procedure, subroutine, command or program	Đối số
Account	An arrangement by which a user is given personalized access to a computer, website, or application, typically by entering a username and password.	Tài khoản
Anonymous	Having no outstanding, individual, or unusual features; unremarkable or impersonal.	Nặc danh

Algorithm	A process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer	Thuật toán
Binary	Something having two parts.	Hệ nhị phân
Bug	a fault in a machine, especially in a computer system or program	Lỗi
Character	a letter, sign, mark or symbol used in writing, in printing or on computers	Ký tự
Crash	a sudden failure of a machine or system, especially of a computer or computer system	Lỗi đăng nhập
Compatible	Be able to be used with a specified piece of equipment or software without special adaptation or modification.	Tương thích
Customize	Modify (something) to suit a particular individual or task.	Tùy biến
Code	The symbolic arrangement of data or instructions in a computer program or the set of such instructions	Mã
Client	Any computer that is hooked up to a computer network	Máy con
Circuit	the complete path of wires and equipment along which an electric current flows	Mạch
Database	A structured set of data held in a computer, especially one that is accessible in various ways	Cơ sở dữ liệu
Desktop	The working area of a computer screen regarded as a representation of a notional desktop and containing icons representing items such as files.	Màn hình nền

Domain	A distinct subset of the Internet with addresses sharing a common suffix or under the control of a particular organization or individual.	Miền
Designer	A person who plans the look or workings of something prior to it being made, by preparing drawings or plans.	Người thiết kế
Disk	a device for storing information on a computer, with a magnetic surface that records information received in electronic form	Ổ đĩa
Error	The occurrence of an incorrect result produced by a computer	Lỗi
Encrypt	Convert (information or data) into a code, especially to prevent unauthorized access.	Mã hóa
File	A collection of data, programs, etc. stored in a computer's memory or on a storage device under a single identifying name.	Tập tin
Function	A set sequence of steps, part of larger computer program	Hàm
Format	the way in which data is stored or held to be worked on by a computer	Định dạng
Graphic	An image that is generated by a computer	Đồ họa
Gateway	a device that connects two computer networks that cannot be connected in any other way	Cổng kết nối Internet cho mạng lớn
Hardware	the machinery and electronic parts of a computer system	Phần cứng
Kernel	a computer program that is the core of a computer's operating system, with complete control over everything in the system.	Lỗi hệ điều hành

Pixel	any of the small individual areas on a computer screen, which together form the whole display	Ảnh điểm
Software	written programs or procedures or rules and associated documentation pertaining to the operation of a computer system and that are stored in read/write memory	Phần mềm
Storage	The process of storing information in a computer memory or on a magnetic tape or disk	Lưu trữ

Following are some basic forms of single terms with suffixes and their meaning:

*Single terms in the form of noun:

Noun-forming by suffixes "er", "tion", "or", "y":

English	**Explanation**	**Vietnamese**
Adapter	a device for connecting pieces of electrical equipment that were not designed to fit together	Bộ phận chuyển đổi điện áp
Application	A program that gives a computer instructions that provide the user with tools to accomplish a task	Ứng dụng
Accumulator	a section of a computer that is used for storing the results of what has been calculated	Bộ chứa
Accessibility	ow easy something is to reach, enter, use, see, etc.	Khả năng truy cập
Browser	A program used to access World Wide Web pages. Examples: Firefox, Safari or Internet Explorer.	Trình duyệt

Buffer	an area in a computer's memory where data can be stored for a short time	Bộ đệm
Configuration	the equipment and programs that form a computer system and the way that these are set up to run	Cấu hình
Computer	an electronic machine that can store, organize and find information, do calculations and control other machines	Máy tính
Compiler	a program that translates instructions from one computer language into another for a computer to understand	Trình biên dịch
Driver	software that controls the sending of data between a computer and a piece of equipment that is attached to it, such as a printer	Trình điều khiển
Directory	A listing of the files stored in memory	Thư mục lớn
Editor	a program that allows you to change stored text or data	Trình soạn thảo
Extension	A suffix preceded by a period at the end of a filename; used to describe the file type. Example: On a Windows computer, the extension ".exe" represents an executable file.	Đuôi tệp
Folder	An area on a hard disk that contains a related set of files or alternatively, the icon that represents a directory or subdirectory.	Thư mục

Header	The portion of an e-mail message or a network newsgroup posting that precedes the body of the message.	Tiêu đề
Interpreter	a computer program that changes the instructions of another program into a form that the computer can understand and use	Trình thông dịch
Operation	an act performed by a machine, especially a computer	Thao tác
Memory	the part of a computer where information is stored; the amount of space in a computer for storing information	Bộ nhớ
Monitor	a television screen used to show particular kinds of information; a screen that shows information from a computer	Màn hình máy tính
Programmer	a person whose job is writing programs for computers	Lập trình viên
Parameter	something that decides or limits the way in which something can be done	Tham số
Pointer	a small symbol, for example an arrow, that marks a point on a computer screen	Con trỏ
Printer	An output device that prints the results of data processing	Máy in
Speaker	an electronic device that gives off sound	Loa

*Single terms in the form of Verb:

IT terms in the form of verb are widely used in all documents, articles or contracts, the following table will list out some common ones:

English	Explanation	Vietnamese
Access	The operation of reading or writing stored information	Truy cập
Activate	Put in motion or move to act	Kích hoạt
Automate	Make automatic or control or operate automatically	Tự động hóa
Assemble	Create or putting components or members together	Lắp ráp
Compress	to make computer files, etc. smaller so that they use less space on a disk, etc.	Nén
Customize	o modify or build according to individual or personal specifications or preference	Tùy biến
Connect	to join a computer or a mobile device to the Internet or to a computer network	Kết nối
Download	to get data from another computer, usually using the Internet	Tải xuống
Extract	retrieving data out of data sources for further data processing or data storage	Giải nén
Install	to put a new program onto a computer	Cài đặt

Refresh	to make the most recent information show, for example on an Internet page	Làm mới
Reboot	the act of restarting a computer, forcing it to go through boot process	Khởi động lại
Scan	to examine a computer program or document in order to look for a virus	Quét
Synchronize	keeping multiple copies of a dataset in coherence with one another	Đồng bộ hóa

II.3.2. Compound terms:

Compound terminologies are terms consisting of two or more words, most of them are compound nouns, compound adjectives. The below examples are compound terminologies which are commonly used in Information Technology field.

*Terminologies consisting of Classifier (Noun) + thing:

These terminologies include two nouns, the first noun of which hold functions as classifier and help distinguish the second noun from the other concepts of the same group. The following list includes Information technology terminologies which belong to this type:

English	Explanation	Vietnamese
Application software	a program or group of programs designed for end users	Phần mềm ứng dụng
Command line	a horizontal line on an interface that allows the user to type in various commands.	Dòng lệnh

Fault tolerance	the property that enables a system to continue operating properly in the event of the failure of some of its components.	Khả năng chịu lỗi
Firewall	a part of a computer system or network that is designed to block unauthorized access while permitting outward communication.	Tường lửa
Information system	combination of hardware, software, infrastructure and trained personnel organized to facilitate planning, control, coordination, and decision making in an organization	Hệ thống thông tin
Mainframe computer	computers used primarily by large organizations for critical applications; bulk data processing	Thiết bị xử lý trung tâm
Refresh rate	the number of times in a second that a display hardware updates its buffer.	Tần số làm mới màn hình
Source code	a text listing of commands to be compiled or assembled into an executable computer program.	Mã nguồn
System software	computer software designed to provide a platform to other software	Phần mềm hệ thống

*Terminologies consisting of Prefix +Noun:

These terminologies comprise the Prefix which holds function as Classifier and one word being form of Noun (thing). The following table is the list of these terminologies:

English	Explanation	Vietnamese
Antivirus	computer software used to prevent, detect and remove malicious software	Phần mềm diệt virus
Minicomputer	a small computer with a microprocessor as its central processing unit	Máy tính loại nhỏ
Multimedia	an electronically delivered combination of media including video, still images, audio, and text in such a way that can be accessed interactively	Đa phương tiện
Multi-task	execute more than one program or task simultaneously.	Đa nhiệm
Multi-user	Be able to be used by a number of people simultaneously.	Đa người dùng

*Terminolgies consisting of Adjective+Noun:

These compounds consist of an Adjective and a noun of which Adjective takes functions as Classifier and the Noun (thing). For instance:

English	Explanation	Vietnamese
Acoustic coupler	an interface device for coupling electrical signals by acoustical means—usually into and out of a telephone	Bộ ghép âm
Distributed system	a number of independent computers linked by a network	Hệ thống phân bố

II.3.3. Common IT abbreviations:

Abbreviation terms are words or phrases that have been abbreviated. They are used in written or spoken communication in weather field to save time and space. Abbreviation terms sometimes represent the first letter of several words or the first letter of just one word. This study will provide you with some the most common accepted abbreviation terms used in IT field.

CPU:

The electronic circuitry within a computer that carries out the instructions of a computer program by performing the basic arithmetic, logical, control and input/output (I/O) operations specified by the instructions. *CPU* is abbreviated by "Central processing unit" and has a Vietnamese equivalent "Bộ xử lý trung tâm".

PC:

The multi-purpose computer whose size, capabilities, and price make it feasible for individual use. PCs are intended to be operated directly by an end user, rather than by a computer expert or technician. *PC* is abbreviated by "Personal computer" and has a Vietnamese equivalent as " Máy tính cá nhân".

RAM:

The form of computer data storage that stores data and machine code currently being used. A random-access memory device allows data items to be read or written in almost the same amount of time irrespective of the physical location of data inside the memory. The full form is "Random access memory" as Vietnamese equivalent " Bộ nhớ truy cập tùy ý".

Following is the list of common IT abbreviations:

Abbreviation	Explanation	Vietnamese
CPU	Central Processing Unit	Bộ xử lý trung tâm
PC	Personal computer	Máy tính cá nhân
PDF	Portable document format	Định dạng tài liệu di động
HTTP	Hypertext transfer protocol	Giao thức truyền tải siêu văn bản
LAN	Local area network	Mạng máy tính cục bộ
URL	Uniform resource locator	Định dạng tài nguyên thống nhất
USB	Universal serial bus	Bộ nhớ ngoài
RAM	Random access memory	Bộ nhớ truy cập tùy ý
ROM	Read only memory	Bộ nhớ trong
VGA	Video graphics array	Thiết bị đồ họa
WWW	World wide web	Mạng lưới toàn cầu

CHAPTER III: TECHNIQUES APPLIED IN THE TRANSLATION OF INFORMATION TECHNOLOGY TERMINOLOGIES

As said in previous sections, IT terms include single words, compound words. Thus, basing on the theoretical background in the previous chapter, this chapter will analyze in detail some of the most popular strategies used in translation of IT terms as well as help readers clearly understand about new concepts of this field.

III.1. Shift or transposition translation:

This is a common translation strategies applied in translation of the compound term. Transposition is a translation procedure involving a change in the grammar from SL to TL, including "**automatic translation**" and "**rank-shift translation**".

The change in the word order is named "**Automatic Translation**"

English term	Vietnamese equivalent
Source code	Mã nguồn

"*Source*" is the place something comes from or starts at, or the cause of something, its Vietnamese equivalent is "Nguồn".

"*Code*" is the symbolic arrangement of data or instructions in a computer program or the set of such instructions and its Vietnamese equivalent is "Mã".

"*Source code*" is a text listing of commands to be compiled or assembled into an executable computer program. Its equivalent in Vietnamese is "Mã nguồn". It is clear that the position between two nouns has changed when it is translated into Vietnamese. Here is another example:

English term	Vietnamese equivalent
Application system	Phần mềm ứng dụng

There is also a change in the order of these words, in English the word "Application" stands before the noun "system". However, when it is translated into Vietnamese, the word "Application" comes after the noun.

Looking at these terms, it is realizable that automatic shift is applied in translating flexibly, and all words in these terms are naturally converted from English into Vietnamese without adding any expression. Thanks to automatic shift strategy application, translators can feel simpler and unconfused when dealing with some redundant or additional words during the translation process of these terms.

The following examples are also translated with the application of this strategy:

English	Explanation	Vietnamese
Circuit board	A thin plate on which chips and other electronic components are attached.	Bảng mạch
Information system	an organized system for the collection, organization, storage and communication of information	Hệ thống thông tin
Computer science	the study of the theory, experimentation, and engineering that form the basis for the design and use of computers	Khoa học máy tính
Core memory	A common form of random access memory	Bộ nhớ lõi

The other case of "shift translation" called "Rank-shift translation", also involves the change in the grammar from SL to TL. Taking an example "Union catalog" to indicate this strategy.

Union catalog…………………………………… Mục lục liên hợp

   N   N   N   V

We can see that in SL, "Union catalog" is composed by two nouns, but the noun "Union" becomes Verb when this term is translated into TL. Therefore, by the way of changing in the grammar of the word from SL to TL, translator will easily deal with these terms.

English	Vietnamese
Circuit simulation N N	Mô phỏng mạch V N
Discussion group N N	Nhóm thảo luận N V
Satellite transmission N N	Truyền vệ tinh V N

III.2. Translation by paraphrase using unrelated words:

Paraphrase is one of many ways that facilitates translators to produce the adequate lexical equivalents. It is stated by Baker, M (1932: 38) that this strategy tends to be used when the concept expressed by the source item, particularly the item in question is semantically complex.

This strategy is mainly used when translating Information technology terminologies which are not lexicalized at all in the target language and mainly based on the modification of a super ordinate or simply on the unpacking of the source terminology meaning. The paraphrase might be based on modifying a super ordinate or simply on unpacking the meaning of the source item, particularly if the item in the question is semantically complex.

For instance, in the term "Mainframe computer", if word for word translation strategy is applied, the word "mainframe" will be translated as "khung chính". However, the accurate Vietnamese equivalent of this term is "Máy tính lớn". It can be seen that the word "lớn" has been used to

flexibly help readers understand the term. The following is the collection of Information technology terms that are translated into Vietnamese with the same strategy:

English	Vietnamese
Refrigeration system	Hệ thống làm mát

III.3.Translation of abbreviation by using loan words plus explanation:

An abbreviation is a shortened form of a word or phrase. It consists of a letter or group of letters taken from the word or phrase .This strategy is very useful when the translator deals with concepts or ideas that are new to Vietnamese audience, culture-specific items, and buzzwords. Using loan word is dramatically strong method applied for the word which have foreign origin or have no equivalence in TL. Whenever a loan word is used, it is better to give an explanation. Consider following example:

USB is a common interface that enables communication between devices and a host controller such as a personal computer. It connects peripheral devices such as digital cameras, mice, keyboards, printers, scanners, media devices, external hard drives and flash drives. Because of its wide variety of uses, including support for electrical power, the USB has replaced a wide range of interfaces like the parallel and serial port.	USB (Universal serial bus) là một loại thiết bị hỗ trợ giao tiếp giữa các thiết bị ngoài và máy chủ chẳng hạn như máy tính cá nhân. Thiết bị này cho phép các phụ kiện như máy ảnh kỹ thuật số, chuột máy tính, bàn phím, máy in, máy quét, ổ cứng có thể kết nối với máy tính chủ. Nhờ vào tính năng sử dụng đa dạng bao gồm khả năng hỗ trợ nguồn điện, USB đã và đang dần thay thế các thiết bị kết nối thông thường khác như cổng song song hay cổng nối tiếp.

In the above example, it can be seen that USB is translated in both SL and TL. The reason is that if the translator uses the definition of USB in TL, it would result in lengthy explanation and inappropriate repetition. Therefore, using the initials of this term makes it more convenient and easier for readers to understand. However, it is not easy to distinguish what it is or what it means if readers do not have knowledge regarding this specific field, USB is the group of initials of the compound word "Universal serial bus" which is translated into Vietnamese as "Chuẩn kết nối tuần tự đa dụng".

Abbreviation	Definition	Vietnamese equivalent
AAT	Average access time	Thời gian truy cập trung bình
ACT	Access control template	Hệ thống kiểm soát ra vào điện tử
AP	Access point	Điểm truy cập
BBS	Bulletin board system	Hệ thống bảng thông báo
BNI	Broadband network interface	Mạng băng thông rộng
CEM	Customer experience management	Quản lý trải nghiệm khách hàng

CHAPTER IV: DIFFICULTIES IN TRANSLATING IT TERMS FACED BY VIETNAMESE STUDENTS AND SUGGESTED SOLUTIONS

IV.1.Difficulties:

Translation has never been an easy task. It is considered as a field which requires learners and researchers to not only study hard but also try their best to improve knowledge in every field in daily life.

Especially, translation of a specialist field like Information technology will be much more difficult and complicated. The researcher has also faced many problems when facing difficulties in translation of IT terms.

The first, there is linguistic difference between English and Vietnamese. The two languages have various differences in terms of vocabulary and grammatical rules. Therefore, it is difficult to choose the right word. Translators need to work hard to accumulate both English and Vietnamese vocabulary to a level that the translator is capable of choosing the right word in any case to produce translation. It is crucial for translators to fully understand all the denotations and connotations of a word.

For example, it is simple for translators to apply word for word strategy to this term "core memory" and easily bring out its Vietnamese equivalent as "Bộ nhớ lõi". In this example, the translator only has to translate each word and use automatic translation strategy to change the order of the term. However, with the term like "cache" which is a specific IT term, the translator cannot just look over its usual meaning as "nơi giấu, nơi dự trữ" but considers the technical meaning "Bộ nhớ đệm" instead.

Therefore, when encountering a confusing term, translators should really be careful and avoid making any loss of connotation meanings. In order to do that, the translator also needs to be flexible in the use of words

and should not translate mechanically basing on English-Vietnamese dictionary.

Besides, it is also difficult to choose the right structure. It means the structure of the phrase the translator should choose the best word order possible so that the translation can sound more natural.

The second difficulty is the lack of knowledge about mother tongue language related to Information technology. This is a very critical background for translating effectively but it seems to be that nobody focuses on improving their mother tongue language knowledge. It explains why most of translators find it easier for them to translate from Vietnamese to English. Translator cannot translate from English into Vietnamese smoothly because they cannot find a suitable word in mother tongue language to apply in their translation document even they understand that document very well.

IV.2.Suggested solutions:

The first and most important demand is to master the knowledge of language, especially focus on skill of translation and vocabulary. The difficulty is that each term is attached with its concept; and to comprehensively and exactly name this term, we should translate basing on its concept. Obviously, it involves the knowledge of language.

The second, terms in general and IT terms in particular usually cannot be translated on the base of equivalence at world-level between English and Vietnamese. Therefore, in addition to some terms possibly predicted on the base of word-to-word, we should equip ourselves with certain knowledge.

To improve knowledge about IT terms, translators can read Vietnamese books, newspapers related to Information technology to understand smoothly and translate naturally. Besides, translators should collect useful information from websites. In addition, a specialized dictionary is advised for every translator.

PART III: CONCLUSION

1. Limitations of the study:

Information technology has become more and more popular in the recent society. Therefore, to help students in general and students of foreign languages department in particular, who might experience terminologies regarding this field in the future, the study has provided some basic knowledge as well as methods of translation to make them feel at ease when applying to their situation. By analyzing strategies applied in non-equivalence and equivalence translation coming with the attached relevant examples, readers will be able to improve their skills.

However, this sector is quite large with many sub fields that require deeper research and due to the limitation of time and knowledge, mistakes and shortcomings are unavoidable.

2. Suggestions for further study:

With the development of the global world, the Information technology field is incessantly developing. As this field plays the important role in the change of the world, the demand of high quality translation as well as the interpretation of this field is really a matter of concern. Therefore, more studies should be carried out in the future and touch upon translation from different perspectives.

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Appendix I (Vocabulary)

English	Vietnamese
Addition	Phép cộng
Appropriate	Thích hợp
Arithmetic	Số học
Capacity	Dung lượng
Compiler	Trình biên dịch
Convert	Chuyển đổ
Demagnetize	Khử từ hóa
Exponentiation	Lũy thừa, hàm mũ
Firmware	Phần mềm được cứng hóa
Gateway	Cổng kết nối Internet cho những mạng lớn
Merge	Trộn
Multiplexor	Bộ dồn kênh
Protocol	Giao thức

Appendix 2(Exercise)

Fill in the blanks using suitable words from the given table:

Speeds	Store	Peripheral	Connection	Interface
Controls	Secondary	Storage	Primary	Bridge

INTERFACES

An interface is a ......1.........between two parts of a system. It is like a .....2..... that allows data to be exchanged between two devices which work in a different at way or at different ....3........ In a computer-controlled system an.......4....... is required to link the sensor devices and the output devices to the controller or computer. In a microcomputer system ....5......... devices are linked using interface cards and ports.

STORAGE DEVICES

Storage devices are required to........6.......... both the software which ......7........ the entire system and the data from sensor devices. Some systems use only the computer's internal data........8..........., called.........9.......... storage, while other systems also use..........10........... storage devices such as disk drives.

Key:

1.Connection	2.Bridge	3.Speeds	4.Interface	5.Peripheral
6.Store	7.Controls	8.Storage	9.Primary	10.Secondary

APPENDIX 3 (Translation sample)

Source language:

A network is a group of devices (PCs, printers, etc.) or "nodes" connected by communications circuits so that users can share data, programs and hardware resources. A network has two main elements: the physical structure that links equipment and the software that allows communication.

The physical distribution of nodes and their circuits is known as network "topology" or "architecture". The software consists of the protocol, i.e. the rules which determine the formats by which information may be exchanged between different systems. We could say that cables and transceivers (the architecture) allow computers to "hear" one another, while the software is the "language" that they use to "talk" to another over the network.

As regards the cables, they consist essentially of the transceiver – the hardware that sends and receives network signals. At present the most widely used transceivers are Token Ring and Local Talk. Token Ring is the most common method of connecting PCs and IBM mainframes. Most Token Ring adapters transmit data at a speed of 16 megabits per second.

Target language:

Mạng là một nhóm thiết bị (các máy vi tính, các máy in vv...) hoặc cả nút được kết nối bởi các mạch truyền thông giúp người dúng có thể chia sẻ dữ liệu, chương trình và các tài nguyên phần cứng. Một mạng có hai thành phần chính : cấu trúc vật lý để lien kết thiết bị và phần mềm để cho phép giao tiếp.

Sự phân bố vật lý của các nút và các mạch được gọi là một hình thái mạng hoặc một cấu trúc mạng. Phần mềm bao gồm các giao thức, tức là các quy tắc nhằm xác định dạng mà qua đó thông tin có thể được trao đổi giữa các hệ thống khác nhau. Có thể nói rằng cáp và bộ truyền nhận cho phép máy tính có thể "nghe" được nhau còn phần mềm là ngôn ngữ giúp chúng giao tiếp.

Về các cáp, chúng gồm có bộ truyền nhận – tức là phần cứng để gửi và nhận các tín hiệu mạng. Hiện nay các bộ truyền nhận được dùng phổ biến nhất là Token Ring, Local Talk. Token Ring là phương pháp phổ biến nhất để kết nối các máy vi tính và các máy chủ IBM. Hầu hết các Token Ring adapter truyền dữ liệu với tốc độ 16 megabits mỗi giây.