A MULTIPLE CASE STUDY OF INTEGRATING TRANSLATION TECHNOLOGY MODULES INTO UNDERGRADUATE TRANSLATION PROGRAMS

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A MULTIPLE CASE STUDY OF INTEGRATING TRANSLATION TECHNOLOGY MODULES INTO UNDERGRADUATE TRANSLATION PROGRAMS

by

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This Thesis Is Affectionately Dedicated

To My Dear Parents,

Alireza Bahri & Nahid F. Ghashghaie,

My Sources of Inspiration, My Role Models, the Lovers of Education;

And

To My First English Language Teacher,

Dear Mr. Hossein Salahi,

Who Cared about His Students Whole-Heartedly.

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LIST OF ABBREVIATIONS

AERA	American Educational Research Association
BYOD	Bring Your Own Device
CAT	Computer Aided Translation
CERTT	Collection of Electronic Resources in Translation Technologies
CMS	Course Management Systems
CoRe 2	Competences in Education and Recognition (2 year project)
CREC	Creación de RECursos lingüísticos electrónicos (project)
CSS	Cascading Style Sheets
DTD	Document Type Definition
DTP	Desktop Publishing
ECTS	European Credit Transfer and Accumulation System
EHEA	European Higher Education Area
EMT	European Master's in Translation
FIT	Fédération Internationale des Traducteurs
FOS	Free Open Source
HT	Human Translation
HTML	Hyper Text Markup Language
ICT	Information and Communication Technology
IT	Information Technology
LETRAC	Language Engineering for Translators Curricula
LSP	Language Service Provider
MC	Module Competence
ML	Module Learning outcome

MT	Machine Translation
NCME	National Council on Measurement in Education
ODL	Open Distance Learning
ODT	Open Document Text format
OHP	Over Head Projector
OPTIMALE	Optimizing Professional Translator Training in a Multilingual Europe
PACTE	Process in the Acquisition of Translation Competence and Evaluation
PATT	Professional Approach to Training Translators
PC	Program Competence
PL	Program Learning outcome
QA	Quality Assurance
SD	Standard Deviation
SDL	Software and Documentation Localization
SMT	Statistical Machine Translation
ST	Sources Text
TA	Teaching Assistant/Teacher's Aide
TEnT	Translation Environment Tool
TM	Translation Memory
TMS	Translation Memory System
TMX	Translation Memory eXchange
TT	Target Text
TTMQ	Translation Technology Module Questionnaire
XLIFF	XML Localization Interchange File Format
XML	Extensible Markup Language

KAJIAN KES PELBAGAI TERHADAP PENGINTEGRASIAN MODUL TEKNOLOGI TERJEMAHAN KE DALAM PROGRAM IJAZAH SARJANA MUDA

ABSTRAK

Integrasi modul teknologi terjemahan dalam program terjemahan pasca siswazah kian meningkat pada tahun kebelakangan ini tetapi trend peningkatan ini tidak biasanya disaksikan pada tahap ijazah sarjana muda. Masih terdapat persoalan yang tidak terjawab tentang jenis alatan dan sumber, pengajaran, pembelajaran dan aktiviti penilaian, peranan dan kelayakan guru, dan cara teknologi terjemahan ini digabungkan ke dalam kurikulum ijazah pertama. Bagi menjawab soalan di atas, satu penerokaan tentang isu praktikal ini dijalankan daripada perspektif guru modul dan melalui analisis dokumen modul. Reka bentuk kajian kes pelbagai yang terdiri daripada enam kes telah digunakan; setiap kes meneliti modul teknologi terjemahan yang ditawarkan oleh universiti tertentu di Asia Timur, Eropah Barat dan Amerika Utara. Alatan yang digunakan dalam kajian ini terdiri daripada soal-selidik dan temubual berstruktur-separa. Data temubual bersama sumber dokumentari memberikan maklumat berkaitan konteks kes tersebut. Apabila huraian bagi setiap kes kajian telah lengkap, analisis silang enam kes tersebut telah dijalankan untuk membandingkan pelbagai aspek modul. Akhirnya, keputusan telah ditriangulasikan dengan pengesahan data dari berbagai sumber kajian. Hasil kajian menunjukkan dalam satu pertiga daripada kes, tahap program kecekapan teknologi adalah tidak sesuai dengan keperluan pelajar. Ia juga ternyata pada nombor, tahap dan taburan kecekapan teknologi dalam kes-kes tersebut. Sementara bilangan

kecekapan teknologi umumnya meningkat daripada program kecekapan sehingga hasil pembelajaran yang spesifik, taburan tahap kecekapan amnya menjadi lebih seimbang, dengan lebih banyak kecekapan digolongkan dalam tahap *aplikasi* dan *sintesis* yang menekankan sifat praktikal modul. Juga didapati bahawa perkadaran dan tipologi peranan guru adalah berbeza-beza bergantung kepada faktor kontekstual, dan sedikit sebanyak memberi berat kepada peranan tertentu yang jatuh dalam kategori luas guru yang *konstruktivitis* atau *tradisional*. Satu kombinasi yang terdiri kebanyakannya oleh kekangan institusi, psikologi, dan kewangan membawa kepada integrasi modul teknologi terjemahan yang terhad ke dalam program tahap ijazah sarjana muda. Kesimpulannya, walaupun kajian ini telah menemui perbezaan yang banyak antara kes-kes yang dikaji, ia mendedahkan satu set persamaan am atau prinsip asas yang boleh digunakan sebagai jalan untuk membangunkan modul.

A MULTIPLE CASE STUDY OF INTEGRATING TRANSLATION TECHNOLOGY MODULES INTO UNDERGRADUATE TRANSLATION PROGRAMS

ABSTRACT

While the integration of translation technology modules into postgraduate translation programs has increased in recent years, this general trend is not commonly witnessed at the undergraduate level. There are still unresolved questions regarding the types of tools and resources, teaching, learning and assessment activities, the roles and qualifications of teachers, and how these translation technologies should be integrated into the undergraduate curriculum. To answer the above questions, an exploration of these practical issues was carried out from the perspectives of the module teachers and through the analyses of module documents. A multiple case study design consisting of six cases was used; each case specifically looked into translation technology modules offered by universities in East Asia, West Europe, and North America. The instruments used in the study comprised a questionnaire and a semi-structured interview. The interview data and the documentary sources were intended to provide contextual information about the cases. When the description of each case was complete, cross-case analysis of the six cases was conducted to compare various aspects of the modules. Finally, the results were triangulated by data verification from various sources in the study. The findings indicated that in a third of the cases the levels of program technological competences were not appropriate for students' needs. This was also evident in the number, level and distribution of technological competences observed.

While the number of technological competences generally increased from program competences down to the specific learning outcomes, the distribution of competence levels generally became more balanced, with more competences belonging to *application* and *synthesis* levels stressing the practical nature of the modules. It was also found that the proportion and typology of teachers' roles could vary according to contextual factors, and more or less weight was given to certain roles that fell within the broad categories of *constructivist* or *traditional* teachers. A combination of mostly institutional, psychological, and financial constraints led to limited integration of translation technology modules into the undergraduate level programs. In short, although this research found considerable variation across the cases studied, it revealed a set of commonalities or fundamental principles that could be used as a road map to module development.

CHAPTER ONE – INTRODUCTION

1.1 Introduction

Since the turn of the century we have witnessed fundamental changes in information and communication technologies (ICTs) as well as huge demand for translation activity in the global markets. The emergence of new technologies and their widespread use in the translation profession has strongly influenced the field, leading to the adoption of the term *Translation Technologies* (Alcina, 2008). As a result of these developments, program designers in the field of translation must regularly respond to the changing needs of the society, markets, and the stakeholders in the profession by integrating these new translation technologies into translation programs.

Chan (2004) broadly defines translation technology as "a branch of translation studies that specializes in the issues and skills related to the computerization of translation" (p. 258). Williams and Chesterman (2002) stress the need for research "on the role of translation technology in translator training programs as well as on the content of translation technology modules" (p. 26). Recently, the European Commission conducted a survey under the OPTIMALE project (Rothwell & Svoboda, 2012), which investigated translation tools and technologies in a number of EMT (European Master's in Translation) universities to determine the status quo in Master's degree translation programs in Europe.

More recently, Bowker (2015) emphasizes that translation technology has greatly changed the way we teach translation. For example, she raises unresolved questions regarding the types of tools, technological needs of translators, the roles and qualifications of teachers, and when and how translation technologies should be

integrated into the curriculum. Moreover, current research (Chan, 2015; Doherty & Kenny, 2014; Rothwell & Svoboda, 2012), along with a cursory search of the terms *translation technology module*/*course*/*curriculum* on the Internet shows that while incorporation of translation technology modules into postgraduate translation programs has increased in the European and some East Asian countries, this general trend is not commonly witnessed in other parts of the world, particularly at the undergraduate level.

A closer look at the existing translator training institutions' websites on The Translator Training Observatory mentioned in Kelly (2005, which is available via: http://www.est-translationstudies.org/resources/tti/tti.htm) shows that a small number of universities (especially at the undergraduate level) provide translation technology modules.

Scholars have indicated that even those institutions that offer translation technology modules may not always train the students to practically use the translation tools and technologies in real-life projects and situations (Bowker, 2015; Bowker et al., 2008; Jaatinen and Immonen, 2004).

Research needs to be done on the problems and barriers that prevent (or hinder) translation technology modules from being incorporated into undergraduate translation programs. As a result, the current research aims to investigate the translation technology modules of undergraduate programs e.g. their contents, resources, activities, and evaluate their implementation at a number of selected institutions in different parts of the world. The adopted approach is based on a comparative-descriptive framework so as to delve into the issues and problems of translation technology integration into the undergraduate translation programs of these institutions.

1.2 Background of the Study

It was first in 1998 when Schäler called for the need to incorporate translation technology into all translator training programs (Williams & Chesterman, 2002). In 1999 the LETRAC (Language Engineering for Translators Curricula) project was launched to integrate three (A, B, and C) modules into translation curricula to prepare students for their professional careers with respect to language technology related issues. Critics of the project (Alcina, 2008; Maia, 2008) believe that some issues discussed in modules were not necessary. They state that language engineering and machine translation were over-emphasized and theoretical issues of no significant use were discussed excessively. They further believe that criteria for classifying tools were not consistent and the curriculum had extreme computational linguistics load.

Drawing on social constructivist theories of learning, Kiraly (2000) demonstrated that technology integration could be achieved in terms of methodology and practice. However, his research – while having a significant impact on translator training – was based on a single case study of one of his own classes to show the feasibility of his method. Kiraly's book as Malena (2003) has noted deals with the broader aspects of translator training rather than a framework for program design.

A review of related literature (Alcina 2008; Austermühl, 2001; Bowker et al., 2008; Bowker, 2015; Pym 2003) shows that there is disagreement among the scholars as to what extent and how technology can be integrated into translator training programs. Part of this difference of opinion comes from the definition of *translation technology* itself and how it is perceived in the field of translation studies. Another source of discrepancy is the conceptual framework within which this *integration* should be

achieved (Kelly, 2005 & 2008; Li, 2000; PACTE Group project, 2000-2011; Pym, 2011a).

Meanwhile translation researchers (Hurtado, 1996 & 1999; Kiraly, 2000; Neubert, 2000; PACTE group, 2000-2011 under Hurtado) have been busy defining the concept of translation competence and proposing new models of translator training. Several proposals based on case studies or ongoing projects have been delineated. Some scholars also believe that these pedagogical schemes should match recent developments in translator training like social constructivism (Kiraly, 2000) or task-based learning (González Davies, 2004; Hurtado, 1999), which may differently approach to the learner as the center of the learning process (Kelly, 2005).

In response to these demands and challenges, efforts have been made to build a translation competence model through which several competences and areas including technology can be incorporated into translator training programs (Alcina, 2008; Austermühl, 2001; PACTE Group project, 2000-2011; Pym, 2003).

Building on Holmes's (1988) process model, Austermühl (2001) presented a process-oriented approach in which he examined translation both as a business and as a linguistic and cultural process. He stressed the importance of communication flow within a translation business model and the cross-lingual and cross-cultural transfer of information. Following this approach he introduced electronic tools with regard to the specific sub-processes of the translation process. In another proposal for a scalable localization model, Austermühl (2006) presented a paradigm, which he believed "has proven to be flexible enough … to be combined with other translation courses" (p.80). Within his four-level model, an introduction to localization and computer systems is introduced followed by website and software localization and finally the research

component is presented (p.69). Although this model serves as a good example for incorporating localization into translator training programs, it is still limited in scope and application, particularly when the diversity of translation technologies, including areas beyond localization are considered.

Probably the most renowned of all models, which offers theoretical grounds for technology teaching in translation, is the PACTE Group project (2000-2011). This holistic model states that translation competence is made up of a system of sub-competencies that are inter-related, hierarchical and that these relationships are subject to variations. The sub-competences of translation competence are considered to be: a bilingual sub-competence; an extra-linguistic sub-competence; knowledge about translation sub-competence; an instrumental sub-competence; a strategic sub-competence; and the psycho-physiological sub-competence. PACTE (2011) defines instrumental (sub)-competence as "predominantly procedural knowledge related to the use of documentation resources and information and communication technologies applied to translation (dictionaries of all kinds, encyclopedias, grammars, style books, parallel texts, electronic corpora, search engines, etc.)." (p.4).

However, some scholars in the field of translator training such as Pym (2003) have taken on a minimalist approach to defining translation competence. He argued:

> The multi-componential expansions of competence are partly grounded in institutional interests and are conceptually flawed in that they will always be one or two steps behind market demands. On the other hand, a simple minimalist concept of translation competence, based on the production then elimination of alternatives, can help orient translator training in times of rapid technological and professional change (p.481).

He then preferred to use the terms *skills* or *techniques* rather than a component or sub-competence of translation competence.

In another major study, Alcina (2008) classified five components, which trainee translators should cover in the emerging *field* of translation technologies: 1) The translator's computer equipment 2) Communication and documentation tools 3) Text edition and desk-top publishing 4) Language tools and resources 5) Translation tools. What she emphasizes is that translation technologies constitute a new field of study that needs theoretical grounds to attain its own formation, and development (p.80).

Considering all these approaches and models proposed in the studies above, it is argued in the present research that in order to integrate translation technologies into translation programs it is essential to have a sound framework or a set of underlying principles which is based on approaches and methods derived from actual practice and current global trends that shape all or most of the basic elements of the present curricula. That is, whether we label translation technology as a *component* or a *sub-competence* of translation competence or minimally reduce it to *skills* or *techniques* to be learnt, we need to look for concrete evidence taken from current practices in the undergraduate curriculum of translation institutions at the approach, design, and procedure levels (Kiraly, 2000; Richards & Rodgers, 1986) to evaluate them and find the problems that need to be addressed and arrive at a practical framework for integrating translation technologies into the programs.

Moreover, to successfully implement a curriculum, many scholars argue that evaluation should be a continuing process and take place throughout the instructional program (Gabr, 2001; Li, 2001). Additionally, when abstract issues such as the whole talk of *competences* lead to controversies (Pym, 2003), it seems to be more logical to first start with concrete evidence based on current world practices and then proceed with

establishing the theory behind. This essentially entails a rigorous investigation of the programs at institutional levels.

Scholars have highlighted the importance of practical issues such as the choice of the most appropriate technologies and skills to be incorporated into the translation curriculum in addition to the means of course delivery and classroom/lab procedures followed in translator training programs. (Bowker et al., 2008; Doherty & Moorkens, 2013; Doherty & Kenny, 2014; Kenny & Way, 2001). These are part of the educational considerations of translation technology teaching that will be investigated along with the analysis of the program content.

There are also some proposals for technology-enhanced translator training, such as virtual classes and e-learning models, on which the whole translation curriculum is based (Olvera-Lobo et al; 2005 & 2007). In spite of the fact that these proposed models stress the innovative and collaborative impact of technology in translator training (Pym et al., 2003) they are not the main focus of this study and will be dealt with briefly in the literature review chapter.

1.3 Statement of the Problem

Studies of translator training programs at several universities around the world, (Jaatinen & Immonen, 2004; Samson, 2005; Ulrych, 2005) have shown that in many institutions, even within the developed countries, the policymakers and curriculum developers did not sufficiently incorporate translation technologies into their translator training programs. Quite recently, the OPTIMALE project survey reveals that even within the European context various procedures exist at the master's level and there are diverse curricula based on different approaches and models which have tried to integrate technology into their programs. The findings indicate that much remains to be done to

optimally integrate technology into the European translator training programs (Rothwell & Svoboda, 2012).

In the case of non-European contexts, many institutions particularly in the developing countries are still a long way away to include technology modules in their programs. In spite of the fact that a number of these institutions offer some technology-enhanced courses, which aim to use e-learning technology for the training of translators, these minor attempts are practically far from incorporating translation technology into the curriculum (Bahri, 2013; Ibrahim-Gonzalez, 2011).

Another problem is that whereas most scholars do agree on the necessity and need for teaching technology modules in the training programs, there seems to be no consensus or little agreement on the definition, scope, boundaries, and extent of translation technologies (Alcina, 2008), which are supposed to be integrated into the curriculum.

So far, most of the attempts have concentrated on integrating translation technologies into the postgraduate translator training programs in developed countries (Doherty & Kenny, 2014; LETRAC project, 1999; Liu, 2013; Rothwell & Svoboda, 2012). Current research (Chan, 2015) shows that few developing world institutions – e.g. in East Asia – have managed to integrate translation technology modules into their programs, while most universities in these countries still have a long way to go.

On the other hand, studies in the field of translator training have shown that translation technology integration could be achieved through social constructivist approaches and multi-componential models of translation competence (Kiraly, 2000; PACTE Group Project, 2000-2011). Consequently, research should be undertaken to determine the problems and issues of technology integration by evaluating the

translation technology modules of selected institutions in different countries as well as the types of contents, resources, and procedures they follow in their undergraduate curricula. As a result, it is quite necessary, very pertinent and beneficial for the academics and translation teachers to investigate these aspects of technology integration in the undergraduate translation programs. The aim of the present research is to find answers to the above-mentioned problems.

1.4 Significance of the Study

Some researchers (Gaspari et al., 2015; Jaatinen & Immonen 2004; Samson, 2005) have questioned the effectiveness of translation technology modules currently taught at translation institutions. They have documented reports of frequent complaints made by both groups of employers and customers that even current graduates who were taught technology subjects in their programs are not proficient enough in using CAT tools. At the same time, many scholars have stressed that translation technologies have fundamentally changed the nature of translation profession (Garcia 2010a/b; Melby 2006; Pym 2011b). This can pose new challenges to the stakeholders in the field, i.e. translators, translator trainers, translator training institutions and curriculum developers.

Nevertheless, in many countries a large number of institutions are yet to include translation technology modules in their undergraduate programs – See, e.g. The Translator Training Observatory mentioned in Kelly (2005), which is currently available via: http://www.est-translationstudies.org/resources/tti/tti.htm. Institutions have to face the challenges of integrating the translation technologies into their programs. Some institutions have partially incorporated theoretical subjects on technology into their programs, but students hardly get hands-on experience of the tools in the modules offered and hence most translator trainees do not know exactly what types of

technologies are appropriate for which contexts. In actual terms, the theoretical foundations discussed in these modules are not adequately explored in practice (Bowker et al., 2008; Doherty & Moorkens, 2013). Therefore, the rationale behind this study stems from the fact that some problems and issues exist – at least at the level of undergraduate program design and implementation – in the programs of these institutions that prevent or hinder translation technologies from being properly selected, utilized, and integrated into the curricula of translation programs.

Although some studies have highlighted the importance of addressing students' needs when designing the programs (Gabr, 2001; Kelly, 2005 & 2008; Li, 2000 & 2001), there are very few cases of empirical research available exploring the modules at the levels of objectives, design (technological contents and structure) and procedures of translation programs (Kiraly, 2000). Some studies have only investigated whether or not technology modules – among other factors – are available across a number of institutions in mostly developed countries (Ulrych, 2005) and others have concentrated on the teaching of the tools or MT at postgraduate level (Doherty & Kenny, 2014; Rothwell & Svoboda, 2012) in Europe, or the case study of teaching translation technology at postgraduate level in Hong Kong (Wong, 2015). There were some contrastive case studies comprising one undergraduate and one postgraduate translation technology course (Doherty & Moorkens, 2013; Kenny & Way, 2001). The call for the need to study translation programs around the world in search of common grounds was underscored by Schäffner and Adab (2000):

> It would therefore be useful and relevant, in the interests of the profession as much as in the interest of those participating in the training process, not only students but also academics, to look more closely at current practice in the different institutions around the world which offer translation

> programs, to see if some fundamental principles can be found which underlie program development (p. xi).

So far the present researcher has found no documented multiple case study research with a global focus on the systematic integration of translation technology modules into the translation curricula at the undergraduate level. Therefore, through a mixed-method multiple case study evaluation of modules within a comparative-descriptive framework, the current research is an attempt to discover those commonalities or fundamental principles of teaching translation technology modules in the undergraduate translation programs around the world.

By comparing current research and practice in different parts of the world, a thorough evaluation of the programs can be carried out in terms of the degree of harmony between the objectives, the contents of the programs and the technological competence and professional skills required for the translation trainees.

Due to the nature and scope of this research, which is in the realm of Applied Translation Studies (Munday, 2016), its findings will be generally useful for translator training institutions, both groups of translator trainers and trainees, and particularly undergraduate translation curriculum developers around the world.

1.5 Research Objectives

Adopting a comparative-descriptive approach to case study evaluation, the present research attempts to explore how translation technology modules (as cases) have been integrated into the undergraduate translation programs in selected institutions of various geographic regions. The objectives of this study are:

1. To explain the mechanisms by which undergraduate program technological competences are integrated into the translation technology modules of selected institutions.

2. To identify the contents and available resources in the undergraduate translation technology modules of selected institutions.

3. To identify the types of teaching, learning, and assessment activities that exist in undergraduate translation technology modules of selected institutions.

4. To identify the roles and qualifications of teachers who teach the undergraduate translation technology modules of selected institutions.

5. To discover particular areas of concern and the problems that selected institutions face in order to integrate translation technology modules into their undergraduate translation programs.

6. To discover whether there are commonalities or fundamental principles of module development in the undergraduate translation technology modules of selected institutions.

1.6 Research Questions

With regard to the above-mentioned objectives and considering the comparative-descriptive nature of this research, the following are the six major questions that the present study is aiming to answer within its scope and limitations:

1. How are the undergraduate program technological competences integrated into the translation technology modules of selected institutions?

2. What is included in the contents and resources of undergraduate translation technology modules of selected institutions?

3. What types of teaching, learning, and assessment activities exist in undergraduate translation technology modules of selected institutions?

4. What are the roles and qualifications of teachers who teach the undergraduate translation technology modules of selected institutions?

5. What are the problems of selected institutions for integrating translation technology modules into their undergraduate translation programs?

6. Are there commonalities or fundamental principles of module development in the undergraduate translation technology modules of selected institutions?

1.7 Operational Definition of Key Terms

Several terms are used in the research questions and throughout the study, which need to be defined operationally in order to make their senses clear to the readers.

Commonalities (Fundamental Principles): The common attributes or characteristics of the various cases (modules) in the study, which emerge after cross-comparison of the cases. Scholars (Schäffner & Adab, 2000) suggest that these underlying principles can be used as a basis for program/module development.

Contents and Resources: The rate of occurrence or frequency of topics, tools, products, and facilities available in the translation technology modules as two aspects measured by the TTMQ instrument (see Chapter 3) filled in by participants of the study.

Integrating: It is simply the process of incorporating any module (here the translation technology modules) or tools or competences into the translation program curricula (Bowker, et al., 2008; Doherty & Kenny, 2014; Schäler, 1998).

Roles and Qualifications of Teachers: These are the types of functions that the teachers fulfill and the interactions they have with students and the types of influence

that they have on the methodology and learning along with their academic degrees and status (Kiraly, 2000; Richards & Rodgers, 1986 & 2001).

Selected Institutions: These are universities that host the undergraduate translation programs, which offer the selected translation technology modules (multiple cases) of the present study. The institutions were selected because of the cases and the cases were selected through purposive sampling (see Chapter 3).

Teaching, Learning, and Assessment Activities: The rate of occurrence or frequency of activities available in the translation technology modules as three module aspects measured by the TTMQ instrument (see Chapter 3) filled in by participants of the study.

Technological Competences: A competence is "a quality, ability, capacity or skill that is developed by and that belongs to the student" (Lokhoff et al., 2010). Therefore, a technological competence is a type of competence defined by program developers based on many years of research (Alcina, 2008; the EMT expert group, 2009; Kelly, 2005; PACTE Group, 2000-2011; Roberts, 1984) in the field of translation and labeled as 'technical', 'instrumental', or 'technological' in curricula and syllabi of the selected translation technology modules.

The Problems: Any restrictions or constraints as perceived by the participants of the study to be the source of problems for integrating translation technology into the programs and identified through the interviews.

Undergraduate Translation Technology Modules (i.e. Case Studies): Any module which is the core translation technology module in the Bachelor of Arts (three to four year) translation programs in the selected institutions such as those entitled: "Translation Technologies", "Computer-Aided Translation", "Technology Resources for Translation", etc. These types of undergraduate translation technology modules

constitute the multiple cases of the present study. Mention should be made that the words 'module' and 'course' are used interchangeably throughout the present study with a preference for the former as the latter can also refer to the whole translation programs in the literature but **not** in this study.

1.8 Scope of the Study

The present research was conducted to evaluate multiple cases of translation technology modules to explore the integration of technological competences into undergraduate translation programs. Within a comparative-descriptive framework, this study aimed to select undergraduate translation institutions from various geographic regions in the world offering translation technology modules that were taught by participants of the study. The International Studies Group (Kelly, 2005) maintains *The Translator Training Observatory*, which is a recognized list of translator training institutions that can be accessed online via: http://www.est-translationstudies.org/resources/tti/tti.htm. The list consists of around 650 translation (and interpreting) programs in 67 countries. The present researcher reviewed institutions' websites and by comparing them with prior studies (Pym, 2000b; Ulrych, 2005; and Chan, 2015) it was estimated that around 70 of the programs on the list offered translation technology modules in their undergraduate programs. Forty six of these programs, which provided online information about their programs, modules, and teachers, could be targeted for sending invitation emails to participate in the study.

1.9 Limitations and Delimitations of the Study

The following limitations affected the methodology and findings of this study.

1. This study was conducted using data from institutions located in three different geographic regions (continents) of the world. Access to participants was limited to

online contact, hence depriving the researcher from using data collection methods such as classroom/lab observation and contact with students.

2. Many stakeholders could be included in the evaluation of translation technology modules (e.g., teachers, students, alumni, administrators, employers). Due to accessibility difficulties and logistical grounds, this study focused on the teachers only.

3. It was already estimated in section 1.8 above that the total number of accessible institutions currently offering translation technology modules at the undergraduate level was 46. This low number – even if all institutions agreed to participate in the study – imposed a limitation on the number of cases available for some quantitative tests and analyses that could be conducted in the analysis phase of the study. For example, this low number made it impossible to run construct validity tests such as factor analysis, which normally need three-digit numbers of participants in most studies.

The following delimitations were set by the researcher before conducting the study.

1. Postgraduate (i.e. M.A.) modules were not investigated in this evaluation study.

2. This research focused on integrating translation technology modules into undergraduate translation programs. Therefore, interpreting programs, while having a lot in common with translation programs, were excluded from the scope of this study.

3. This study concentrated on certain aspects of the translation technology modules including the contents, resources, teaching, learning, and assessment activities, teacher roles and qualification, module problems, and the commonalities in these areas. On feasibility and practicality grounds, other aspects of the modules were excluded from the focus of this research.

4. This evaluation study was done only for research purposes. While the researcher has provided pedagogical implications and the findings of the study can be used for the

betterment of the undergraduate translation technology modules, improvement of the modules was not the aim or intention of the study.

1.10 Structure of the Thesis

This chapter provided the *introduction* to the current study and its objectives, and placed these within the scope and constraints that delimit this research. Chapter 2 provides more theoretical background for the study by *reviewing the related literature* on social, professional and disciplinary considerations, translation technology issues and program development. Moreover, criteria for evaluation of translation technology modules are developed in this chapter. Chapter 3 explains the *methodology* that was used for conducting the research and for the *analysis* of the data used in the study. Literature pertaining to the procedures for quantitative and qualitative research, specifically on mixed methods, and multiple-case study research and interview analysis are also reviewed in this chapter. It describes the research design and participants, the instruments for data collection, the selection of cases for investigation, and the analysis techniques applied to this study. Chapter 4 presents the *results* of the TTMQ questionnaire and the multiple-case analyses including the selection of the *themes*, and preparing the *reports* based on the *cross-case comparisons* and *triangulation* of findings, which lead to answering the research questions. Finally, Chapter 5 summarizes the research *findings*, draws *conclusions* from those findings, and indicates some of the implications of the results. Strengths and limitations of the study and some recommendations for further research are also considered.

CHAPTER TWO – LITERATURE REVIEW

2.1 Introduction

The present chapter reviews related literature in the area of translation technology and provides the theoretical and conceptual frameworks for the study along with the preparatory steps that should be taken such as identifying the goals and objectives and developing the criteria for evaluation before developing the research instruments in the next chapter.

2.2 Social, Professional, and Disciplinary Considerations

This section deals with the social, professional, and disciplinary issues that should be taken into account when translation technology is incorporated into translator training programs. Therefore, topics related to the teaching of translation technology such as social constructivism for teaching modern-day translators, professional needs of translators, competences and skills required for the translators, etc are discussed in order to contextualize their contribution to the conceptual framework of the current research.

2.2.1 Social Constructivism for Teaching Translation Technology

It was in 2000 when Donald C. Kiraly published his second influential book entitled *A Social Constructivist Approach to Translator Education* in which he advocated social constructivism principles like reflective action and collaborative/cooperative learning for translator training. Social constructivism is a theory which is based on the premise that individuals create or construct meanings and knowledge for one another by taking part in interpersonal interactions in a group (Kiraly, 2000). Kiraly adopted quite fascinating ideas from previous approaches. For example, in Robinson's model (1997 & 2003), the trainees' *self-concept* plays a vital

role, but in social constructivism their socialization into a professional community is of utmost importance. This will be achieved through *authentic* translation practice (Kelly, 2005).

Contrary to the principles of task-based approaches (González Davies, 2004a; Hurtado, 1999), Kiraly (2000) contends that it is more constructive to begin teaching sessions with highly realistic and genuine projects than trying to build the trainees' skills with simulated exercises. He believes that meaningful interaction among the trainees and professional translators can best guarantee learning (p. 60). Marco (2004) and Alcina et al. (2007), however, have shown that the two approaches are simply different ends of a continuum of the trainees' progress and hence consistent with each other.

One important aspect of the social constructivist approach to translator training and probably the most relevant contribution of this model to the present research is its suitability to provide a theoretical foundation for a technology-based classroom (Kiraly, 2000, pp. 123-139) or other translation technology modules as those investigated in the present research.

Kiraly (2000) believes that "translator's tools (including current translation tools and ICTs) are very much a part of the translation process." Comparing trainee translators with dentists-in-training, Kiraly contends that "Knowledge-in-action is mediated by the tools we use; thus an important part of the education of any professional must entail practical training in learning how to use the everyday tools of the profession." (p. 124).

Kiraly warns us that translation programs founded before the ICT revolution will have difficulty modifying their curricula and will encounter problems like re-training instructors and seeking financial means for adapting their programs to the world realities and new market demands in the profession, though these are not enough to ensure that

the trainees can acquire the necessary technology-based competence they require (p. 125).

He then suggests that a social constructivist technology class should attain two aims: 1) how to help the trainees acquire skills needed for applying basic technology to professional practice, and 2) how to authentically extend the collaborative/cooperative learning environment to technology classes to achieve competence and autonomy. He asserts that the ultimate purpose of the program is to confirm that trainees acquire clearly defined micro-skills and knowledge that collectively make computer (i.e., technological or instrumental) competence, which they can transfer to real-world tasks (p. 125).

Kiraly (2000) uses several scenarios to reduce the burden of dependency and foster autonomy among the trainees. He also advocates the use of preparation sessions and workshop teams for breaking the technological ice so that the trainees can "construct" their own technological skills. In the later stages the use of project-centered classes is encouraged "to simulate the completion of authentic translation jobs" (p. 131). Kiraly (2000) finally points to the fact that:

> The technology translators use in the future will evolve from the array of tools in use today…. By engaging extensively in the authentic work of the profession, the members of this community [of technology users], as in all emerging professional communities, will acquire life-long learning skills that will ensure their ability to adapt dynamically to the tools of the profession as they evolve in the future." (p. 139).

In an attempt to apply both the social constructivist and task-based approaches to translation technology training in CREC (Creación de RECursos lingüísticos electrónicos) project, which aimed "to create language resources for training and research purposes", Alcina et al. (2007) demonstrated how translator trainees could be

encouraged to develop technological skills. The major aims of the CREC project were: 1) increasing trainees' exposure time to technology; 2) simulating real work environments; 3) generating authentic electronic language resources (Alcina et al., 2007, p. 234).

The results of the study showed that the objectives had been achieved, namely by improving the trainees' grades, increasing their self-confidence in using technology and their level of involvement in the whole project. Generally the project was also a success in terms of lifting the psychological barrier to technology use. These accomplishments enabled students to utilize various computer applications and to make appropriate decisions when faced with translation technology problems. The interaction and collaboration level among trainers and trainees increased, which facilitated the way students overcame their problems. Their teamwork capability strengthened when advanced trainees (e.g. having the role of project managers) had the chance to supervise other less progressed trainees (Alcina et al., 2007).

2.2.2 Technology as a Social and Professional Need

Defeng Li underscored the importance of technology as a social and professional need for translators in the early 2000s. Following his survey of professional translators in Hong Kong, Li (2000) found that the sociopolitical changes in that country led to a need for more competent translators. He stated that translation programs at the time had not kept in touch with new changes in the industry. Li believes that "in this era of information technology and internationalization, changes are taking place all the time in all fields all over the world" (p. 140). In order to respond to the changing needs he advises the trainers that their teaching should be more similar to real world situations by means of authentic training. Li (2000) points out that comparable studies are required in

the future to collect more data regarding the relationship between training and the working contexts of translators (p. 147).

In another study to make training more receptive to the social needs of translators, Li (2001) emphasized the role of needs assessment for translation curriculum developers. He names questionnaires, interviews, and focus groups as three main methods used for needs assessment. Moreover, in an attempt to examine the comprehensibility of texts generated by some types of English-Chinese translation software, Li (2002) underlines the need to incorporate information technology in the translator training curriculum for at least two reasons: 1) the sheer growth in the translation industry as a result of globalization and IT necessitates technology to facilitate translation (p. 29); and 2) translators need technology for researching, processing and organizing their projects more effectively and in various formats demanded by the market (p. 31). He then raises the questions of how IT should be taught in a translator training program and what the priorities of such courses should be. After providing some tentative answers he advocates a needs analysis study to introduce technology teaching in the programs (Li, 2002: 32).

Moreover, Olvera-Lobo et al. (2005) emphasizing the professional demands of the market, believe that translators of the twenty first century should have expert knowledge of ICT and possess computer literacy and adaptability to deal with all translation tasks at hand. They present a description of today's translation market demands and offer some techniques to fill in the gaps between those demands and the academic training (p. 132). Following that, they use Gabr's (2001) framework to present their "Professional Approach" to Training Translators (PATT) with the main aim of "familiarizing students with the working world and the reality of professional

translators" (p. 138). Later in a more refined proposal Olvera-Lobo et al. (2007) simulate online the proceedings in a translation company to present their *Professional Approach*, which the researchers believe can increase real-world innovation and collaboration among the trainees. The researchers claim that through this approach they have combined both project-based learning and cooperative/collaborative learning. Adopting this approach, they incorporated technology into their four-year undergraduate Bachelor of Arts program at the University of Granada in Spain. After about one decade, the approach is still under investigation.

In another study Gaspari et al. (2015) conducted a survey of machine translation competences taking the needs and trends in the area into consideration. In fact, the research was intended to investigate the industrial priorities through a holistic approach to analyze professional needs of the stakeholders. This study will be discussed in more detail in section 2.3.1 below.

The above studies underline the importance of considering social and professional needs as well as the demands of the industry and the markets when it comes to the integration of translation technology into the program curricula.

2.2.3 Technology as a Translation Competence

Today there is a consensus among translation scholars that translators need to have expert knowledge and skills in some areas and activities to do translation tasks and projects (Alcina, 2008; Delisle, 1980; EMT expert group, 2009; Kelly, 2005; PACTE Group, 2000-2011; Roberts, 1984; Wilss, 1976). In other words, they need to have competence for performing the act of translation (Schäffner & Adab, 2000: viii). Within the last four decades many scholars have defined translation competence based on different approaches to translation activity (performance). Most of these proposals are

based on ‘multi-componential models’ that regard the translation process as a combination of complex, multifarious and interrelated activities requiring mastery of several skills and abilities.

Probably the earliest attempt to propose a competence model for translators was that of Wilss (1976) who believes that there are at least three competences: 1) a receptive competence (for decoding the source text); 2) a productive competence (for encoding the target text); and 3) a super-competence (for transferring the message between the systems of the ST and the TT). Later on, Delisle (1980) recognized four main competences, namely the linguistic, encyclopedic, comprehension and re-expression competences.

It was not until 1984 when Roberts (1984) proposed a model that included technical (i.e. technological) competence, which was later in 1992 approved by Delisle (1992). Kelly (2005) summarizes Roberts’ five-point competence model which consists of several *abilities*: 1) linguistic (understanding both the source and target languages); 2) translational (transferring the meaning without interference); 3) methodological (documenting subjects and assimilating its terminology); 4) disciplinary (translating field-related texts, e.g. agriculture, geography or medicine); 5) technical (using various translation aids, e.g. word processing, terminology data bases, etc.).

However, Nord’s (1988, 2005) functionalist profession-based approach totally ignores the technical competence in Roberts’ model and categorizes translation competence as text reception, research, transfer, text production, quality assessment, linguistic and cultural competences (of both source and target languages).

In a particular approach to competence Pym (1992) believes that translators possess a certain kind of knowledge which is distinct from knowledge experts in other