TECHNOLOGY-BASED INNOVATIONS IN THE TEACHING OF TRANSLATION: AN INSIGHT INTO WHYS AND HOWS

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Abstract. *Technological developments in all the activities of social, economic and communicative areas of modern life brought forth a higher demand in translation services, which in turn, necessitates a review of translation teaching at the university level. Traditional teaching methods which heavily rely on teacher-oriented approaches where students are passive learners who focus on the study of linguistic exercises and manual translation tasks by themselves, are no longer sufficient to produce graduates who can compete in the booming computerised worklife in the translation profession. Hence, the integration of Machine Translation (MT) and Computer-Assisted Tools (CAT) becomes a priority in the translation teaching curriculum in order to enable students to deal with the challenging market conditions upon graduation. Students who have experience in the use of computer technologies by means of getting acquainted with them during their education will develop the necessary skills to produce terminologically-consistent, time-efficient and correct translations as required by translation companies and working environment. Also, with the help of use of computer technologies in their teamwork and project-based practices during their education and in their internship, students will develop interpersonal skills and network for better replacements upon graduation.*

Keywords*:* *Translator training, Machine translation, translation profession, technology and translation*

Today's world witnesses swift innovations and developments in technology in general and IT technologies in particular, and translation is one of the domains that is largely exposed to this phenomenon. Technology is now viewed as a drive that motivates changes and new adaptations in all walks of social life, and especially in the field of education. From this perspective, translation training is now getting all the attention for the evaluation of how to incorporate technology into the curricula of translation training which has so far been dominated by traditional teaching methods in the classroom. In this article, the aim is to discuss how innovative technologies brought about by the recent developments in our globalized and digitalised era can be applied to translation training to enable the students to catch up with the market and professional needs in their working life. To begin with, it may be worthwhile to make an overview of traditional translation training methods in higher education institutions and their pros and cons.

Traditional teaching of translation contains:

1. Materials and sources used in and out of classroom are selected from the written material chosen by the teacher and the criteria or the purpose of their selection are usually judged only by the teacher, in most cases, based mainly on linguistic content, without taking into consideration whether these materials are related to the market need or not. This method may be helpful for improving the language skills of the students, however it does little to make them up to date.
2. Inefficient time management is a big handicap in traditional translation training where a lot of time in the classroom is allocated to the reading, discussion, vocabulary study and all the translation activities in class led by the teacher in each case. This leads to unresponsiveness on the part of the students and their interest in their material is lost.

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3. The role of the teacher in traditional translation teaching is that of a dominant conductor of all the activities. This emphasis on the teacher's role puts great workload on the teacher and becomes very time consuming. On the part of students, they are usually passive listeners, or writers, starting and finishing an activity on the instruction of the teacher.
4. In traditional translation teaching programmes, the teachers are expected to carry out several tasks such as carrying out research, sitting in university committees and other administrative expectations. In their recruitment, research capacity and academic output play an important role rather than coming from the profession and having technological awareness and competences (see Kelly 2008).
5. Traditional translation training in higher education institutions is usually carried out in classroom environment, with little time allocated to on-site practice. In most institutions traineeship schemes are present but their efficiency and mode of work expected from the translator are subject to discussion.
6. In almost all higher education institutions, there has recently been placed a course in translation technologies in the syllabus but in most cases this is only an introductory course where students gain limited knowledge and information and in most cases it is cut off from the market needs of the profession in line with the recent developments.

Problems of traditional translation training and how to introduce recent technological developments into the curricula have been discussed recently in studies and research such as Kelly (2008), Kiraly (1995), Albir (1999), Wei, Bei (2016), Olkhovska (2017), Seljan (2011), Zhang (2012), Erwen, Wenming (2013), Odacıoğlu, Köktürk (2015), Kenny, Doherty (2014) and so on. In all the studies and research the focus is on the changing needs of the professional translation environment in line with the innovations and developments in the technology in today's globalized and digitalized world and international contact. These issues bring forth a new understanding of translation training in higher education institutions and courses and a reassessment of skills and competences to be acquired by the students throughout their education, in different learning environments.

Hence, it may be a good idea then, to identify specifically in this paper, the reasons for a methodological shift in translation training at university level.

Reasons for the introduction of technological tools in translator training curricula:

1. Traditional training methods as discussed above do not satisfactorily meet the professional and market requirements as pointed out in the research by Kelly (2008), Moron, Calvo (2006), Pacte (2000), Kearns (2006) and so on.

2. In today's training programmes, learning outcomes must focus on "social and market needs which will require specialized trainers, a need rarely attended by specific institutional training programmes" (Kelly 2008).

3. There are several translation tools and technologies on the professional market available for translators and nowadays translation companies require an extensive use of these tools on the job, which necessitates a review of the traditional concept of translation training, i.e. to adapt itself to the profession and its demands and to enable the students to have access to this technology in their future professional life.

4. In the translation profession, translators are now required to undertake a large quantity of workload which is expected to be completed in a very short time by means of

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employing translation tools and technologies which are specified in the translation commission by the responsible company.

5. The working environment has displayed a significant change in the recent decades in the field of translation. Translators no longer work with pencil/pen and paper or PC for only writing purposes, and surrounded by dictionaries, a thesaurus, etc. They are expected to use all the recent technologies developed for the production of reliable, efficient and big chunks of translations in the shortest time possible. Now, information mining is carried out by means of digitalized translation technologies and in most cases, translation commissions are in the form of big projects led by a team of specialized staff and crowdsourcing methods. Students in the face of these changes, need to be prepared for this new working environment by way of introducing new methods, tools and approaches to the curriculum in the training programmes.

6. The use computerized technologies in translation necessitates new software and innovations in the mechanics of computers. Especially desktop computer users need software to deal with their work more effectively. The translations based on software hence started to be done in a way corresponding to the local standards and languages of a target audience. Due to these changes, software and hardware developers started taking initiatives on an international level, which contributed to the popularization of a new term localization instead of translation (Esselink 2006, Odacıoğlu 2015).

7. Research on the integration of translation tools to translation training underline the fact that acquiring the skills by the students to use translation technologies has become as important as or even more important than knowing the field of translation in its entirety since translation tools give quick and correct access to information mining and terminology.

8. As mentioned in Odacıoğlu, Köktürk, localization engineering is now the most cutting-edge mode in translation workflow in the translation industry since it is directly linked to the process of locating and identifying all translatable files and prepares them for translation (Odacıoğlu, Köktürk 1087). Hence, it becomes essential for the university translation courses to provide their students with the technologies to develop skills to learn localization management and tools in their future careers.

What are these technological innovations in the field of translation? Should they be the next step to discuss in order to draw up a more up to date training programme?

Review of translation technologies and tools:

1. Machine Translation (MT) is a kind of automated translation of a text from one language to another, which was one of the earliest goal of computers (in Jason Brownlee). At the beginning, rule-based systems were used for this task which was later replaced by statistical methods in the 1990s (Brownlee). More recently, deep neural network models achieve state-of-the-art results in a field that is aptly named neural machine translation (Brownlee).

   In a machine translation task, the input already consists of a sequence of symbols in some language, and the computer program must convert this into a sequence of symbols in another language, which is very challenging, given the natural ambiguity and flexibility of human language. The methods in machine translation involve rules

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for converting the text in the source language into the target language, being developed by linguists and operating at the lexical, syntactic, or semantic level.

On the other hand, the statistical machine translation (SMT) is the use of statistical models that teach how to translate a text from a source language into a target language, and gives a large corpus of examples. The approach is data-driven, requiring only a corpus of examples with both source and target language texts, which means that linguists are no longer required to specify the rules of translation. All it needs is data, or, sample translations from which a translation model can be learned (in Brownlee).

Since the inception of machine translation, different practices and research have been developed among which is the Neural Machine Translation (NMT) developed by google very recently. It is supposed to create much more accurate translations than SMT. NMT is based on the model of neural networks in the human brain, with information being sent to different "layers" to be processed before output. NMT uses deep learning techniques to teach itself to translate texts based on existing statistical models. It makes for faster translations than the statistical method and has the ability to create higher quality output (Lange).

1. Computer-Assisted Translation Technologies, or CAT tools.

   Actually, MT and CAT were conceived from the innovations in computer technologies and information and language technologies. However, there is a difference between the two, i.e. in MT, since the translation is automated, there is no human involved in it. In other words, translator is not there during the translation process. On the other hand, CAT is a model which is developed to help the translator by way of making technological tools available during the translation process. In other words, the human translator is there to read and make inferences in terms of deducing the meaning and finding equivalences during the translation with the help of tools. These tools are translation memory tools (memory databases of texts in many languages in store), terminology management tools (to help translators use uniform terminology and consistent equivalences), localization tools such as Alchemy Catalyst, etc., translation management systems which automate project management and publication and quality assurance tools (in Zhang, Cai 430-431).

   With all these tools at the disposal of translation profession, in the training of translators and would-be-translators one has to re-evaluate the skills and competences required for the translation profession under a new light. For that purpose and taking into consideration in the light of the changes in the field of translation both in the language industry and in academic circles based on technological innovations, European Master's in Translation network of the European Commission has laid down updated principles for the framework of translator competences. The purpose of these updated principles is "to consolidate and enhance the employability of graduates (EMT Competence Framework 2017). Although the framework targets Master's level graduates, the same principles are applicable to BA graduates as well, since both level graduates seek jobs in the same market. The 2017 Framework is explained as targeting" to equip students not only with a deep understanding of the processes involved, but also with the

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ability to perform and provide a translation service in line with the highest professional and ethical standards" (EMT Competence Framework 2017).

According to the EMT model, there are five main areas of competences highlighted for translator training:

1. Language and culture: These refer to transcultural and sociolinguistic awareness and communicative skills. It is the driving force behind all the other competences in this framework. Indeed, in all education and training programmes, this competence is a must where all other competences are built. At this point, it is important to note that, a technological turn and the proposals of adding and underlining the importance of incorporating a technological dimension to translation training in university programmes do not mean to undermine this basic skill.
2. Translation: This refers to strategic, methodological and thematic competences, which means encompassing not only actual meaning transfer phase between languages but also all the strategic, methodological and thematic competences that come into play before, during, and following the transfer phase - from document analysis to final quality control procedures. This section also recognizes that the ability to interact with machine translation in the translation process is now an integral part of professional translation competence.
3. Technology. This competence specifically refers to tools and applications which include all the knowledge and skills used to implement present and future translation technologies within the translation process. It also includes basic knowledge of machine translation technologies and the ability to implement machine translation according to potential needs.
4. Personal and Interpersonal. This competence refers to all the generic skills often referred to as soft skills that enhance employability and easy adaptation to the workplace. This competence is particularly important in today's high demanding professional medium where big loads of translation projects or undertakings now comprise the most part of the workload in the market. Hence, students should learn to develop skills to plan and manage time, stress and workload, comply with deadlines, instructions, specifications. They should gain experience in how to work in a team using current communication technologies and social media for becoming responsible for professional purposes, etc.
5. Service provision. This competence covers all the skills relating to the implementation of translation and more generally, to language services in a professional context - from client awareness and negotiation to project management and quality assurance (EMT Competence Framework 2017).

These competences cover basic areas that today's training programmes should take into consideration in their education systems. The skills and competences for translation training actually show a great variety. There are models proposed by Neubert (2000), Komissarov (2002), Scarpa (2010), Guidre (2008), Pym (2003), Gile (2001) and the PACTE model (2007, 2011) (in Régnier et al.). Among all these models, PACTE seems to be the most comprehensive and illuminating for education purposes.

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PACTE model is prepared by a group of researchers from Barcelona University who carried out extensive research on the development of translation skills in higher education programmes. The outline is as follows (in Régnier et al. 145):

1. Bilingual competence: practical knowledge of both languages;
2. Extralinguistic competence: general knowledge and specific knowledge of the field;
3. Competence of translation knowledge: theoretical and professional knowledge;
4. Instrumental competence: practical knowledge about the use of documentary sources;
5. Strategic competence: practical knowledge to effectively translate and solve problems;
6. Psychophysiological components. These are cognitive components such as memory, perception, attention, emotion and behavioral aspects such as curiosity, punctuality, self-confidence, critical mind, etc. (in Régnier et al. 145).

Nowadays, translators are expected to have a wide range of competences as opposed to many other professions. The traditional role of translator as provider of language service, offering a bridge between languages to enable communication has now shifted into a multi-dimensional role, such as project manager, client mediator, interpersonal and intercultural communicator, working, as Neubert would put it, in the "seemingly endless jungle of areas (in Régnier et al. 146).

Within this frame and scope, how to introduce and incorporate innovation and changes in translator training curriculum in university programmes may be taken up on several levels:

1. Any translation curriculum, if market oriented, should be designed to take translation as an integrated industry process rather than a language switch process from the source text to the target one. Therefore, terms in management science such as project analysis, project management and quality control should be brought into the teaching content of translation curriculum (Erwen, Wenming 15-16).

2. To begin with, curriculum development must be initiated by means of a collaborative and participatory manner consisting of department personnel, industry stakeholders and graduates working in the field.

3. A sample study to identify the translation industry market needs and requirements of the translation profession was actually devised by the OPTIMALE Project under the auspices of the EU Commission between the years 2010-2013, and a similar questionnaire may well be developed to prepare a comprehensive plan of action.

4. In order to develop a technology-inclusive curriculum, it should be noted that national and local environment and requirements as well as student profile and their linguistic potential, skills and expectations be an important frame for the background of curriculum development.

5. Prerequisites for the acceptance to the programme in line with the social and educational environment the specific programme belongs to should be identified such as: perfect linguistic skills, internet and computer literacy, a curious mind, having good interpersonal skills, etc.

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6. The objectives of the curriculum should be identified in line with the student profile, industry and market requirements and necessary skills and competences that define that particular profession.

7. An analysis of the available sources, allocations and technological facilities and access to them play an important role while reviewing or developing a curriculum.

8. The trainers/teachers and academic personnel and their qualifications, skills and competences as well as their expertise in the latest developments in the field of translation should be taken into consideration.

9. A successful translation curriculum should contain a student-oriented approach which necessitates peer communication by means of the Moodle or the internet provided by the universities, and also, contact must be maintained with the translation industry to place students in internships at these institutions.

These are the main criteria and considerations as a framework for curriculum development for the inclusion of computer technologies into teaching in the field of translator education in higher education institutions. Within this scope, some methods and techniques have been proposed by academics such as Erwen, Wenming (2013), Zhang (2012), Zhang (2015) and Gabr (2001). All these studies underline the importance of the student's and teacher's ability and affinity with the use of computer technologies in general. Erwen and Wenming (2013) propose the allocation of at least 4 teaching hours of introduction to the MT and CAT tools course in the curriculum since the knowledge of the students may differ (19). According to Gabr (2001), computer-based practices can be implemented in the teaching method which consists of active or passive modes of instruction where students are actively engaged in the instruction process (14).

Within this frame of discussing the implementation of computer technologies in the translation teaching programmes, it may be a good idea to assess the benefits of such an endeavour for the students:

1. In today's high-tech information age, the professional life of a translator is a very demanding and challenging one, necessitating not only perfect linguistic and theoretical knowledge, but many computer-based skills and competences. Hence, CAT and MT technologies represent the new standard in training qualified professional translators (see Erwen, Wenming).

2. Being trained in this mode, upon graduation students can meet the new requirement of the future society on translation and can be able to produce satisfactory translations (see Erwen, Wenming).

3. Being equipped with the latest technology-based translation tools will enable the students to produce big amounts of translations in a shorter time which is a requirement for big scale translation projects.

4. Technology-driven translation education enables the student to employ editing and post-editing and quality control tools which save time and energy.

5. Hence, technology-driven education will facilitate employment of the graduates in the translation market and becomes a big advantage since nowadays most translation companies, agencies or even international or government institutions require that their employees, whether full-time or part-time, should master the skill of translating with the aid of MT or CAT software, and receive and submit their work by internet under

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fixed format. The lack of these skills and knowledge will be a challenge for the graduates in the job-hunting market (Erwen, Wenming 16).

6. Students with experience of terminology management of CAT tools will graduate knowing how to produce translations with fixed and consistent terminology and specific language use and will be able to produce standardized translations, as required by the industry (Erwen, Wenming 16).

7. CAT technology can help students improve their personal skills. With the help of CAT and MT technologies, work efficiency will increase and expenses will decrease, which means larger competitive power for students (Wei, Bei 853).

8. Technology-driven translation education is useful for cultivating students' ability in teamwork by means of providing opportunities to students to do exercises in teams, which is important to be easily adapted to the work mode in translation industry in the future (Wei, Bei 854).

As a conclusion to this ever-developing branch of education at the university programmes level, it has become a prerequisite for young people in today's world to master in computer technologies even before starting a university education in all academic fields. Taking into account the constantly rising demand of society and the industry alike in the profession of translation and the related fields, academia should take the necessary steps to catch up with this rising demand in order to enable their students to join work life as up-to-date and technologically smart professionals who will be a great asset to their country's economy and technical and scientific advancement.

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