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RHETORIC AS A FRAMEWORK FOR TRANSLATION COMPETENCE DEVELOPMENT: SPECIALISED TRANSLATION PROCESS RESEARCH

Doctoral Thesis

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"E-learning Technologies and Management"

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ANOTĀCIJA

Oksanas Ivanovas promocijas darbs izglītības zinātņu augstskolas pedagoģijas apakšnozarē "Retorika kā ietvars tulkošanas kompetences attīstības sekmēšanai – specializēto tekstu tulkošanas procesa pētījums" izstrādāts Rīgas Tehniskās universitātes Datorzinātnes, informācijas tehnoloģijas un enerģētikas fakultātes (līdz konsolidācijas procesam, t.i., 2023. gada 31. decembrim, E-studiju tehnoloģiju un humanitāro zinātņu fakultātes Tālmācības studiju centra) doktora studiju programmas „E-studiju tehnoloģijas un pārvaldība" ietvaros asociētā profesora *Dr. phys.* Ata Kapenieka un profesores *Dr. philol.* Larisas Iļinskas vadībā.

Promocijas darba mērķis ir izpētīt studentu tulkošanas spēju veidošanas procesu un iegūtos rezultātus izmantot studiju procesa uzlabošanai attiecībā uz studentu tulkošanas veiktspējas pieaugumu un tulkošanas darbu kvalitātes paaugstinājumu, kā arī izstrādāt specializēto tekstu tulkošanas retorikas modeli, ņemot vērā tulkošanas uzdevumu specifiku un jauno prasmju apgūves iespēju.

Promocijas darbu veido ievads, četras nodaļas, secinājumi, aizstāvēšanai izvirzītās tēzes, bibliogrāfiskais saraksts un 14 pielikumi. Darba pamatteksts ir 208 lappuses, tas satur 34 attēlus, 14 tabulas. Bibliogrāfiskajā sarakstā ietverti 374 literatūras avoti.

Promocijas darba pirmajā nodaļā veikta tulkošanas vēsturisko sakņu izpēte, lai identificētu retorikas teorijas un piemērotu tās tulkošanas praksē avottekstu kritiskai analīzei un nozīmes atspoguļošanai mērķtekstā. Tiek aplūkota arī tulkojumzinātnes mijiedarbība ar citām disciplīnām, lai saskatītu tās attīstības tendences un noteiktu tulkotājiem nākotnē nepieciešamas prasmes. Otrajā nodaļā sniegts pārskats tulkotāju izglītošanā no dažādām perspektīvām, lai identificētu svarīgus principus specializēto tekstu tulkošanas studiju procesa pilnveidošanai. Trešajā nodaļā aprakstīti tulkošanas kompetences modeļi, ņemot verā Ekonomiskās sadarbības un attīstības organizācijas izstrādāto projektu „Izglītības un prasmju nākotne 2030". Trešajā nodaļā arī izskatīts specializēto tekstu tulkošanas process, izpētot specializēto tekstu būtību. Par pamatu ņemot retorikas teorijas un pedagoģijas atziņas efektivas komunikācijas veidošanā, kā arī specializēto tekstu būtību, tulkošanas procesa savstarpēji saistītu darbību kompleksu, ir izstrādāts specializēto tekstu tulkošanas retoriskais modelis. Ceturtajā nodaļā aprakstīti autores realizētā empīriskā pētījuma studējošo tulkošanas procesa izpētes rezultāti.

Atslēgas vārdi: retorika, pedagoģiskās pieejas tulkotāju izglītošanā, tulkošanas kompetence, specializēto tekstu tulkošanas process, specializēto tekstu tulkošanas retoriskais modelis.

ACKNOWLEDGEMENTS

Glossary of Terms and Abbreviations

CAT – computer-assisted translation, i.e., software that facilitates the translation process.

Digital rhetoric – the field of study concerned with the conventions of new digital genres and their rhetorical interpretation.

EMT – European Master's in Translation, i.e., a partnership project between the Directorate-General for Translation of the European Commission and higher education institutions from European and non-European countries; it is also referred to as a quality label for master study programmes in translation.

MT – machine translation, i.e., the use of artificial intelligence to automatically translate a text from one language to another without human involvement.

PACTE – the research group "Process in the Acquisition of Translation Competence and Evaluation". It uses experimental research methods to investigate translation competence and how it is acquired.

Rhetoric – the study of principles and rules of composition, information organisation, rhetorical strategies and devices to achieve efficient communication.

SL – source language, i.e., the language to be translated into another language.

Specialised translation – a term that is applied in the education environment and the translation industry. Text to be translated is specialised if translating it requires field specific knowledge of a translator or translation student. Synonyms to the term "specialised translation" are technical translation, pragmatic translation or LSP (Language for Special Purposes) translation.

ST – source text that is the original text that is to be translated into another language.

TL – target language, i.e., the language into which a text written in another language is to be translated.

TT – target text that is the translated text or the text that the translator produces from the source text.

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The future belongs to a very different kind of person
with a very different kind of mind –
creators and empathizers,
pattern recognizers, and meaning makers.
(Pink, 2006: 95)

Introduction

Specific relations between nature and humanity have marked the beginning of the Anthropocene age, which determines the quality of the current unsustainable relationship of the Earth as an open evolutionary system. The intensification of the unsustainability phenomenon in the 21st century increasingly demonstrates a decline in the viability of the Earth. The Anthropocene has become a scientific and cultural zeitgeist demonstrating the unsustainable quality of the ecological, cultural and social relationship of a human being (Malhi, 2017). The features characteristic of the Anthropocene age have brought about a tangle of wicked problems caused by the interaction of egocentrism, anthropocentrism and egoism (Salite et al., 2021). These processes and their resulting consequences determine the quality and development of the nature-human relations. The contemporary global development of the humankind takes the unsustainable path, which results in the regeneration of unsustainable behaviour patterns.

The phenomenon of Anthropocene indicates the impact of narrow educational goals not only on the system of education, but also on the quality of the whole system, which is affected by changes in the relations between nature and human. The 21st century has emphasised the need to discover a relevant foundation for educational research that is based on life maintaining models. In order to change the Anthropocene type of thinking, the education system should adopt living approach models through the natural development and evolution of human capabilities and abilities. The use of these models is evolutionary and ecological with an important ontological succession that attempts to reduce the current loss of communication, which deepens and cultivates the crisis. Evolutionary ontology concerns with the creation of a new image of the Earth and of humans – a new non-anthropocentric system that takes into account the spontaneous activity of nature and the sociocultural activity of human beings. While humans do not know what reality is

like, the number of possible interpretations and meanings may grow, and the culture will continue to spontaneously organise and globalise itself and irreversibly destroy the system it depends on (Šmajs, 2008). Without the use of a species unit, the humankind rather stimulates a natural distortion of historical experience, where humans are seen only as consumers of aesthetic, social, symbolic, spiritual and educational values. Unfortunately, human biological origins from nature can be lost if researchers neglect the evolutionary and ecological interrelations and ontological foundations to study complex processes (Salite et al., 2020). It is evident that the development of educational research will not be possible without the adoption of a more holistic framework for the sustainability phenomenon and education for sustainable development. Through a more holistic perspective developed in ecological education and pedagogy, the relationship between human being and nature is more natural and understandable (Pigliucci & Kaplan, 2006; UNESCO, 2017).

For the collective search for solutions to global and local problems, diversity, such as linguistic, cultural, social, should be respected as the creative potential of the world's diverse cultures contributes to more inclusive and cohesive societies that engage in continuous dialogue to ensure that all members of society benefit from sustainable development. The initiative of Cultural Diversity for Dialogue and Development proposed by UNESCO through the adoption of 2001 Universal Declaration on Cultural Diversity and the Resolution on Culture and Sustainable Development (UN General Assembly, 2015) aims at developing, broadening and exchanging multilingual and intercultural experiences. In the contemporary globalised era, mediation between cultures is becoming increasingly important, and according to a new interpretation of translation thinking and practice that engage with the challenges of human-induced environmental change, translators have to find the most appropriate association for the local and the global through specific cultural experiences (Cronin, 2017). To achieve the goal of transforming education to transform the world, mediation between cultures should be viewed as an environmental context, which goes beyond the source and target texts and the cognitive processes involved in the process of translation (UNESCO, 2018). Treating ecology as the main factor governing the survival and sustainability of human societies, cultures and languages, the nature of translation is modified and transformed. Translation is one of the types of "work in progress" (Stolze 2011: 194), and, as a result, translation is an open-ended and life-long process. Currently, the world should be seen as a naturally evolving system, in which the development of its dynamically changing evolutionary process should be respected. The outcome of this process is the evolutionary diversity of the

creative process, which indicates the quality of our planet as a system. Broader research framework can reveal new opportunities for using more holistic perspectives to assess the state of the open-ended, dynamic, evolutionary process.

From antiquity to the present day, rhetoric has always been closely associated with teaching and translation. In the present research, rhetorical pedagogy is treated as a paradigm, a set of basic principles that can be applied in various ways to achieve learning outcomes. It is based on experience and reality, meaningfulness, transdisciplinary inquiry, collaboration, and sustainability. Rhetorical pedagogy relies on certain basic assumptions and methods, particularly from the classical and renaissance periods. It is built upon an assumption that careful observation and analysis are necessary for successful communication (cf. Garver, 1994). Rhetorical pedagogy is based on a very close relationship between reading and writing, observing and composing, critical thinking and decision making. Students are taught to read not merely for ideas, but for finding useful strategies and techniques. Such techniques can be adopted in their own writing through various kinds of imitation. Specific rhetorical exercises can be assigned to students for training them to move from text analysis to text production. Key rhetorical notions such as logos, ethos, and pathos can also be used in exercises aimed at developing critical reflection (cf. Burke, 2013). According to many scholars, critical thinking is the result of training, and rhetoric provides various tools that can enhance students' ability to think critically across a variety of situations (cf. Saki, 2016). Rhetoric is an effective tool for developing creativity and critical thinking, as students acquire the necessary skills to participate in the decision-making process. Rhetoric is important in helping to reveal the different ways people reason from one position to another, and as a result, has the capacity to develop the ability to make informed and rational decisions with regard to various social, political, and ethical matters. Rhetorical analysis demonstrates that people are almost always involved in some sort of rhetorical engagement; "they always draw on different rhetorical devices and strategies, either consciously or unwittingly, to make their points and to have the audience(s) share their views and beliefs" (Saki, 2016: 141). Rhetorical pedagogy makes an attempt "to shape a certain kind of character capable of using language effectively […]. Its dual purposes are the cultivation of the individual and the success of a culture" (Beale, 1990: 626). The demands of contemporary teaching and learning can benefit from the analysis of pedagogy and translation, starting from the works of ancient Greek and Roman rhetoricians.

Different periods and different cultures have different priorities. Therefore, it calls for understanding the way in which the translator negotiates between the topic and the reader, seeking out a rhetoric relevant to a particular situation. Communication is rhetorical and this is also true of translation. Among the exercises of the rhetoric classes, translation has been playing an important role since the Ancient times. And in more modern times as, for example, in the 18th and 19th centuries it was regarded as one of the essential ways of acquiring the mastery of a foreign language, particularly in its most literary register. Translation involves rhetorical pedagogy rooted in ancient educational models. Evaluating evidence from alternative points of view and logically presenting information correspond to the first two canons of rhetoric: invention and arrangement. Presenting a point of view in a convincing way is related to the third canon of style. The present research proposes an approach to teaching specialised translation whereby students develop transversal skills (i.e. transferable in different life situations) through the application of classical and digital rhetoric. Not only is rhetoric relevant, but it is also crucial to both formulating and evaluating thoughts and behaviours. There is an expanding body of research seeking to develop a deeper understanding of how our social nature is rhetorically manufactured, and this has grown into an influential facet of interdisciplinary scholarship. For the contemporary translator affected by digitalisation, the development of artificial intelligence, and smart automation, the rhetorical model is used in the research as a description of the emerging skill sets. Rhetoric involves not only learning and implementing new tools and techniques; it also involves making information explicit and then utilizing it in an intentional manner. Professor of Rhetoric Michael Burke (2013) promotes Cicero's notion that rhetoric has a trilateral function: to persuade, to please and to teach. Translation should be examined through the prism of rhetoric as a process of meaning creation rather than as a search for norms and standards or nonconformities and deviations in translation. Claudia Carlos in the paper "Translation as Rhetoric" (2009: 337) argues that it is necessary to analyse how a translator makes "specific linguistic choices in response to the constraints of a particular rhetorical situation". The analysis of what rhetorical strategies and devices remain in the target text may also contribute to indicating the cognitive value of rhetorical devices beyond their specific persuasive and aesthetic value in the target language.

The present research is based on the philosophical, psychological and methodological frameworks. Such recent theories as *constructivism* and *objectivism* have been introduced by philosophy, while psychology has developed *the theory of motivation, the theory of multiple intelligences, Maslow's hierarchy of needs, learning style theory*. The philosophical framework is

also used to analyse the new paradigms in society brought up by the industrial sector and educational reforms. The new age of education is also increasingly affected by media, the Internet and digital technologies. Innovations in various disciplines have led to changes in teaching approaches, learning styles, cultural aspect perception and forms of education. The new-age technologies have brought about fast-paced changes, leading to a paradigm shift in education, in general, and the skill set required in translation, in particular.

Translation has become a significant area of research producing a major effect on the development of humanity since its history of at least two millennia long to the present day. Translation studies is experiencing new advances and challenges posed by the digital world, seeking new solutions in order to adapt to particular market requirements, thus contributing to the innovation in the field. Information technology has brought about the theory of connectivism, computer-based learning, networked learning and e-learning. Artificial intelligence has introduced the pattern recognition theory of mind that can be used to understand the process of cognition, learning, and knowledge acquisition. Cognitive science has proposed the cognitive load theory that plays a role in knowledge creation and management. Accepting global trends, adopting emerging solutions and evolving in a new form through artificial intelligence, the translation industry has significantly grown and developed over the past two decades. As translation covers an ever-expanding range of activities (Chesterman, 2019), translator training as a resource-based learning activity requires new strategies and methods with regard to relevant information extraction, retrieval, processing and creation of new knowledge. To meet the requirements for training of professional translators, many translation programmes have been established all over the world. To achieve academic and scientific excellence, the students majoring in specialised translation should be engaged in the multi-dimensional context of life-long learning.

The modern stage of technological development of society, in which information and communication technologies have become the main component of any professional activity, requires digitally literate professionals in order to improve their performance. The advancement of information and communication technologies have led to the computerisation of translator's professional activities, thus changing the traditional perception of this profession. To be able to fulfil all the contemporary demands, translators are required to be proficient not only in the working languages and the subject field, but also in the use of translation technologies that facilitate the translation process by ensuring higher terminology accuracy and text organisation

management. The development of information and communication technologies affects not only the environment of professional translators, but also the areas of teaching and learning. This involves bringing professional practices into the translation classroom. Instructors should "prepare trainees to be flexible, adapt and constantly learn new skills" and also have the task to "foresee likely future developments" (Shreve 2000 in Kelly 2005: 27). According to Don Kiraly (2015), instructors should help build the knowledge by accompanying students in a multifaceted, multi-perspective adventure, focusing on the development of such 21st century skills as critical thinking, creativity, and collaboration to make students competent and competitive in the labour market.

In translator training, it is also evident now that the contemporary set of competences will not be the same in the future as the role of the translator changes. If forecasts come true and machine translation output becomes more accurate, the translator's task may be shifted to pre-editing, post-editing, quality control and quality assurance in the future. But at present, despite translation technology is becoming an essential part of a translation trainee's learning process, traditional linguistic skills greatly influence the training process because translation is "an intelligent activity, requiring creative problem-solving in novel textual, social, and cultural conditions" (Robinson, 2003:35). One of the conclusions reached at the European Union Translating Europe Forum "New Skills, New Markets, New Profiles" is that translations that require tailor-made creative skills will need translators, whose linguistic creativity is favoured over technological skills (cf. Translating Europe Forum, 2017). Therefore, instructors should focus not only on digital rhetoric but also on developing traditional rhetorical competence that involves imagination and creativity.

To keep pace with fast-evolving interactions in multilingual and multicultural settings and increasingly sophisticated socio-cultural, economic and political interrelations resulting from globalisation, a need arises to re-evaluate and reconstruct the translation training process in order to respond to the global trends and drivers. This raises the questions of *what* should be taught in the translation classroom, *how* to successfully combine translation theory with practice and *how* to pedagogically develop students' translation competence. Rethinking translation pedagogy for the 21st century skills is important for determining new competences that contemporary students need to acquire and develop. Authentic experiences along with active engagement and collaboration provide students with the opportunity to create, organise and store knowledge, engage in writing and analysis; conduct scientific research and communicate effectively with a

variety of audiences (cf. Barron & Darling-Hammond, 2008). To develop the higher-order thinking skills, students should engage in meaningful enquiry-based learning.

UNESCO's initiative "Futures of Education" aims at rethinking education in a world of increasing complexity. The studies performed in the past decades predicted important changes and transformations in the system of education. Young people "have to face a world subject to dramatic changes, a world where our know-how doubles every five years, where the very web of social structure is modified continuously […] and professional abilities are renewed every day" (Blasi, 1999: 28). It was indicated that the space of education would be changing dramatically, thus requiring new paradigms (Flogie & Aberšek, 2015; Kapenieks, 2016).

European Union Translating Europe Forum 2022, in its turn, focused on human–technology interrelation and showed how technology, the specialist skills and competences had made the world more interconnected, accessible and friendly. It was stated and confirmed by the participants of the forum representing academia, industry, and practitioners that humans, with their irreplaceable creativity, would remain the centre stage. Translator training, in this context, should be adapted to the new advances and challenges. In the context of global challenges, the study of global issues cannot take place within one discipline. The issues resulting from the global environment have brought transdisciplinarity to the foreground within the context of educational reforms (cf. Klein, 2015). Transdisciplinarity can provide an opportunity for a new way of thinking and acting. The transdisciplinary approach proposes new ways not only of organising but also of thinking about knowledge and inquiry in a world that has become too large to be known, perceived and understood (cf. Weinberger, 2011; Salite et al., 2016).

According to the National Development Plan of Latvia for 2021–2027, European and Latvian development requires significant investments in the creation of an efficient, innovative knowledge economy, improvement of education at all levels, quality and lifelong learning for all and the development of a knowledgeable and creative society. Knowledge acquisition and transfer, creativity, digital skills and technological competence have become crucial for further development of the country. In Latvia, the science of pedagogy explores inner dynamic relations created among the instructor, student and the study content in "social, deliberately organised integrative settings" where instructor–student communication contributes to students' autonomy. Reflection and self-evaluation practice of instructors and students contribute to the educative value of the process (cf. Žogla, 2018: 36).

Latvian students are generally good at tasks that require remembering or acting in familiar situations, but they lack the skills and experience to delve into and process diverse data, work in a team, offer solutions to non-standard situations, make connections between what is theoretically learned and what is experienced in real life. Students lack the skills to implement their ideas in new conditions. Looking at the learning process as a single system in which the interaction of the student, the academia and the whole society is established, Sheldon Berman (1990) argues that it is important for the student to gain confidence that their decisions and activities can affect what is happening in their country or even worldwide. Therefore, it becomes very important to improve problem solving, critical thinking and decision-making skills.

There is a need for a learning approach, in which students with different learning goals and interests could learn successfully both individually and collaboratively, in which the motivation of students is constantly promoted. If the individual goals of students and the goals set in higher education normative documents are in agreement, students gain confidence in their actions and are responsible for the consequences of their actions, because the learning process integrates the student's individual perception as well as current events in society as a whole. A smart pedagogical approach that has evolved in recent years is frequently seen as merely focused on using new technologies in changing learning environments, nor on implementing the new smart educational philosophy on smart human learning for smart economies and societies of the digital era. Principally, a new pedagogical approach that "will undergo drastic changes and create new pathways for learners of all ages" (Scott, 2015: 16) is necessary. To meet these requirements, pedagogy has to focus on meaningful learning connecting it to the professional setting.

The need for translation theory in teaching was acknowledged by scholars who maintained that applying the translation theory would develop students' translation competence (Bell, 1991; Shäffner and Adab, 2000; Chesterman, 2005; Lederer, 2007), expand the horizons for analysing the social, cultural and historical dimensions of the source text (Snell-Hornby, 1992; Chesterman, 2007), as well as reflect on the mental processes occurring while translating (Kiraly, 1995; Pym, 2001; Tymoczko, 2007). For a long time, the focus on the necessary skills and knowledge of translators did not keep pace with theoretical considerations on how to resolve translation challenges at the word, sentence and text levels. According to Hanna Risku (2002), a change in attitude towards translation practice emerged with a focus on translation as situated practice, i.e., practice that is dependent not only on the translator's knowledge and skills, but also on the

relationship and collaboration of stakeholders involved in the translation process, digital tools and technologies, as well as material, social and cognitive factors that appear during the creation of the target text. These insights demonstrate that the theory of translation pedagogy has become increasingly important in translator training.

The OECD Learning Compass 2030 has identified three "transformative competencies" that students will need in the future. These have been identified as *creating new value, reconciling tensions and dilemmas,* and *taking responsibility*. Creating new value requires *critical thinking* and *creativity* in finding different approaches to solving problems, and *collaboration* with others to find solutions to complex problems. Through *reconciling tensions and dilemmas*, students acquire a deeper understanding of opposing positions, develop arguments to support their own position, and find practical solutions to dilemmas and conflicts. *Taking responsibility* refers to the ability to reflect upon and evaluate one's own actions in the framework of one's experience and education, and by considering personal, ethical and societal goals. To develop this competence, self-awareness, self-regulation and reflective thinking are of particular importance (cf. OECD, 2019).

Students need support in developing not only competences but also attitudes and values that can guide them towards ethical and responsible actions. All three transformative competencies can be seen as higher-level competencies that help learners navigate across a range of different situations and experiences throughout a lifetime (cf. Education Development Guidelines of Latvia for 2021–2027; Grayling, 2017). These competencies are also needed in economies where the impact of new technologies requires new levels of skills and human understanding. Contemporary events expand the field of learning, and they have the potential of deepening learning, such as abstract structural characteristics necessary to transfer experience to another situation. Thus, development of a broader framework will be based on the author's pedagogical and research experience, focusing on the choice of pedagogical approaches and methods.

It is necessary not only to integrate contemporary events into the teaching content, but also to create the learning process that is aimed at developing transversal skills (e.g., solving problems, applying knowledge in new/unknown situations, collaboration, etc.). Several principles of knowledge building (Scardamalia and Bereiter, 2006) contain elements of collaboration, such as developing collective cognitive responsibilities among learners and engaging learners in knowledge construction. It is important to understand the context within which students of higher education institutions obtain education. Contemporary generation of students is raised in the

uncertain and complex global environment, in the world of ICT technologies that is characterised by a different way of information processing. The development of digital literacy was the starting point for changes in pedagogy and, as a result, in the system of higher education. It should be taken into account that the digital learning environment affects students' cognitive, social and emotional development (Lee & Choi, 2017; Kapenieks et al., 2020; Ivanova, 2016; Underwood & Farrington-Flint, 2015). The boundaries of using digital tools is constantly expanding, changing students' style and mode of learning.

The above-mentioned tendencies in higher education and requirements for the future competences of translators define and substantiate **the following research frameworks.**

1. **The evolving competence framework**. Education is not considered any more as a sole process of knowledge transfer, but the process that involves (re)creation, creativity, experimentation, critical awareness and reflection. Competence development involves in-depth learning, i.e., the process by which students develop the ability to generalise and reason, transfer new knowledge and skills to unknown situations, focusing on the processes of knowledge acquisition (cf. Pavitola & Latsone, 2021). Educational innovation as an instrument of the necessary change plays a significant role in sustainable development. One of the most important areas in translation studies today is the research of teaching and learning methods in order to develop the theoretical and practical framework for future translator training. For this reason, the notion of translation competence plays an important role and requires an in-depth investigation.

2. **Transdisciplinary framework**. Translation studies has initially been interrelated with philosophy, rhetoric, linguistics, literature, pedagogy and cultural studies, thus revealing interdisciplinary aspects of the discipline. However, with the advent of new technologies, in the 21st century it has acquired a transdisciplinary status as its scope of research has been expanded to cognitive science, neurolinguistics, computational linguistics, psycholinguistics etc. Therefore, in the current situation and with the future perspective in mind translator training should be implemented taking into account the developing technological trends and increasing skills requirements.

3. **Creativity framework**. Creativity as an important component of the new educational paradigm is multifaceted. Creativity in its various manifestations is related to the unexpected and remarkable, triggering new modes of thinking in the education context, thus establishing innovative, distinct and dynamic environments. These environments facilitate the generation of ideas, the creation

of products, and diverse interactions among individuals (cf. Medveckis et al., 2021). To develop students' independence, freedom and responsibility in the study process, instructors should adopt a creative approach that focuses on the student as part of the professional community, involving the dimensions of knowledge, performance and identity formation (cf. Špona, 2022). The evolution of education system should be systemic and consistent; therefore, educators, researchers and policy makers are expected to make changes in the theory and practice of teaching and learning in order to ensure high-quality training of students.

The research has been conducted at a time characterised by a changing paradigm in education that needs to meet the expectations and different learning traditions of a new generation of students, incorporate emerging technologies in the learning process, develop sustainable teaching strategies, as well as comply with the industry requirements. Various perspectives on translation pedagogy demonstrate a diversity of teaching approaches, methods and solutions, which illustrate that translation is a constantly developing phenomenon with various stages of development resulting from the adoption and implementation of certain ideologies, policies and practices in a particular period of time. New trends in the field of higher education, contemporary requirements for a professional translator, and the constantly changing and developing methodological system for translator training have made the present research *relevant* and *topical*.

The object of research: The pedagogical process in the specialised translation learning environment.

The subject of research: The interaction of rhetoric and translation for the creation of an improved specialised translation learning environment.

The aim of the research: To investigate the process of developing students' translation competence and to use the results obtained in order to improve the study process in terms of increasing students' translation performance and the quality of translations produced, as well as to develop the rhetorical model of specialised translation teaching, taking into account the specifics of translation tasks and the emerging skills set.

The research questions

1. *What are the rhetorical, philosophical, cultural, linguistic and technological aspects related to the field of translation?*

2. *Which pedagogical principles should be incorporated into the specialised translation teaching process in order to promote the development of students' translation competence?*

3. *What is the theoretical substantiation for the development and application of the rhetorical model in the specialised translation teaching process?*

4. *How does the rhetorical model of specialised translation teaching affect students' performance and translation competence development?*

To achieve the aim of the research, the **following tasks have been set**:

1. to review and examine trends in translation development, translation theories and teaching practices;

2. to develop the rhetorical model of specialised translation teaching;

3. to research the students' translation process, determining the effect of the rhetorical model on students' performance and translation competence development;

4. to propose sample tasks in order to develop students' textual analysis skills, to enhance intercultural competence, as well as strengthen responsible decision-making skills;

5. based on the theoretical and empirical research, to draw conclusions and propose recommendations for the implementation of the rhetorical model of specialised translation teaching in the pedagogical practice.

To accomplish the tasks of the research, **the qualitative and quantitative research methods** have been used:

- *theoretical methods*: the study and analysis of literature on the research problem (from the perspective of pedagogy, philosophy, rhetoric, translation studies, cognitive science, etc.); the study of pedagogical approaches; the analysis of the theory and practice of teaching;

- *empirical methods*: observation of the training process of student translators; simulation of the real-life translation process of specialised texts; self-perception questionnaire, translation tasks, and content analysis.

- *mathematical and statistical methods for* analysing qualitative data: statistical processing of experimental data using MS Excel 2013 software. For transparency reasons, data are presented in figures and tables.

Thesis statements to be defended:

1. The developed rhetorical model of specialised translation teaching describes the translation process that is based on the critical analysis of the source text and the creation of the target text according to the accepted linguistic and textual norms of the target culture. The rhetorical model offers six stages of action from the identification of the source text features to the creation of a harmonised target text: Identifying – Understanding – Producing – Comparing – Evaluating – Harmonising. The analysis of the students' translation process enables the instructor to obtain timely information on the development of students' knowledge and skills in the learning process, assess their progress according to the Dunning-Kruger model, and determine the expected learning outcomes upon the completion of the study course.

2. A metric for the quantitative characterisation of the translation process has been developed, which complements the traditional metric for the evaluation of translation output by using the time interval capabilities of e-learning technologies. The research on translation competence development and the obtained data on the dynamics of students' learning process confirm the Dunning-Kruger model and its applicability in the educational process of translators.

The theoretical and methodological framework of the research is based on the studies of the local and foreign scholars:

- the understanding of the learning process in the context of changing educational paradigms (Fink, 2013; Klein, 2015; Kolb, 1984; Salite et al., 2016);
- the set of knowledge and skills required for future generations (Benander, 2018; Education Development Guidelines of Latvia for 2021–2027; Kapenieks, 2016; OECD, 2018, 2019);
- pedagogical and social aspects of knowledge creation (Berman, 1990; Scardamalia and Bereiter, 2006; Žogla, 2018);

- translation competence models (Bell, 1991; Chesterman, 2007; EMT, 2009, 2017; Hatim and Mason, 1997; Kelly, 2005; Kiraly, 2003; Ivanova, 2016; Nord 1991; Neubert, 2000; PACTE, 2003, 2017; Pym, 1992, 2013; Schäffner, 2000; Toury, 1995);

- translator training (Delisle, 1980; Farneste, 1999; Gile, 1995; Hurtado, 2015; Iļinska et al., 2017; Ingo, 1992; Ivanova, 2019; Laviosa, 2014; Ločmele, 1997; Kiraly, 1995; Korolyova, 1996, 1999; Kramiņa, 1999; Pym, 1993, 2003, 2010; Rogers and Medley Jr., 1988; Sīlis, 2016, 1999a, 1999b; Sīlis & Zālīte, 1984; Wilss, 1996; Zaļkalne, 1997; Zauberga, 1998, 1996, 1994a);

- smart pedagogical approaches aimed at personal development and professional growth:
  - process-oriented approach to translation teaching (Boekarts, 1981; Göpferich, 2009; Kiraly, 1995; Kussmaul, 1995; Palumbo, 2009);
  - product-oriented approach to translation teaching (Baker, 2001; Palumbo, 2009);
  - task-based approach (Davies, 2004; Malašonoka, 2009; Munday, 2001; Wilss, 1996);
  - reflective approach (Bernardini, 2004; Burke, 2013; Hurtado Albir, 2015; Gibbs, 1988; Moon, 1999; Pym, 2003, 2010; Tymoczko, 2007);
  - corpus-based approach to translation teaching (Baker, 1999; Bednarek, 2006; Bernardini, 2004; Hatim, 2001; Johns; 1991; Malmkjær, 2004);
  - telecollaborative approach to translation teaching (Beckman, 1990; Jager et al., 2016; Kiraly, 2005, 2015; Marczak, 2016; Rubin, & Guth, 2016);
  - emergentist approach to translation teaching (Kiraly, 2013, 2015; Massey, 2016);
  - ecological approach to translation teaching (Cronin, 2017; Cowley, et al., 2002; Hofmann and Mehnert, 2000; Hu, 2010; Gigerenzer, et al., 1999; Kramsch, 2002; Robinson 2011; van Lier, 2000; 2010).

- rhetoric of translation (Baltiņa, 1999; Beale, 1990; Bizzell and Herzberg, 2000; Burke, 2013; Carlos, 2009; Corbett and Connors, 1999; France, 2005; Friedrich, 1992; Garver, 1994; Grassi, 2001; Gross, 2006; Hadley and McElduff, 2017; Herrick, 2005; Higgins and Walker, 2012; Iļinska, et al., 2016a, 2016b, 2014; Jasper 1993; Kennedy, 1984; Logan and Fischer-Wright, 2006; Murphy, 1987; Ornatowski, 2007; Saki, 2016; Trimble 1985; Weissbort and Eysteinsson, 2006);

- digital rhetoric as a collaborative space for learning (Eyman, 2015; Haas, 2018; Lanham, 1994; Losh, 2019; Zappen, 2005).

The regulatory framework of the research consists of:

- education development planning documents (Education Development Guidelines of Latvia for 2021–2027; National Development Plan of Latvia for 2021–2027);
- reports and studies of international organisations (such as United Nations Educational, Scientific and Cultural Organization, European Commission, Organization for Economic Cooperation and Development).

Development stages of the research
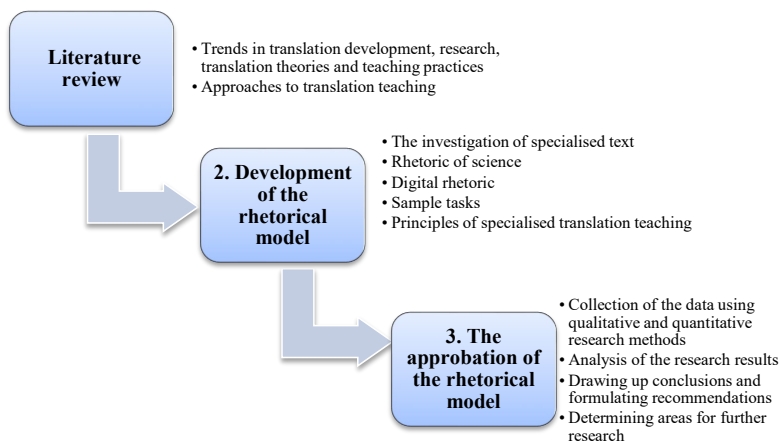
Research base

The research base consists of the students of the professional Bachelor study programme "Technical Translation" at the Faculty of Computer Science, Information Technology and Energy (before the consolidation process (until 31 December 2023) the Faculty of E-learning Technologies and Humanities) of Riga Technical University.

Theoretical significance and scientific novelty of the research

1. The present research is the first attempt to develop an integrated framework for specialised translation teaching investigating rhetorical pedagogy that encompasses all the factors that affect meaning representation, encoding and decoding necessary for a new target text creation, taking into account the whole system of translation. The proposed framework emphasises the application of different theories and tools that support transdisciplinary inquiry, collaboration and sustainability, as well as the interconnection of experience and reality. The results of the research can also be applied to teaching special text comprehension strategies, scientific writing and editing, as well as digital rhetoric.

2. Having examined the development of translation studies through the exploration of essential historical interactions with other disciplines, an integrated view of translation studies has been presented demonstrating the rhetorical, philosophical, cultural, linguistic and technological aspects related to the field of translation.

3. The structure and characteristic features of the specialised text have been determined to reveal the specifics of specialised translation teaching. Based on the authentic specialised texts in different domains of knowledge, sample tasks have been proposed in order to develop students' linguistic and cultural competence, textual analysis skills, creativity and critical thinking skills, as well as strengthen responsible decision-making skills.

4. Special sample tasks have been proposed for digital text analysis, emphasising the accepted practices, norms, methods and structure of both textual and non-textual information, considering the role of visual mode in written communication, the concept of news value system, as well as assessing the information quality of digital texts. The tasks aim at engaging students in the interpretation and creation of meaning in the digital environment, thus promoting the development of students' multiple competences, such as textual, visual, and digital literacy.

5. The principles of teaching specialised text translation have been distinguished: the integration of knowledge, co-construction of knowledge, the use of appropriate digital tools to fulfil translation tasks, collaboration, active peer-to-peer online interaction, use of reflection in action (critical thinking and self-assessment), and engagement with real-life professional translation environment.

6. Based on the examination of different approaches applied to translation teaching, the rhetorical model of specialised translation teaching has been developed that aims at engaging cognitive dimensions of learning and enhancing students' ability to discover and maximise their

unique strengths. In compliance with recent UNESCO research concerning the necessity to promote students' ability to comprehend, interpret and communicate knowledge, the developed rhetorical model of specialised translation teaching encourages students to understand, interpret and apply knowledge and skills in various situations.

The practical significance of the research

1. The results of the research with regard to meaning representation, encoding and decoding necessary for a new target text creation can be used in the courses on rhetoric, stylistics, scientific writing and editing, cultural studies as well as digital rhetoric.

2. The stages of organising translator training and the activities proposed can be recommended for application within the specialised translation courses.

3. The results of the research concerning translator training may be used as a foundation for the implementation of specialised translation teaching in the e-learning environment.

Approbation of research results

The results of the Doctoral Thesis have been presented in 23 international scientific conferences. The developed rhetorical method has been applied during lectures, practical classes and seminars within the study courses "Translation of Texts in Special Area", "Professional Translation Practice", "Research Writing", "Stylistics and Editing", "Computer-Assisted Translation Tools", and "Machine Translation" of the professional Bachelor study programme "Technical Translation" implemented by the Institute of Digital Humanities of the Faculty of Computer Science, Information Technology and Energy (before the consolidation process (until 31 December 2023) the Institute of Applied Linguistics of the Faculty of E-learning Technologies and Humanities) of Riga Technical University.

The results obtained within the framework of the Doctoral Thesis have been approbated:

- **in academic work**

  o delivering such study courses as "Professional Translation Practice", "Computer Assisted Translation Tools", "Translation of Specialisation Texts", and "Stylistics and Editing" to the students of the professional Bachelor study programme "Technical Translation";

- developing new study courses, such as "Digital Editing" and "Computer Assisted Translation Tools";

- supervising and reviewing study and graduation papers of the students of the professional Bachelor study programme "Technical Translation" (Bachelor Papers supervised (2016–2022): in 2022 – "Current Trends in Technical Translation", "Meaning and Context", "Lexical Stylistic Devices in Technical Translation"; in 2020 – "…nyms in Technical Translation", "Stylistic Devices in Technical Translation"; in 2019 – "Lexical Meaning": Connotation and Denotation"; "Meaning Transfer: Metaphor and Metonymy"; "Machine Translation: Advantages and Disadvantages"; "Text Types and Translation Strategies"; in 2018 – "Translation Approaches to Translating Texts in the Field of Telecommunications"; in 2017 – "Pragmatic Aspects of Translation", "Nym Words (Synonyms, Antonyms, Homonyms etc.) in Technical Translation"; in 2016 – "Approaches to Textual Analysis in Technical Translation: Textuality Standards", "Meaning Transfer: Metaphor and Metonymy".

- **in research work**
  - as a senior expert, participating (from 2021 to 2022) in the ESF project "Development of Effective Governance of Riga Technical University", project No. 8.2.3.0/18/A/012 (C300; C3783) PVS ID 3783;
  - as a member of the Organisational Committee, organising biennial international scientific conference "Meaning in Translation: Illusion of Precision" (at the Faculty of Computer Science, Information Technology and Energy (before the consolidation process (until 31 December 2023) the Faculty of E-learning Technologies and Humanities) of Riga Technical University);
  - participating with reports in the international scientific conferences, European Commission DGT (Directorate-General for Translation) forums.

- **in organisational work**
  - as a member of the working group, drawing up the necessary documents within the accreditation process of the study field "Translation" of RTU Institute of Applied Linguistics;

- o   coordinating internship "Translator – Desk Officer" within the professional Bachelor study programme "Technical Translation";
- o   on the part of the university, participating in the coordination of the annual competition "The Best Young Translator" organised by Skrivanek Baltic.

- **in professional development activities**
  - o   undertaking Erasmus+ staff training mobility to Alkala University, Spain, 11–15 March 2019 (Faculty of Philosophy and Arts, Department of Modern Philology, Master study programme "Intercultural Communication and Public Service Interpreting and Translation");
  - o   participating in the Doctoral School „FuturICT 2.0 Hackathon: Educational Data Challenge" (11–13 January 2019) organised by Distance Education Study Center of Riga Technical University (1st place. Team "Eagle Eye". Members: Iveta Daugule, Edgars Zagorskis, Loreta Juškaite, Oksana Ivanova, Zane Seņko).

With regard to the **research area of the Doctoral Thesis**, the author has developed the **following publications**.

1.   Salīte, I., Fjodorova, I., Butlere, I., Ivanova, O. (2021). More Personal Knowledge for More Sustainable Higher Education. *Journal of Teacher Education for Sustainability, 23* (1), 2021, 150–165. doi: 10.2478/jtes-2021-0011. (Scopus indexed).
2.   Iļinska, L., Ivanova, O. (2020). Creation and Extension of Meaning in Professional Communication. *Research in Language*, *18* (3), 283–297. ISSN 1731-7533. doi:10.18778/1731-7533.18.3.03. (Scopus indexed).
3.   Iļinska, L., Ivanova, O. (2020). Some Aspects of Colour Concept Application in Architecture. *Language – 2020: Language in Various Cultural Contexts*. Daugavpils: DU "Saule", 193–199. ISBN 978-9984-14-920-2. (EBSCO indexed).
4.   Iļinska, L., Ivanova, O. (2020). Developing Textual Competence in the Digital Age. *The Word: Aspects of Research, 24* (1/2), 302–313. Liepaja: LiePA. ISSN 1407-4737. (EBSCO indexed).

5. Iļinska, L., Ivanova, O., Smirnova, T. (2019). Relevance-Based Approach to Translation of Contemporary Popular Science Texts. *Vertimo studijos, 12*, 36–50. ISSN 2029-7033. doi:10.15388/VertStud.2019.3. (ERIH indexed).

6. Ivanova, O. (2019). Characteristics of LSP Text: Metaphoric Meaning Extension. *Language – 2019: Language in Various Cultural Contexts*. Daugavpils: DU "Saule", 138–143. ISBN 978-9984-14-892-2. (EBSCO indexed).

7. Iļinska, L., Ivanova, O. (2019). Pragmatic Adaptation within Cognitive Approach to Translation of Popular Science Texts. *The Word: Aspects of Research,* 23 (1/2), 322–330. Liepaja: LiePA. ISSN 1407-4737. (EBSCO indexed).

8. Ivanova, O. (2019). LSP Text Translation Teaching: Communicative Competence. *The Word: Aspects of Research, 23* (1/2). Liepaja: LiePA, 331–340. ISSN 1407-4737. (EBSCO indexed).

9. Iļinska, L., Ivanova, O. (2018). Target Text as a Different Context: Cultural Adaptation. *Language – 2018: Language in Various Cultural Contexts.* Daugavpils: DU "Saule", 62–67. ISBN 978-9984-14-861-8. (EBSCO *indexed).*

10. Iļinska, L., Ivanova, O. (2017). Challenges in Contemporary LSP Text Translation. *Language – 2017: Language in Various Cultural Contexts.* Daugavpils: DU "Saule", 9–14. ISSN 1691-6042. (EBSCO *indexed).*

11. Iļinska, L., Ivanova, O. (2017). ICT Competence in Second Language Acquisition. *ICT for Language Learning, 10th edition* (pp. 174–179). 9–10 November 2017, Italy, Florence. Padova: Libreriauniversitaria.it edizioni, 2017. ISBN 978-88-6292-660-7.

12. Iļinska, L., Ivanova, O., Senko, Z. (2016). Rhetoric of Scientific Text Translation. *Procedia - Social and Behavioral Sciences, 231, 84–91.* doi.org/10.1016/j.sbspro.2016.09.075. (WoS indexed).

13. Ivanova, O. (2016). Translation and ICT Competence in the Globalized World. *Procedia - Social and Behavioral Sciences, 231,* 129–134*.* doi:10.1016/j.sbspro.2016.09.081. (WoS indexed).

14. Iļinska, L., Ivanova, O., Seņko, Z. (2016). Mosaic of Multimodal Texts. *Language – 2016: Language in Various Cultural Contexts*. Daugavpils: DU "Saule", 164–169. ISBN 978-9984-14-788-8. (EBSCO indexed).

15. Iļinska, L., Ivanova, O., Seņko, Z. (2016). Rhetoric of science: Strategic use of language. In: *The 20th European Symposium on Languages for Special Purposes*

"Multilingualism in Specialized Communication: Challenges and Opportunities in the Digital Age", (pp. 48–55). 8–10 July 2015, Vienna, Austria, University of Vienna, Centre for Translation Studies, ISBN 978-3-200-04739-6.

16. Iļinska, L., Platonova, M., Smirnova, T., Ivanova, O., Seņko, Z. (2016). Lingvistiskais un ekstralingvistiskais konteksts tulkošanā. *The Word: Aspects of Research, 20 (2), 68–77.* Liepaja: LiePa. ISSN 1407-4737.

17. Iļinska, L., Ivanova, O., Seņko, Z. (2016). Tulkošanas izaicinājumi ekonomikas nozares tekstos. In: *Terminrade Latvijā: senāk un tagad: Latvijas Zinātņu akadēmijas Terminoloģijas komisijas 70 gadu jubilejas konference* (pp. 58–64). 11 November 2016, Riga: Terminology Commission of the Latvian Academy of Sciences, ISBN 978-9934-549-25-0.

18. Iļinska, L., Ivanova, O. (2016). Challenges in Contemporary LSP Text Translation. In the 8th EST Congress: *Translation Studies: Moving Boundaries*, (pp. 115–116). 15–17 September 2016, Aarhus, Denmark.

The following reports have been delivered in international scientific conferences.

1. Specialised Translation Process Research. *64th International Scientific Conference of Riga Technical University*. Riga, 16 October 2023.

2. Multidisciplinarity in Translator Training: Critical Discourse Analysis. *International Scientific Conference "Translation, Ideology, Ethics: Response and Credibility"*, Vilnius, 23 September 2022.

3. Multidisciplinary Approach to Textual Analysis in Translation Classroom. *International Scientific Conference "Meaning in Translation: Allusion of Precision"*, Riga, 24 May 2022.

4. Language for Science and Technology: Metaphoric Meaning Extension. *Language-2019: Language in Various Cultural Contexts*. Daugavpils, 24–25 January 2019.

5. Developing Textual Competence in the Digital Age. *International Scientific Conference "The Word: Aspects of Research"*, Liepaja, 28–29 November 2019.

6. Translation around the Globe: Metaphoric Competence. *International Scientific Conference "Bridging Languages and Cultures"*, Ventspils, 12–13 September 2019.

7.   ESP Teaching: Communicative Competence. *International Scientific Conference "The Word: Aspects of Research"*, Liepaja, 29–30 November 2018.

8.   Developing ICT Competence in Research Writing. *International Scientific Conference "3rd Languages in the Globalised World"*, Leeds, 23–24 May 2018.

9.   Decoding of Meaning in Professional Communication. *International Scientific Conference* "Meaning in Translation: Illusion of Precision", Riga, 16–19 May 2018.

10.   Target Text as a Different Context. *Language-2018*: *Language in Various Cultural Contexts*. Daugavpils, 25–26 January 2018.

11.   ICT Competence in Second Language Acquisition. *International Scientific Conference "ICT for Language Learning",* Florence, Italy, 9–10 November 2017.

12.   Pedagoģiskās pieejas piesātinātā, padziļinātā un pārnesamā mācību procesā. *58th International Scientific Conference of Riga Technical University*, Riga, Latvia, 16 October 2017.

13.   Contemporary LSP Text Translation: Creative Process and Imaginative Practice. *International Scientific Conference "Translation: Sameness, Likeness and Match", Vilnius, Lithuania, 5–6 October 2017.*

14.   Lexical Innovation as Manifestation of Linguistic Creativity. *International Scientific Conference "iMean 5"*, Bristol, UK, 6–8 April 2017.

15.   Challenges in Contemporary Scientific Text Translation. *Language-2017: Language in Various Cultural Contexts*. Daugavpils, 26–27 January 2017.

16.   Tulkotāju apmācība: izaicinājumi un risinājumi. *2.ziemas lasījumi "Tulkotāja meklējumi un atradumi"*, Riga, 9 December 2016.

17.   Profesionālo terminu dekodēšana: nozīmes izvēle. *International Scientific Conference "The Word: Aspects of Research"*, Liepaja, 1–2 December 2016.

18.   Tulkošanas izaicinājumi ekonomikas nozares tekstos. *The 70th anniversary conference of the Terminology Commission of the Latvian Academy of Sciences "Terminrade Latvijā: senāk un tagad".* Riga: Terminology Commission of the Latvian Academy of Sciences, 11 November 2016.

19.   Challenges in Translation of Technical Texts. *8th EST Congress "Translation Studies: Moving Boundaries"*, Aarhus, Denmark, 14–17 September 2016.

20.   Main Reasons that Change the Contemporary LSP Text. *Meaning in Translation: Illusion of Precision.* Riga, 11–13 May 2016.

21. Multimodal LSP Text. *Language-2015: Language in Various Cultural Contexts*. Daugavpils, 28–29 January 2016.

22. Traditional vs. New Approaches to Term Alignment in English and Latvian. *International Scientific Conference "The Word: Aspects of Research",* Liepaja, 3–4 December 2015.

23. Rhetorical Strategies in the Contemporary Professional Text. *The 20th European Symposium on Languages for Special Purposes "Multilingualism in Specialized Communication: Challenges and Opportunities in the Digital Age*, Vienna, Austria 8–10 July 2015.

Participation in International Forums and Workshops.

1. "Translating Europe". Translation and Terminology: Bridges between Market and Training, Vienna, 11 July 2019.

2. International Scientific Conference "eTransFair", Vienna, 12 July 2019.

3. International Scientific Conference "Bridging Languages and Cultures", Ventspils University College, Ventspils, Latvia, 14–15 September 2017.

4. International forum "Translation from and into Lesser Used Languages", European Commission Directorate-General for Translation, Riga, Latvia, 5 November 2015.

5. "Machine Translation User Forum", European Commission Directorate-General for Translation, Brussels, Belgium, 4–5 December 2014.

6. The International Linguistic Association "59th Annual Conference", Paris, France, Panthéon-Assas University, 22–24 May 2014.

7. International forum "Translating and Interpreting for Our Citizens", European Commission Directorate-General for Translation, Brussels, Belgium, 27–28 March 2014.

8. The 7th EST Congress, Panel 21 "Translation and Comprehensibility", Germersheim, Germany 29 August – 1 September 2013.

Content and Volume of the Doctoral Thesis

The volume of the Doctoral Thesis is 208 pages, not including appendices. The Doctoral Thesis consists of an introduction, four chapters, research conclusions, bibliography containing 374 entries, and 14 appendices.

The introduction of the Doctoral Thesis substantiates the topicality of the research, states the research subject and object, presents the research questions, puts forward the aim and tasks, identifies research methods, as well as presents scientific novelty, and the theoretical and practical significance of the research.

Chapter 1, "The Rhetoric of Translation", focuses on the main trends in the history of translation, providing an overview of the key concepts and theories of translation from Classical Antiquity to the present day with an emphasis on the emergence of the discipline of Translation Studies. It starts with the investigation of deep historical roots with rhetoric in order to identify rhetorical theories and apply them in translation practice for the critical analysis of texts to be translated, as well as for meaning decoding and representation in the translated texts. The transdisciplinary nature of translation studies is demonstrated in the chapter through an examination of its close interaction and relationship with philosophy, cultural studies, linguistics, and artificial intelligence. The current state and prospective advances in translation studies are also considered in order to determine which skills translators will need in the future, which will be taken into account in the specialised translation teaching process.

Chapter 2, "Translation Pedagogy as Applied in Real Educational Contexts", provides an overview of the fundamental contributions to translation teaching. The chapter demonstrates that in order to respond to the global trends and drivers, there is a necessity to re-evaluate and reconstruct the translation training process. The principles of combining theory and practice are very important in translator training. Students need support in developing not only translation skills and competences but also attitudes and values that can help them respond to different situations. The chapter reviews various approaches to translation teaching, such as *product-oriented approach, process-oriented approach, task-based approach, corpus-based approach, telecollaborative approach, emergentist approach,* and *ecological approach*, thus forming the theoretical foundation for the present research. The insight into translator training from different perspectives reveals the main principles that should be taken into account in a specialised translation classroom.

Chapter 3, "Teaching Specialised Translation in the New Media Age", discusses translation competence as a complex learning outcome to be achieved, introduces to the nature of specialised translation, and proposes the rhetorical model for meaning decoding and encoding in specialised translation teaching. Translation competence models are explored in line with the OECD Future of Education and Skills 2030. Specialised translation teaching is examined through the tenets of the rhetoric of science, the characteristics of specialised texts, and the sample tasks designed based on authentic texts in various fields. Special tasks have also been proposed for digital text analysis, emphasising the accepted practices, norms, and structure of both textual and non-textual information, considering the changes in the use of classical rhetorical canons in the digital space, as well as assessing the information quality of digital texts. The tasks aim at engaging students in the interpretation and creation of meaning in the digital environment, thus promoting the development of students' multiple competences, such as textual, visual, and digital literacy. Based on the investigation of the rhetoric of science, the characteristic features of the specialised text, digital rhetoric and digital texts, the rhetorical model has been proposed in specialised translation teaching.

Chapter 4, "Empirical Research Methodology: Approbation of the Rhetorical Model of Specialised Translation Teaching", presents the methodological approach of the present research. It explains the rationale of the research, the application of the constructivist philosophical paradigm and the mixed methods research. The author also introduces the data collection methods and characterises different types of data obtained within the research. The multiple methods for data collection provide a holistic picture of understanding how students perform their tasks and think of their translation studies. By attempting to approbate the rhetorical model of specialised translation teaching, the chapter describes the research procedures. The chapter analyses the results of the students' translation performance and the development of translation competence. Examples are provided in the chapter to demonstrate how the data have been approached and used in the framework of the research.

Research Conclusions summarise the research results, discussing the contribution of the research to the field. The conclusions have been made with regard to the developed rhetorical model of specialised translation teaching and the performance data obtained during the students' translation process.

Not to know what happened before one was born

is always to be a child.

– Cicero

1. The Rhetoric of Translation

The chapter examines the development of translation studies through the exploration of essential historical interactions with other disciplines. The chapter addresses the first research question: *What are the rhetorical, philosophical, cultural, linguistic and technological aspects related to the field of translation?* It starts with the investigation of deep historical roots with rhetoric in order to identify rhetorical theories and apply them in translation practice for the critical analysis of texts to be translated, as well as for meaning decoding and representation in the translated texts. The transdisciplinary nature of translation studies is demonstrated in the chapter through examination of its close interaction and relationship with philosophy, cultural studies, linguistics, and artificial intelligence. The current state and prospective advances in translation studies are also considered in order to determine which skills translators will need in the future, which will be taken into account in the specialised translation teaching process.

1.1. Interaction of Rhetorical Pedagogy and Translation

Rhetoric had an enormous influence in the history of human knowledge development, including reading, writing, translation and pedagogy, and, therefore, encompassed diverse definitions. Rhetoric can be seen as "a universal phenomenon, a universal facet of human experience" (Jasper, 1993: 16). Metaphorically, it is compared to "the energy inherent in emotion and thought, transmitted through a system of signs, including language" (Kennedy 1991: 7). Logan and Fischer-Wright (2006: 2), in turn, consider rhetoric to be "the means through which one creates and populates worlds of meaning (language-based realities)." In other words, rhetoric describes "the construction of meanings through language (Martin, 2013: 12). In "The Rhetorical Tradition: Readings from Classical Times to the Present" (2000), Patricia Bizzell and Bruce Herzberg present

numerous definitions of rhetoric, such as *the study of strategies of effective oratory; the use of language (written or spoken); the study of the persuasive effects of language; the study of the relation between language and knowledge; the classification and use of rhetorical devices and strategies*. Among all the possible definitions of rhetoric, the one made by James J. Murphy (1987), who called rhetoric "the art of future discourse", is the most important as it may describe both translation practices and pedagogies in the history of rhetoric. This definition is one that most relates to the present research taking into consideration the necessity of reimagining and reconceptualising the concept due to the development of digital rhetoric.

The traditional argumentation of "lost and found in translation", which typically focuses on either a semantic or a referential level, is insufficient to describe complex processes of establishing successful communication. The assumption that translation is all about meaning may be a starting point for the discussion of the interrelation between translation and rhetoric. The link between meaning and rhetoric has been described by Kenneth Burke (1969: 172) as follows: "Wherever there is persuasion, there is rhetoric. And wherever there is 'meaning' there is persuasion". Rhetoric functions as a repository of commonly accepted "truths", "acquired formulas", not just under the appearance of rhetorical devices, but also a symbolic repository that sinks its roots into commonplaces accepted by the community (Eco, 1999:173).

In an attempt to treat the rhetoric of translation in relation to teaching and learning, translation involves such categories as the rhetoric of accuracy, violence, faithfulness, and, in general, communication. The main concepts of rhetoric, such as *ethos*, *logos, pathos* and *kairos*, are highly applicable to translation. For example, the notion of the "translator's invisibility" coined by Lawrence Venuti in the 1990s, is primarily the study of ethos. The need in historically and culturally grounded studies of rhetoric and translation was substantiated by Hadley & McElduff (2017) who studied the intersections between rhetoric, oratory and a range of translation practices and theories. Examining translation from the perspective of rhetoric can provide a bridge between practice-oriented approaches and highly theorised approaches, which tend to view translation within other domains of knowledge, such as cognitive linguistics, literary studies, and pedagogy.

Rhetorical pedagogy was based on the idea that speaking and writing skills were not merely inborn gift; rather they could be developed through the theory combined with detailed observation and thorough analysis of successful practices. "In early modern Europe… rhetorical training in the schools gave a good deal of classroom time to verbal exercises…aimed at giving young students a mastery of the resources of language which was at the heart of education, Latin. Among the

exercises of the rhetoric classes, translation had an important place, particularly in the 18th and the 19th centuries. And in more modern times […], it is still regarded as one of the essential ways of acquiring the mastery of a foreign language, particularly in the most literary register" (France, 2005: 255–256). The teaching of contemporary translation practice is based on the study of classical rhetoric, digital rhetoric and rhetorical pedagogy.

Translation as a Rhetorical Exercise

Different theories have dominated the field of translation in different periods of time, changing the practice, function and status of translation, as well as the role of a translator. According to historians, translation pre-dates the Bible, since it has been found out that already in the Mesopotamian era the Sumerian poem "Gilgamesh" was translated into the Asian languages. This early fact demonstrates the important role played by translation in the cultural development of mankind.

The 3rd century BC marked the important stage in the history of translation as the first major translation of the Hebrew Old Testament into Greek was produced in the Western world. Referring to the seventy translators who were commissioned to translate the Hebrew Old Testament in Alexandria (Egypt), this translation is known as the "Septuagint". According to the legend, all seventy versions proved to be identical (cf. Thackeray, 1904).

Translation theories that appeared in **antiquity** were mainly based on the *discipline of rhetoric*. It should be noted that *Aristotle's art of rhetoric* had a considerable *influence on the development of translation practice*. Rhetoric covers a theory of argumentation (*inventio*, dealing with arguments) that makes the basis of rhetoric, as well as provides the link between rhetoric and logic and therefore with philosophy. Rhetoric also includes the theory of style (*elocutio*), which informs about the cognitive features of language and style, and a theory of composition (*compositio*), which governs the text structure and organisation. Famous Roman teachers of rhetoric, such as Cicero and Quintilian, also frequently used the Aristotelian doctrine.

It is assumed that literal or word-for-word translation was first used in the Roman literature. In the 1st century BC, prominent Roman orator, lawyer and philosopher Cicero came forward with the separation of two translation strategies: *word-for-word* and *sense-for-sense*. He warned against translating "word for word" ("De Oratore", 55 BC). Cicero and Quintillian treated translation as a

rhetorical exercise. It is known that Quintilian used translation as a tool to master a second language and also as a way to enrich the target language. Quintilian also introduced new terms: *metaphrasis* referring to word-for-word translation and *paraphrases* to phrase-by-phrase translation.

Sense-for-sense translation was also promoted by St Jerome (Illyrian Catholic priest) when he translated the Bible into Latin stating that the translator needed to translate "not word for word but sense for sense" (cf. Baker, 2001: 125). At the same time, other translators and rhetoricians, such as, for example, Horace, maintained that word-for-word translation should prevail, especially regarding the translation of the Bible (cf. Weissbort and Eysteinsson, 2006).

In the Middle Ages, Latin was the lingua franca of the Western educated world and therefore virtually all translation works were performed from Greek or Hebrew into Latin. However, in the 9th century, the situation was changed by Alfred the Great, King of Wessex in England, who commissioned the translation from Latin into Old English of two major works – Bede's "Ecclesiastical History" and Boethius's "The Consolation of Philosophy" (cf. Weissbort and Eysteinsson, 2006).

It is known that large-scale translation works based on the word-for-word translation strategy were also performed by the Arabs after they conquered the Greek Empire in order to provide Arabic versions of all major Greek philosophical and scientific works (cf. Cohen, 1986). The knowledge of Greek academics was developed and understood thanks to the translation work of Arabic scholars. During the Middle Ages, these Arabic versions were translated into Latin (mainly in Spain), and, as a result, these works provided the foundation of the Renaissance academics.

In the 12th century, Raymond of Toledo, Archbishop of Toledo, undertook the first translation efforts at the library of the Cathedral of Toledo, where he supervised the team of translators. They translated many philosophical, religious and scientific works, usually from Arabic into Castilian, and then from Castilian into Latin (cf. Taton, 1963). It was an attempt to use the relay language for translation. Nowadays, this method is used as an interlingual approach in machine translation systems. As a result, the library of the Cathedral of Toledo became an important translation centre in the history of western culture.

In the 13th century, Roger Bacon was the first to acknowledge that a translator should have a thorough *knowledge of both the source and target languages* in order to produce a good

translation, as well as a translator should be well educated in the *field of knowledge chosen for translation* (cf. Ashworth, 2003).

Adaptation as a *rhetorical exercise* in translation practice was used in the 14th century by the English poet and author Geoffrey Chaucer who produced the first translations of well-known literary works into English. Chaucer translated the "Roman de la Rose" from French and Boethius's works from Latin. He also adapted works of the Italian humanist Giovanni Boccaccio for his own "Knight's Tale" and "Troilus and Criseyde" (c.1385) in English (Williams, 1965). Chaucer is considered to be the founder of an English poetic tradition based on the adaptation and translation of Latin and Italian literary works, thus representing *classical rhetoric as a driving force* in the English education.

To conclude, *Ciceronian rules of rhetoric along with the translation exercises* were characteristic of scholastic practices in the Middle Ages. In this period of time, many translators *moved beyond the word-for-word translation into the practice of adaptation*. Some of writing instruction methods included "microscopic analysis of texts studied, imitation, paraphrase, and transliteration of what was read" (Lanham, 2001: 86). Students were taught to listen and read with the aim to find useful strategies and techniques, which could later be used in their own texts created following the successful patterns and models.

Teaching Rhetorical Strategies and Devices in Translation

Initiating a major step towards the revival of Greek philosophy in Western Europe, the Byzantine scholar Gemistus Pletho reintroduced Plato's theory during the 1438–1439 Council of Florence. Pletho influenced Cosimo de Medici (the ruler of Florence) to establish a Platonic Academy in Florence. Led by the Italian scholar and translator Marsilio Ficino, the Platonic Academy produced the translations into Latin of all Plato's works, as well as various other Neoplatonist works (cf. Hunt, et al., 2007). Since philosophical ideas were based on the exact words of Plato, Aristotle and other Greek scholars, readers demanded *rigor of rendering* into Latin *rather than adapted variants* produced by translators.

The *main aim of the rhetorical education* in the Renaissance was to teach students in reading and writing. As part of rhetorical training, translation methods were used to develop

students' understanding of their native language. James A. Herrick (2005: 147) states that "more than 2,500 books on rhetoric appeared in Europe" between the 14th and the beginning of the 18th century.

The **16th century** is considered to be the golden age of translation for the history of France and England. Etienne Dolet of France was the first to propose: (1) understanding of the sense and matter of the text to be translated; (2) avoiding word-for-word translation and the use of neologisms; (3) applying rhetorical strategies and devices to make translation sound natural, fluent and appealing (cf. Weissbort and Eysteinsson, 2006).

Along with *rhetorical awareness, rhetoric was applied to any form of teaching*. New translated texts created *new methods of rhetorical education*. Composition took place in Latin and was based on imitation of classical models, patterns and exercises (cf. Bizzell and Herzberg, 2000). Making *use of rhetorical principles*, Roger Ascham (1579) proposed five different imitative methods used for learning:

1. translation;
2. paraphrase;
3. metaphrase, i.e., translation of prose into verse and vice versa;
4. epitome, i.e., the extraction of the main idea;
5. amplification, i.e., active implementation of adaptation.

The methods used for teaching and learning were applied in the translation practice. The use of exploratory methods and an in-depth analysis of the text resulted in a more logical understanding of its content. The process of text analysis and critical reading was also important for the complementary process of composition. Thus, the pedagogical approach mainly focused on teaching rhetorical strategies in translation.

Multiple versions of the Bible and canonical works of classical literature were mainly translated in the 16th century. This period witnessed such key translators as William Tyndale, Sir Thomas Elyot, George Chapman, Joachim Du Bellay, etc. For example, the "Tyndale Bible" (translation named after William Tyndale) became the first mass-produced English translation of the Bible.

German professor of theology Martin Luther, who translated the Bible into German, was the first maintaining that one should translate only into the mother tongue – this statement became

the norm two centuries later (cf. Kelly, 1979). During the same period of time, the Bible was also translated into Dutch, French, Spanish, Italian, English, Polish, Czech and Slovene (cf. Monro, 2017). All these translations contributed to the development of modern European languages, translation and teaching practices.

Faithfulness and Transparency in Translation

The **17th century** was marked by the appearance of influential translation theories. The Spanish novelist Miguel de Cervantes Saaverda, well known for his "Don Quixote" (1605– 1615), stated:

> Translating from one language to another, unless it is from Greek and Latin, the queens of all languages, is like looking at Flemish tapestries from the wrong side, for although the figures are visible, they are covered by threads that obscure them, and cannot be seen with the smoothness and colour of the right side (Cervantes Saaverda, transl. by Montgomery, 2009: 769).

At the same time, the English poet and translator John Dryden distinguished the following translation strategies: *metaphrase, paraphrase* and *imitation* that made a big step forward to the development of translation theories. The scholar challenged the use of metaphrase (word-for-word) and imitation for lacking fluency because they enabled the translator to adapt the source text in order to meet the translator's own literary ambitions, goals and perception; he rather was in favour of paraphrase, which aimed at conveying meanings (cf. Venuti, 2004). In his prescriptive instruction, Dryden attempted to systematise the translation theory and create a model, which was later followed by other scholars.

By the middle of the 17th century, colleges were founded in many European cities mainly due to the efforts of the Jesuits. Students of these institutions were to study the art of elocution both in oratory and in poetry and the instructions for them were based on the triumvirate composed by Aristotle, Cicero, and Quintilian (cf. Corbett and Connors, 1999: 471). With a clear emphasis on style and classical rhetoric, pedagogy of that period was based upon the premise that in order to write well in English, students needed to read and write in the classical languages. "Translation,

imitation of models, reading aloud, copying dictated material and printed texts […] were standard classroom activities" (Murphy, 2001: 216).

James A. Herrick (2005: 147) argues that "rhetoric flourished in the Renaissance as a method of instruction in writing and persuasion, an avenue to personal refinement, a means of managing the intricacies of civic and commercial interest, and a critical tool for studying a variety of literary texts both ancient and contemporary". In British education, rhetoric drew heavily on stylistic modes of inquiry. Translation positioned itself as one of the methods through which the language was taught in the classroom.

The second half of the 17th century was characterised by the appearance of such concepts in translation as "faithfulness" and "transparency". *Faithfulness* is the extent to which a translation accurately renders the meaning of the source text, while *transparency* attempts to ensure easy readability, i.e., translation appears to a target reader as to have originally been written in the target language, and conforms to its grammar, syntax and style.

The late 17th century was also marked by the translation of the Bible into the Latvian language, which was produced by the Lutheran pastor Johann Ernst Glück. The translation published in 1694 (in Riga) was republished many times as well as repeatedly re-edited (cf. Rozenberga, and Sprēde, 2016). The Bible (comprising over 2500 pages) has been the most extensive printed translated work in the Latvian language for several centuries. The orthography and language of the Bible has contributed to the Modern Standard Latvian language (cf. Veisbergs, 2018). Thus, it can be stated that translation was of utmost importance for the development of written Latvian in that period of time.

Assimilation of Texts as the Rhetorical Aim in Translation

Some authors consider that the *main rhetorical aim* of **the 18th century** translators, in France as well as in Britain, was to *assimilate texts to the target culture* (cf. France, 2005). There was still not much concern for accuracy, as the main aim continued to be the easy reading. Any information the translators of that time did not understand in the text was omitted in translation. They also assumed that their own style of expression was the best to be followed in translation.

Thus, the main tendencies in the translated texts of the 18th century were adaptation of the source texts to the readers' needs, omission of the source text fragments due to lack of understanding on the part of a translator or due to cultural differences, as well as adherence to one's individual style of writing.

In education of the 18th century, students were required to memorize grammar books and translate texts from Latin or other modern foreign languages into English. By the middle of the 18th century "Greek and Roman rhetorical devices became an integral part of the theory of translation, devices that classical antiquity had never applied to translation theories" (Friedrich, 1992: 16). The characteristics of any rhetorical discourse coincided with those approached by translators who were trying to produce appropriate translation. The 18th century marked the beginning of *interdisciplinary approaches in rhetoric* merging with other disciplines, such as philosophy and psychology to obtain a thorough understanding of all types of texts.

A Move towards New Standards for Accuracy and Style in Translation

The **19th century** brought new *standards for accuracy and style* in translation. In regard to accuracy, the policy was "the text, the whole text, and nothing but the text", with the addition of extensive explanatory footnotes (cf. Cohen, 1986). Basic principles of traditional rhetoric predominated for more than half a century in college composition classes. The study of grammar, style and translation were used to sharpen the command of students' native and foreign languages.

The 19th century not only initiated a turn in the way people translated, but also brought about foreignising modes of translation. A group of German scholars (Alexander von Humboldt, Goethe, the Schlegel brothers, and Friedrich Daniel Ernst Schleiermacher) made important contributions to the field of translation. The "non-transparent" translation theory was first introduced by the German theologian and philosopher Friedrich Schleiermacher, before becoming one of the fundamental theories two centuries later. In his seminal lecture "On the Different Methods of Translating" (1813), the scholar distinguished between translation methods that move "the writer toward [the reader]", i.e., transparency, and those that move "the reader toward [the author], i.e., fidelity to the foreignness of the source text (in Munday, 2001: 28). Schleiermacher's theory was further developed by notable theoreticians of the 20th century, such as Antoine Berman

and Lawrence Venuti. Venuti (2004) argues that according to Friedrich Schleiermacher, *translation was a creative force*, in which translation strategies served a variety of cultural and social functions, paving the way for the construction of nations, literatures and languages.

The late 19th century also witnessed a shift in the Chinese translation theory that was mainly developed through translations of Buddhist scripture into Chinese and the experience of translating from specific source languages into Chinese. It is worth mentioning a three-facet theory of translation (1898) proposed by the Chinese translator Yan Fu. His theory based on the *main principles of the art of rhetoric* introduced the following requirements for the translated text: "*faithfulness*, i.e., be true to the original in spirit; *expressiveness*, i.e., be accessible to the target reader; and *elegance*, i.e., be in the language the target reader accepts as being educated" (Editorial Board, 1984). The scholar considered expressiveness as the most important because if the meaning of the translated text were not accessible to the reader, there would be no difference between having translated the text and not having translated it at all. According to Yan Fu, good translation is one that is true to the original in spirit, accessible to the target reader in meaning, and attractive to the target reader in style (cf. ibid.). The theory was further developed and improved by his followers.

In the 19th century, another movement opposite to Traditional Rhetoric, named Romantic Rhetoric, arose, which considerably differed from the traditional one. The ideas of Romantic Rhetoric also influenced the translation practices and the theories of translation. Related to composition practices, *Romantic Rhetoric aimed at demonstrating the writer's creativity*, while *Traditional Rhetoric focused mostly on style and form*.

As far as the style was concerned, the aim of translators was to constantly remind readers that they were reading a foreign classic (cf. Cohen, 1986). An exception was the outstanding translation of Persian poems "The Rubaiyat of Omar Khayyám" (1859) by the English writer and poet Edward FitzGerald, for whom good translation was associated with the *re-creation* of a poetic voice; therefore, he was more successful in *recreating rhetorical devices and their effects* (cf. Potter, 1929).

This period also brought about the idea of *aesthetics or the sense of beauty in translation*. It was recognised that the translated text should be aesthetically oriented, bringing the beauty in sense and in meaning. Translators, therefore, strived for elegance in translation through the application of rhetorical strategies and devices, as well as creation of images for vivid description.

The present section has demonstrated the main lines of development in the practice of translation under the influence of rhetoric (see Fig. 1.1). Translation was first discussed from the perspective of word-for-word and sense-for-sense rendering, moving on to the principles of faithfulness and transparency, creativity and re-creation.

○

Word-for-Word Translation

↓

Sense-for-Sense Translation

↓

Adaptation or Imitation

↓

Faithfulness and Transparency

↓

Assimilation of Texts to the Target Culture

↓

Accuracy and Style

↓

Translation as a Creative Force

↓

Translation as Re-creation

↓

Aesthetics of Translation
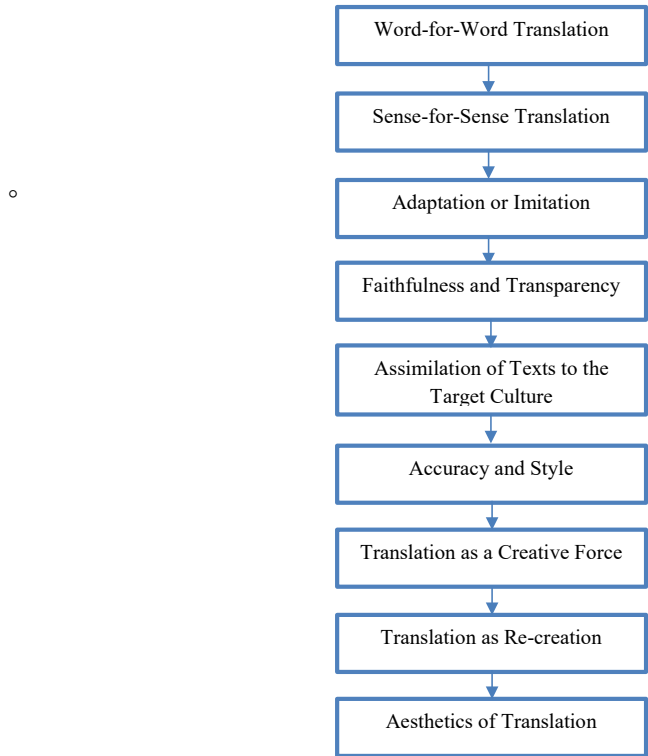
Fig. 1.1. The main principles of translation practice under the influence of rhetoric. (Developed by the author)

As Translation Studies moved towards the present state, its relation to various domains of science produced new concepts, theories, approaches and methods.

1.2. Philosophical Rhetoric in Translation Practice: Hermeneutics

The Autonomy of Translation

During the period **from the 1900s to 1930s**, the main trends in translation theory emerged from the German literary and philosophical traditions, including hermeneutics. It was considered that language was not communicative, but constitutive in its representations of thought and reality. To take a constitutive view of communication means to presume that communication, or interaction, is a process of meaning creation or social construction (cf. Littlejohn & Floss, 2009). These ideas were reformulated from the perspective of modernist movement, which manifested in the "autonomy" of translation, i.e., derivative but independent as a work of signification. The philosopher Walter Benjamin (2000 [1923]: 16) stated that translation should exist separately but in conjunction with the original, coming after it, and giving it the 'continued life'. The approach of Benjamin had some similarities with that of Schleiermacher, Goethe and Humboldt, as he preferred a translation strategy that emphasised the foreign origin of the target text. He considered that foreignising or archaizing translations not only allowed delivering the original context and environment to the target reader, but also reflected a "higher way" of translation. The idea of autonomy of translation was also supported by the American poet and critic Ezra Pound. He distinguished two forms of translation of literary works. A translated text might be interpretive and composed of linguistic features that direct the reader to foreign textual features, or a translation can be original writing, in which the TT literary standards are an incentive for rewriting the ST poem so as to seem a new poem (cf. Pound, 1934: 55). Under the concept of autonomy, translation started to develop its own norms and rules.

The Concept of Translatability

From **the 1940s to 1950s**, *translatability* was the concept that dominated the scholars' minds. Ideas were generated by disciplinary trends and "ranged from the extremes of philosophical scepticism to practical optimism" (cf. Venuti, 2004). For example, Willard Quine viewed translation from a pragmatic perspective, in which meaning was considered conventional, socially

circumscribed and the source text should be produced in the target culture following the terms and values inherent in the target language (cf. Brower, 1955).

Practical optimism with regard to translatability was manifested in the works of different linguists. Their research focused on the analysis of certain translation difficulties and the use of appropriate translation methods for solving them. *Practical optimism* was rooted in the theory of language that is communicative of meaning, rather than constitutive of it (cf. Venuti, 2004). Producing the translation of the Bible, linguist Eugene Albert Nida (1945: 197) came to a conclusion that solutions to translation difficulties should be ethnological, dependent on the translator's awareness of sufficient "cultural information". To overcome linguistic and cultural differences, the translator should use a paraphrase, thus making concepts understandable in the target language.

In the paper "Towards a Theory of Translating" (1953), the English educator, literary critic and rhetorician Ivor Armstrong Richards viewed the solution to translation difficulties through identifying the common purpose of translated texts, which could also provide the methodology for translation. His primary belief was that translators could communicate meaning of the source text if they determined the purpose of translation. The scholar (ibid.: 252–253) maintained that the translator should not only know that a sign (1) indicates something, but that it also (2) characterises, (3) realises, (4) values, (5) influences, (6) connects, and (7) purposes (attempts to persuade) (see Fig. 1.2).
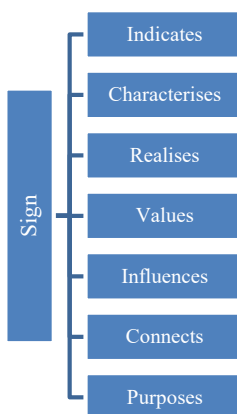
Fig. 1.2. The attributes of sign to consider in the process of translation based on Richards' theory (1953). (Developed by the author)

For Richards, meaning was a broad concept, involving implicit and explicit aspects (cf. Gentzler, 1993). His postulates on the translation activity served as guiding principles for translators who at that time considered that their task was to convey meaning, which could be accomplished in case they understood the actual meaning of the text. These principles and methods used to perceive and transfer implicit meanings of the words are of utmost importance in teaching language through translation.

Linguists Jean-Paul Vinay and Jean Darbelnet (1958), in turn, also attempted to provide practical solutions to translation challenges on the basis of the comparison of the English and French translations. The scholars rejected individual words as units of translation by stating that translators should convey ideas and feelings rather than individual lexemes. Their approach to the issue of (un)translatability was based on two procedures: direct and oblique translation. By direct translation, they implied the possibility of replacing the source language elements by the target language elements. Direct translation procedure takes places through borrowing, calque and literal translation. An oblique translation, in which the translator interprets the message of the source text, embraces transposition, modulation, equivalence, and adaptation (see Fig. 1.3).

```
Direct                      Obligue
Translation                 Translation

Borrowing                   Transposition

Calque                      Modulation

Literal                     Equivalence
translation
                            Adaptation
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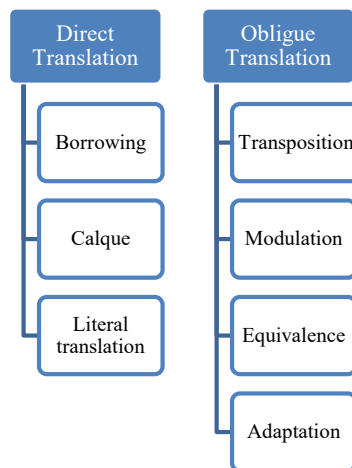
Fig. 1.3. Translation procedures applied at the micro and macro level (Vinay and Darbelnet, 1958). (Developed by the author)

It should be noted that these procedures can be applied to different degrees at three levels of expression: the lexis; the grammatical structures; and the message, which stands for higher

elements of text, even including certain situational utterances that convey broader meanings (cf. Baker, 2001). Although the classification introduced by Vinay and Darbelnet (1958) has been criticised for being just a comparison between English and French at the word/phrase/sentence level, still their research can be considered as an impetus towards later categorisation systems of translation techniques, methods and strategies.

The issue of translatability was also addressed in the works by highly influential scholar Roman Jakobson, who contributed to many disciplines, including linguistics, semiotics, translation studies, anthropology and psychoanalysis. The scholar viewed meaning as a relation to an endless chain of signs, and through a semiotic prism on translatability. The author (1959: 232) distinguished three types of translation: (1) intralingual (within one language, i.e., rewording or paraphrase); (2) interlingual (between two languages); and (3) intersemiotic (between sign systems). His theory (ibid.: 233) refers to translation as the "process of recoding involving two equivalent messages in two different codes". The scholar also introduced the concept "mutual translatability" as a state of comparison of any two languages towards the ability of being translated into one another. Jakobson (ibid.: 235) argued that all cognitive experiences could be expressed in the translated text. Exploring the issue of translatability with regard to literary works, in particular poems, he came to a conclusion that a translated poem actually turned out to be a new poem. The ideas proposed by Jakobson influenced further research in translation.

From Theories of (Un)Translatability to the Hermeneutic Approach

In the **1960s to 1970s,** the research in translation studies revolved around the concept of equivalence. Equivalence in translation was viewed as the process of conveying the message of the source text into the target language through the creation of identity relations with the source text. At that time, the concept of equivalence was treated as the all-inclusive approach to translation as being based on the universals of language and culture. The ways of achieving equivalence in translation were examined by many scholars, for example, Eugene Nida, John C. Catford, Otto Kade, and Werner Koller and others.

Already in the 1970s, translation was also viewed from historical, social and cultural perspectives. In 1975, George Steiner's work "After Babel: Aspects of Language and Translation"

incorporated studies in history and hermeneutics expressing new ideas on a general theory of translation from the standpoint of a philosophical approach. The scholar adopted the hermeneutic approach to translation for it allowed analysing "this process in terms of a general model of meaning" (Steiner, 1975: 249). His views resulted in the four-part "hermeneutic motion" model, in which he described the process of translation as an activity. The four motions proposed by Steiner include (1) *trust*, (2) *aggression*, (3) *incorporation*, and (4) *restitution*. In translation represented as the four-motion process, *trust* implies that the translator is confident that there is something valuable in the source text for the target readers. *Aggression* means the extraction of material from the source language, which is followed by *incorporation*, i.e., the assimilation of the source text into the target culture. Finally, *restitution* aims at achieving faithful translation, thus enhancing the status of the source text. Steiner's research proposed a new perception of translation, recognising its increasing interdisciplinary nature, which was further explored during the subsequent decade.

For Gadamer (1989), the hermeneutic translator should reconstruct the meaning hidden in a text, like collecting and piecing together pieces of a puzzle already lying around. The hermeneutic (or subjective) approach is based on the assumption that a unique reading of a text is possible as readers bring to it their own personal background knowledge, their beliefs and their attitudes. The role of the reader is considered highly important in this method. The foregrounding of the reader is the result of the emergence of an intellectual climate, especially in France with R. Barthes who has highlighted the importance of semiotics in literature and other domains. Thus, the role of the reader has been redefined; a reader is not so much someone who consumes a given text but rather a co-producer of that text (cf. Bassnett, 1980).

In the 20th century, students were taught to reconstruct the meaning hidden in a text. Any of the approaches chosen to translation were appropriate if they reached the aim of communication. The relationship of translation studies with philosophical theories was recognised significant, since the findings could be used in translator training in form of recommendations for solving translation difficulties.

1.3. Functionalist and Cultural Developments in Translation

The issue of equivalence being a landmark of the previous period was gradually losing its importance in translation studies. The scholars started to treat translation as an independent form of writing, distinct from the source text (Venuti, 2004: 221). With the application of the interdisciplinary framework to the study of translation process, the period of the 1980s saw the emergence of the functionalist and cultural developments. The cultural approach or the so-called "cultural turn" incorporated socio-cultural conventions, history, context and cultural studies. Susan Bassnett's (1980) research emphasised the status of translation studies as a separate field overlapping with linguistics, literary criticism and philosophy. According to Bassnett (ibid.: 15), the translator who transposes the source text into another culture has to consider carefully the ideological implications of that transposition.

The autonomy of translation as functional was viewed in terms of the social factors involved in the translator's activity. Justa Holz-Mäntärri (1984: 43) used the term "translational action" instead of translation to reflect on various forms of cross-cultural communication, such as *translating, paraphrasing, adapting, editing* and *consulting*. The scholar proposed identifying and analysing the roles of the participants involved in translation, as well as the situational contexts, in which translational activities take place. Her translational action theory emphasised the special function of translation in communicating across cultures. According to the *functionalist theory*, the translation is produced to serve a particular purpose, depending on the target readers' needs and expectations. The aspect of functionality is best represented in Hans Vermeer's work (1978), which was developed in the 1980s in collaboration with Katharina Reiss (Reiss and Vermeer, 1984, 2014). For the scholars, translation was a type of human action taking place in a given situation, and as any action it should have an aim, which could be defined by the word "skopos". Thus, the Skopos Theory focuses on the purpose of translation, which determines the translation strategies that should be used in order to produce a functionally adequate target text. To the proponents of functionalism, the translation is appropriate if it fits the needs of the audience and the purpose. As a result, there is no single correct translation as the target text may serve several purposes depending on the needs and expectations of target readers. The Skopos Theory can provide a solution regarding the type of equivalence to be achieved in translation, since any of the approaches chosen to translation are appropriate if they reach the aim of communication.

Applying the functionalist theory to the practice of translation, the British translation theorist Peter Newmark contributed to the field with textbooks "Approaches to Translation" (1981) and "A Textbook of Translation" (1988). Studying the relation between language functions and translation, he proposed basic principles to be followed in order to solve difficulties encountered in the translation process. With regard to translation as an important means of communication across cultures, Newmark (1981) replaced Nida's formal and dynamic equivalence with semantic and communicative translation, respectively. The main difference between the two types of translation is that semantic translation places an emphasis on meaning, while communicative translation concentrates on the effect (as the main aim is to meet the target readers' expectations). However, it should be noted that communicative translation is preferable in order to avoid producing an abnormal or semantically inaccurate result (ibid.). The functionalist theory demonstrates that the translator should first determine the function of a text and then choose appropriate translation procedures to be applied to the text as a whole or its particular sections.

In the 1980s, the Latvian linguists devoted their attention to linguistic issues of translation process, such as phraseology and translation, national and international elements in translation, enrichment of the target language by means of the translation process (cf. Sīlis, 2016: 129). In 1984, Jānis Sīlis and Tamara Zālīte published the textbook "Basic Problems of Translation Theory" intended for the Latvian State University students. The issues addressed by the Latvian scholars concerned the role of translation in world culture, translation genres, translation of vocabulary, phraseology and grammar. The translation of phraseological units as phenomena of culture was examined by Andrejs Veisbergs in 1987. "Theory of Translation. A Detailed Programme and Literature List" published by Ieva Zauberga in 1988 discussed the main concepts of translation focusing on the works of Eastern translation scholars.

The studies reviewed have demonstrated that the period of the 1980s was characterised by the two most important changes introduced in the theory of translation: the functionalist approaches such as skopos theory and the cultural approach emphasising the interdisciplinary nature of translation studies. From the discussion above, it can be concluded that cultural studies extended the translation research and provided a new perspective on the field.

1.4. Linguistics and Translation

Translation studies established itself more firmly as an independent discipline in the 1990s owing to an extensive scholarly research into translation-related issues and the increasing global tendency of establishment of translation schools. This period brought about new theories and concepts such as relevance theory, descriptive translation studies, gender research, foreignisation, post-colonial translation theory, etc. Apart from new insights and ideas, advances in linguistics (pragmatics, critical discourse analysis and corpus linguistics), as well as literary and cultural studies, the translation research also experienced the development of theories and methodologies (such as skopos and polysystem) introduced in the previous decade.

Although linguistic elements were excluded from translation studies in the 1970s, the period of the 1990s marked the revival of adopting theories developed within different branches of linguistics to translation research. The relationship of translation studies with linguistics was recognised as especially significant, since the findings of linguistics could be used in translator training in form of recommendations for solving translation difficulties. For example, linguistics-oriented theorists such as Basil Hatim and Ian Mason (1990), Mona Baker (1992), Albrecht Neubert and Gregory M. Shreve (1992) focused on text linguistics, discourse analysis and pragmatics to conceptualize translation based on the model of Paul Grice' cooperative principle (1975). Considering the potential for generating and retrieving meanings other than those that are stated explicitly, the four conversational maxims were proposed: "quantity" of information, "quality" or truthfulness, "relevance" or consistency of context and "manner" or clarity (ibid.: 181). Applying Grice's ideas, translation was seen as the process of communication of the source text by cooperating with the target reader according to these four maxims. Hence, the process of translation involved the semantic and pragmatic reconstruction of the source text through a top-down approach: from a text to the level of a paragraph, a sentence and, finally, a word. Concerning the level of words, the scholars assumed that they should be of interest to the translator in so far as they are constituents of the text, since only texts can be translated, but not words.

Considering the nature of communication, Dan Sperber and Deirdre Wilson (1986) have formulated the principle of relevance that focuses on contextual effect and processing effort. They argue that interpreting the text, attention should be paid only to information that seems relevant for a particular receiver in a particular situation. Establishing a conceptual model for

communication, "the author takes into account the context of the communication, and the mutual cognitive environment between the author and the reader" (Zhonggang, 2006: 44). In case of mutual cognitive environment, some implications may be conveyed by the author of the text relying on the reader, who must fill in the details that are not explicitly communicated. The relevance theory by Sperber and Wilson was integrated by Ernst-August Gutt (1991, 2005) into translation studies, creating a theoretical framework for a relevance-based translation approach. Vermeer (1996: 65) attributed the relevance theory to the functionalist framework, stating that it was best seen as "a subtheory of Skopos Theory". Within this approach developed through the interaction of cognitive linguistics and pragmatics, the concept of equivalence-based relations between the source and the target texts was rejected, and this relationship was considered to be based on "interpretative resemblance" between the two. The inferential nature of translation implies that translators have to use their inferential abilities to make context-based assumptions and ensure the optimal relevance in translation, thus achieving interpretive resemblance between the source and target texts. According to the relevance theory, the translator should convey as much information as needed in any given context for communication to minimize the processing effort on the side of target readers. Thus, the main premise in the relevance theory is maximum understanding with minimal processing effort. Gutt's research has provided a new perspective on the translator's task, encouraging a more target-oriented approach to translation. Modern researchers approach the philosophy of communication process from the perspectives of logic and epistemology, computer science and digital humanities.

Meanwhile scholars focused on the process of producing translations, the Israeli professor of Poetics, Comparative Literature and Translation Studies Gideon Toury (1991; 1995) worked on the description of translations. He examined translation studies from the perspective of systematic descriptive analysis. According to Toury, there are prescriptive and descriptive studies. While prescriptive approaches strive to formulate rules that should be followed in order to produce a target text, descriptive approaches study the existing texts and describe the rules according to which they are created. Like proponents of the functionalist theory, Toury adopted a target-oriented approach to translation being created in the literary "polysystem" of the culture. As the scholar associated the understanding of translation with the awareness of cultural aspects, he employed the polysystem concept introduced by the culture researcher Itamar Even-Zohar (1979) as a way to explain the complexity of culture within a community and to analyse relations in literature and language.

Within the descriptive approach to translation, Toury (1995) also introduced the term "translation norms" to be used instead of rules that could be regarded of a prescriptive nature. He (ibid.) subdivided the norms according to particular stages of the translation process into (1) initial norms (referring to a decision whether to adhere to source or target culture); (2) preliminary norms (i.e., the choice of an overall approach to translation); and (3) operational norms (concerning decision-making during the translation process). According to Toury (1995), norms change with time and with regard to culture; therefore, translation re-addresses the same problems/challenges from generation to generation.

These Western tendencies in translation were also adopted in the Latvian scholarly research. Zauberga's publication "Translation as Part of Cultural Polysystem" (1993) reflected on the issue of polysystem and characterised the Latvian literary polysystem. Further, the issue of norms in translation was addressed by other scholars (e.g. Hermans 1996, 2013; Schäffner, 1998; Chesterman, 1997, 2001). According to Hermans (1996), norms have a normative semantic load and they are used to guide, control or change the translator's behaviour. For example, Chesterman (1997) views norms as a product established by target readers' expectations and as a process governing the process of translation. His ideas of norms became the basis for the research on translator's code of ethics. Schäffner (1998) recognised the role of norms in relation to linguistic approaches to translation, stating that norms regulate the way texts should be produced following the respective rules of the target language. Thus, such issues as decision-making, translation norms and the impact of translated texts on the target culture were primarily studied within the descriptive approach to translation.

Zohar and Toury's concept of literary system was adopted in the research by the translation theoretician Andre Lefevere, who considered translation to be "refraction" or "rewriting". The scholar (1992: 12) viewed translation as an act carried out under the influence of particular categories and norms constituent to systems in a society, i.e., any text created on the basis of another has the intention of adapting that other text to a certain ideology. Lefevere (1992) investigated concrete factors responsible for the reception, acceptance or rejection of literary texts, such as power, ideology, institution and manipulation. In his studies, the scholar acknowledged that the culture was the driving force of translation.

Combining the linguistic and the communicative approach to translation studies, Mona Baker (1992) provided new insights into the issue of equivalence. By defining conditions upon

which equivalence can be established, the scholar put forward five types of equivalence: equivalence at the word level and above it; grammatical equivalence (related to the diversity of grammatical categories across languages); textual equivalence (achieved in terms of information and cohesion); pragmatic equivalence (focus on implicatures during the translation process). By combining translation theory and practice, Baker provided fruitful ideas for the study of this issue.

In the mid-1990s, corpus linguistics introduced analytical tools to translation studies. Mona Baker was the first scholar applying corpus to explain the features of language used in translation. According to Baker (1998), corpora applicable to translation research include parallel corpora, comparable corpora and multilingual corpora. Parallel corpora can be used to investigate the patterns of language use characteristic of particular target texts, and reveal the choice of translation methods and strategies used by the translator in a specific situation. Baker (1999) examined translators' behaviour by studying parallel corpora with an aim to evaluate the distance between the language of translation (or the third code) and the language of native speaker texts. Multilingual corpora, in turn, are used to study the typical means employed by two or more languages to express similar meanings, while comparable corpora can help scholars explore the nature of translation. The key benefit of corpus studies is the opportunity of testing assumptions and hypotheses in an empirical way. The corpus-based approach to translation studies was further examined by such scholars as Gideon Toury, Kirsten Malmkjaer, Miriam Shlesinger, Sara Laviosa and others. Since then, much effort has been undertaken to create corpora as well as develop corpus tools in order to study translation and to demonstrate how appropriate corpora can help translators find the relevant information for a particular translation task.

The attention of translation scholars was also attracted by social, psychological and political factors. In the period of the 1990s, culturally-oriented studies reflected on regularities and universals, emphasising the social and historical differences of translation. This approach emerged from the influence of post-structuralism, which focused on the rejection of systems and hierarchies hindered by the realistic illusion of transparent language. Recognising the importance of culture in translation, Susan Bassnet and Andre Lefevere co-published "Translation, History and Culture" (1990), which emphasised that translation was the whole language and culture. Contrary to the traditional approaches that focused on conveying the message or function of the source text, the cultural approach aimed at examining translation from the global cultural environment, taking into account cultural contexts, historical and social aspects, as well as culture norms and values.

Cultural studies also brought to translation an understanding of the complexities of gender and culture. The feminist theorists (e.g., Arrojo, 1994; Simon, 1996) saw a parallel between the status of the translation, which was often considered to be derivative of the source text, and that of women, so often repressed in society and literature. The research conducted regarding gender in translation mainly addressed the issue of the translators' gender identity and its impact on their translations. Thus, originated from the polysystem theory, the cultural approach further developed into feminist and post-colonialism approach that followed the ideas of the functionalism theory.

The issues related to ideology and power systems in translation were addressed from the perspective of post-colonial studies. The key areas of investigation in the post-colonial translation theory included the practice of translation in former colonial cultures and the role of translation in the process of colonization. In 1993, Gayatri Chakravorty Spivak was the one who introduced post-colonialism, also constituting feminist issues. The main concept used by Spivak (1993: 399–400) is "translatese" as a "species of neo-colonialist construction of the non-western scene" since the dominant but the characterless English … erases the speech patterns and differences of the huge range of 'third-world' feminist voices". As a result, post-colonialism can be seen as a broad cultural approach to the study of power relations in communities, where the issue of re-translation is particularly emphasised.

Within the post-colonial translation theory, the American translation theorist Lawrence Venuti argued that target cultures would be better served with foreignising translations in contrast to the target-oriented approach to translation. These insights were published in two textbooks "The Translator's Invisibility: A History of Translation" (1995) and "The Scandals of Translation: Towards an Ethics of Difference" (1998). Venuti (1995) discussed translator's invisibility along with domestication and foreignisation. Like other scholars before him, Venuti treated foreignisation as a deliberate translation strategy of breaking the target culture rules and retaining the sense of "otherness" of a source text. The scholar argued against domestication as this strategy aimed not only at minimising the strangeness of the source text, but also disregarded ethical issues concerning the exclusion of the foreignness from the translation. Venuti's views were rather radical as he considered foreignisation the only acceptable strategy of translation, which was contrary to the theory of functionalists, who recognised the use of foreignising translation only in cases required for the purpose of the target culture. However, the scholar (ibid.: 29) recognised some limitations of foreignisation strategy, stating that a translation should involve some

domestication since being intended for the target culture it should depend on the target culture values to become visible when it departed from them.

After regaining independence in 1991, the influence of the Western translation theories led to new directions in the Latvian translation scholarship (see Fig. 1.4). Within the cultural approach adopted to translation, the scholars studied such issues as the interaction of meaning and cultural transorientation (Zauberga, 1995); different allusion transfer strategies in Latvian translations of the 1990s (Krasovska, 1996); misinterpretation of culture aspects in either source language or target language through the study of language of TV advertisements in Latvia (Ločmele, 1997; 1999); challenges related to recontextualisation of national realia of the source text and culture-specific items in the target text (Sīlis, 1998).
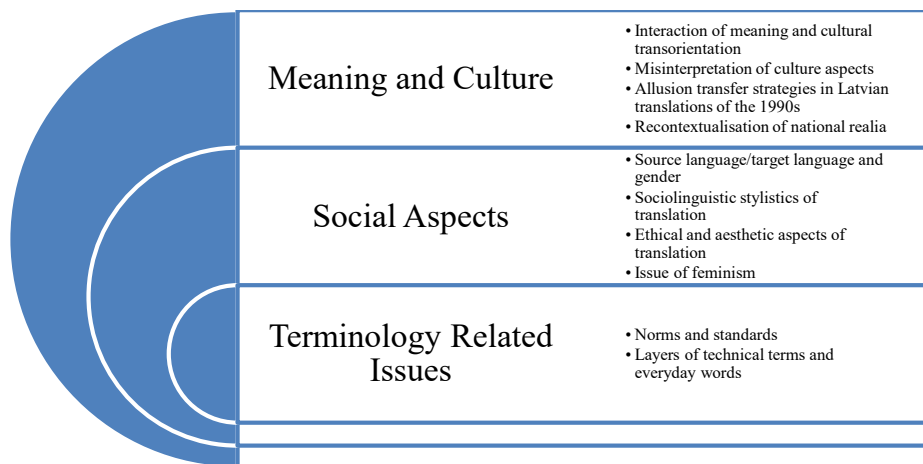
Fig. 1.4. New areas of research in the Latvian translation scholarship in the 1990s. (Developed by the author)

There was also an attempt to contribute to the development of the translation theory (Zauberga, 1994a), establishing a link with the practice of translation (Zauberga, 1996). The issue of feminism was also touched upon in the Latvian translation research (Zauberga, 1998). Aiga Kramiņa (1999) investigated ethical and aesthetic aspects of translation, which not always were considered in translator training in Latvia.

The influence of stylistic factors on interrelation between language levels in the process of translation was examined by Maija Baltiņa (1999). The norms and standards of the target language were studied by many Latvian scholars (e.g., Zauberga, 1994b, 1996; Broka, 1998; Veisbergs, 1998). Terminology-related issues in translation, such as the layers of technical terms and everyday words were analysed by Ikere (1999). From the sociolinguistic perspective, the scholars discussed translation difficulties arising in certain pairs of sociolinguistic correlations, for example, source language/target language and gender, sociolinguistic stylistics of translation, interface between translation and social aspects of language studies (Sīlis, 1998; Ločmele, 1999).

Following new insights and ideas, advances in linguistics (pragmatics, critical discourse analysis and corpus linguistics), as well as literary and cultural studies, the translation research also experienced the development of theories and methodologies (such as skopos and polysystem) introduced in the previous decade. Throughout its history, translation studies has proven itself to be an open and flexible discipline accepting new approaches and integrating them into its framework. These impacts have determined the future of the field, which at present is treated as an academic discipline incorporating many fields of study, such as philosophy, psychology, linguistics, literary and communication studies, computer science and other.

1.5. Technological Turn as the Current Paradigm of Translation Studies

The 21st century, known as the knowledge, information or digital age, brought about sociology, ideology, globalisation, as well as information and communication technologies as relevant components of translation studies. Following the trends of the time, the discipline is undergoing further developments, but still focusing on concepts of the previous periods.

With the growing spread of new technologies throughout the modern world, translation scholars have started to devote their attention to the integration of technologies into professional translation activity. The "technological turn" being the result of changes in the way translation is carried out in the contemporary world (Cronin, 2010) has led to the translation research into automatic or machine translation (MT), terminology management, computer-assisted translation (CAT), localisation, quality assurance, crowd-sourcing, pre-editing and post-editing.

Machine translation as one of the research priorities in the translation field has also changed the translator's role and working mode. Karl-Heinz Freigang (2001) investigated the origin of machine translation, dating back to the 17th century associated with the invention of a mathematical meta-language. However, the first translation machines appeared only in the 20th century as machine translation turned out to be a much more difficult task than expected, since it was not solely one-to-one correspondence between signs, but the analysis of the grammatical and semantic meaning of the language. From 1946, when the idea of using computers for translation of natural languages had been proposed, various approaches to machine translation were suggested, for example: rule-based, transfer-based, interlingual, dictionary-based, example-based, statistical. Recently, neural machine translation has been introduced under a category of corpus-based machine translation. Its main principle is to keep track of pairs of source and target language translation in the memory or also database. It is similar to the principle of statistical machine translation; however, it includes artificial intelligence as well. Neural machine translation is the most developed today, as it involves the use of very sophisticated machines, which are able to analyse a large volume of data and store this information in the databases.

Machine translation also addresses the issue of quality assurance, which initially was attempted to be resolved through provision of consistency in terminology enabled by termbases and concordance search. The difficulties experienced by MT software may be classified as qualification, relevance and integration (Cassimatis, et al., 2010). The qualification issue is

considered the main difficulty in formalizing common sense knowledge in general and in formalizing knowledge about an action in particular (cf. Elkan, 1995). This type of difficulty is due to the fact that it is impossible to identify all fit-for-purpose circumstances in all scenarios. Relevance problem deals with the determination of the useful information in the knowledge base in order to solve a particular problem. Integration issues as the name suggest focuses on the idea of integrating new knowledge into the previously existing knowledge. Various studies prove that quality of translations produced by MT tools depends on language combinations and types of text. However, the morphological richness of languages and the differences in syntax also greatly influence the MT quality. At present, there are also tools that allow for domain-specific customization, thus improving the translation output. They can be used not only for gisting purposes, typographical support, but also may serve as a source of lexical inspiration assisting the translator in choosing the most appropriate lexical units for the translated text, thus minimising routine activities and highlighting the creative part of translator's work. The smart use of machine translation implies that human efforts are focused where they are most needed.

CAT tools, which comprise translation memories, terminology extraction and recognition, alignment, localisation tools, spelling and grammar checkers, auto-suggest dictionaries, termbases, etc., have become the leading technology in the translation industry. They assist the translator in various tasks, such as verification of terminology consistency, source and target text alignment, reuse of previously translated documents, terminology management, proper document formatting, etc. On the basis of the statistical data provided, translators can estimate the translation time required, as well as calculate the fee for translation services. As a recent trend, software developers have also started to integrate MT engine into CAT tools as the post-editing of MT suggestions can improve the translator's productivity.

Translation practice has also been affected by internationalisation introducing such a concept to the translation industry as *localisation*, which required translators to develop new professional and linguistic skills. The business world, for the purpose of tapping the market, demanded translators to localise any product designed or invented, such as software, websites, games, etc. Concerned with the adaptation of the material to the target culture value systems and characterised by a high degree of interactivity, localisation brought about new challenges to translators, creativity being one of them.

Open-access software and its role in the professional activity of translators became the issue for discussion in the second decade of the 21st century. The translation scholars highlighted the advantages of this type of software both for the translation process and translator training. The main benefits acknowledged by the practitioners were the public availability of the source code and interoperability allowing translators to work with different file formats as well as in different programs.

In the past few years, post-editing with a perspective on a better translation quality provided by machine translation has become the focus of research in translation studies. As recognised by the scholars of the field, post-editing can result in the improvement of machine translation techniques, increased availability of data and advanced ways of integrating machine translation systems in computer-aided translation tools. The increasing use of machine translation is common nowadays as it facilitates translators' work in terms of time, productivity and resources.

The end product of machine translation has drawn attention of scholars to the evaluation of machine translation quality, in particular, and the determination of the concept of translation quality, in general. A high-quality translation is most often treated as the one that demonstrates accuracy and fluency in the target language complying with all the specifications negotiated between the commissioner and the translator with regard to the end-user needs. However, as the main aim of machine translation is to produce as much content as possible in as little time as possible, quality may become a variable in translation.

In recent years, digital tools have become an essential part of translator's working environment, demonstrating the necessity to develop digital awareness among translators. The development of these skills to support the goal of producing a high-quality translation should be at the core of translator training and should be integrated into translation curricula (cf. Austermuhl, 2013). As new technologies are increasingly developing and new translation tools are being integrated in the field, the future perspectives of translation studies will focus on the human-computer interaction in order to achieve as effective and reliable results as possible.

In the 21st century, translation theorists continued to collaborate with cultural studies scholars. As stated by Mary Snell-Hornby (2006: 1), the discipline has moved "to a more relative but fruitful position among the plurality of languages and cultures in the globalised world of today with its need for international and intercultural dialogue". Thus, translation is not understood as an intellectual task – it is not possible to "'simply' translate – translations are ethical-political acts"

(Davis 2001: 51) –, but as an ethical problem, as a possibility even for conflict (Baker 2006), since translation makes interaction among cultures possible.

Along with the development of the society and the changing role of knowledge, the concept of translation has also changed relating to an activity that is closely related to existence. When post-structuralism replaced structuralism and post-modernity replaced modernity and when philosophy opened new directions for understanding translation through linguistic and semiotic approaches, as well as cultural studies, the process of translation was studied from a new perspective. It was then realised that the important thing was not "to solve the problems but … problematise the solutions" (Tymoczko 2007: 18). As a consequence, translation theories of the 21st century do not focus on equivalence anymore as the final instance to resort to in order to create a high-quality target text (Cronin 2000, 2003). On the contrary, the activity developed by translators demonstrates an intrinsic connection with the problems that concern today's society, from migrations and national identities to the common issues related to institutional translation and social mediation. According to Andrew Chesterman (2007), a sociological approach in translation studies concerns translation quality and interweaves such notions as causality, translation practice, discourse and habitus, translation norm, brief and strategy.

The 21st century witnessed exponential change in computational processing abilities resulting in an overwhelming progress of machine translation. The development of information and communication technology has greatly affected the field of translation. The translator's working environment is evolving rapidly towards global and virtual teams where technology is in the centre of the translation process. The digital age has provided translators with various ICT tools, including general software such as, for example, MS Office suite, web browsers, online termbases, and specialised software, such as computer-assisted translation (CAT) tools and machine translation (MT) applications. Owing to speed, flexibility, timeliness, and user-friendly interface, CAT and MT tools exert a profound impact on the translator's working modes. Therefore, the application of various ICT tools has become an inevitable part of the translation process. As content will continue growing explosively, placing an emphasis on the growing role of speech and video, it will require new translation applications, as well as the real-time translation delivery mode. The digital era presupposes that translation studies will keep examining advances of new technologies and integrating them into translation.

1.6. Summary

The present section has focused on the development of translation studies as a discipline to demonstrate its broad coverage area. The main concepts, theories and tools used in translation studies will serve as a roadmap for the development of specialised translation teaching framework.

From antiquity to the 21st century, theoretical statements about translation fell into traditionally defined areas of thinking about language and culture, rhetoric, pedagogy and philosophy. Within the practice of rhetoric, translation was considered a tool of language teaching and learning. As part of rhetorical training, translation methods were used to develop students' understanding of their native language. Making *use of rhetorical principles*, five different imitative methods were proposed for learning: (1) translation; (2) paraphrase; (3) metaphrase; (4) epitome, i.e., the extraction of the main idea; (5) amplification, i.e., active implementation of adaptation.

Within rhetorical pedagogy, *requirements* for the translator were proposed: translator should have a thorough *knowledge of both the source and target languages* in order to produce a good translation, as well as a translator should be well educated in the *field of knowledge chosen for translation.* First translation *guidelines* were also formulated: (1) understanding of the sense and matter of the text to be translated; (2) avoiding word-for-word translation and the use of neologisms; (3) applying rhetorical strategies and devices to make translation sound natural, fluent and appealing.

Translation was approached as *a creative force*, in which translation strategies served a variety of cultural and social functions, paving the way for the construction of nations, literatures and languages. It was recognised that the translated text should be aesthetically oriented, bringing *beauty in sense and in meaning*. Translators, therefore, strived for elegance in translation through the application of *rhetorical strategies and devices, as well as creation of images.*

Translation status changed only in the 20th century, when translation studies developed into an independent discipline. Since the 1940s, each decade has generated a new wave of concepts and theories contributing to translation studies, such as autonomy, translatability, equivalence, skopos theory, cultural turn, post-colonial translation theory, relevance theory, corpus translatology, etc. The range of theories applied to the study of translation demonstrates its complex nature and the resulting fragmentation into empirical research, hermeneutic and literary studies, as well as linguistics and cultural studies. As the discipline moved towards the present

state, the level of its sophistication and relation to various domains of science produced new theories, approaches and methods. The "technological turn" has led to the translation research into machine translation, computer-assisted translation, localisation, crowd-sourcing, pre-editing and post-editing.

An *integrated view of translation studies* is presented in Fig. 1.5 that demonstrates how rhetorical traditions, philosophy, cultural studies, linguistics and advances in technology have contributed to the development of translation studies as a discipline.
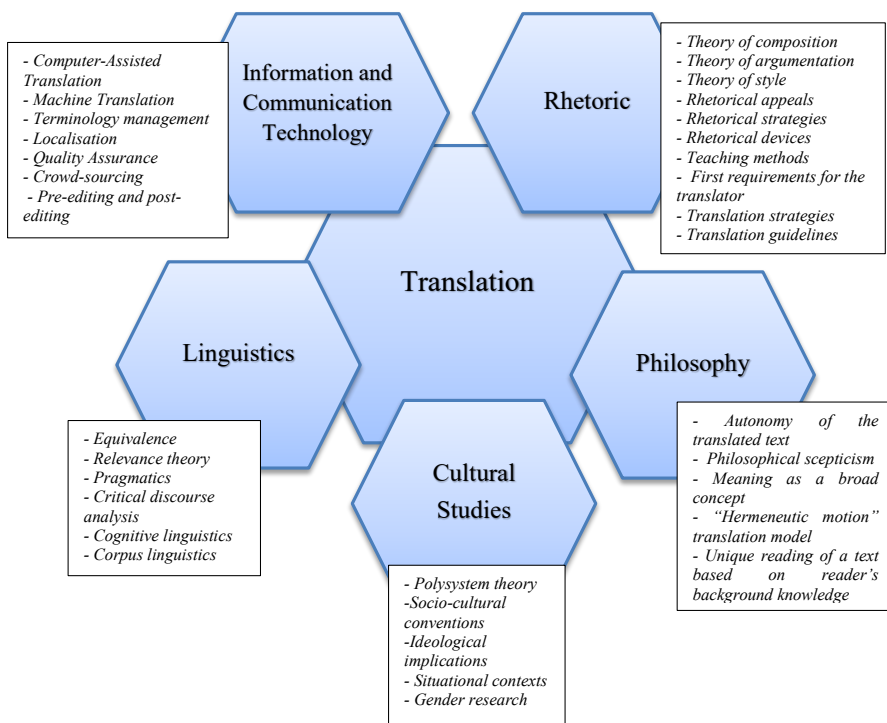
Fig. 1.5. Contributions of other disciplines to the development of translation studies. (Developed by the author based on the literature review)

The *major contribution of translation practice in Latvia* is related to translation of the Bible into the Latvian language in the late 17th century. The Bible (over 2500 pages) has been the most extensive translated work in the Latvian language for several centuries. The language of the Bible

has contributed to the *Modern Standard Latvian language*. Thus, it can be stated that translation was of utmost importance for the development of written Latvian.

The areas of research of the *Latvian translation scholars* have also been diverse. Special attention has been paid to such issues as the interaction of meaning and cultural transorientation; allusion transfer strategies in Latvian translations; challenges related to recontextualisation of national realia. There has also been an attempt to contribute to the development of translation theory, establishing a link with the practice of translation. The issue of feminism has also been addressed in the Latvian translation research. The scholars investigated ethical and aesthetic aspects of translation, which not always were considered in translator training in Latvia. The norms of the target language are also studied by many Latvian scholars. Terminology related issues in translation, such as the layers of technical terms, are frequently analysed. From the sociolinguistic perspective, scholars discuss source/target language and gender, sociolinguistic stylistics of translation, translation and social aspects of language.

Future advances in translation studies suggest paying special attention to the translation environment comprising the internal and external factors influencing the learning process. The task of instructors is to direct the students along a path of *meaningful reasoning, logical argumentation and creative thinking,* as well as support their *desire to study, learn new skills and reach new horizons*. In the translation classroom, it is necessary to develop new perspectives from the application of translation theory and rhetorical pedagogy. The acquisition of digital skills relevant for translators is also compulsory for the digital analysis of source and target texts and the application of computer-assisted and machine translation tools.

Translation studies has evolved into a field that adopts approaches from a variety of disciplines, adjusts them and elaborates new theories and models. After its establishment as a discipline in the late 1980s, translation studies has developed in the following areas: *translation history, translation theory, translation practice, translation research and translation pedagogy*. Owing to its rich history, translation studies is now experiencing the overlapping and crossing of borders, relying on the previous disciplines and moving towards new areas based on technological developments.

2. Translation Pedagogy as Applied in Real Educational Contexts

Translation studies as a new discipline may be defined as an efficient study of the theory and application of translation as well as a method of foreign language teaching. It has initially been interrelated with philosophy, rhetoric, linguistics, literature, pedagogy and cultural studies, thus revealing interdisciplinary aspects of the discipline. However, with the advent of new technologies, in the 21st century it has acquired a transdisciplinary status as its scope of research has been expanded to cognitive science, neurolinguistics, psycholinguistics, information and communication technologies, computational linguistics, and information processing. Therefore, in the current situation and with the future perspective in mind translator training should be implemented taking into account the developing technological trends and increasing skills requirements.

Translation scholars have started to address many new issues raised in translation pedagogy as a result of the world of fast-paced changes and modernisation. One major concern is the process of translation teaching taking into account technological advancements and the changing role of translators. The need for translation theory in teaching was acknowledged by scholars who maintained that applying the translation theory would develop students' translation competence (Holmes, 1988; Bell, 1991; Shäffner and Adab, 2000; Chesterman, 2005; Lederer, 2007), expand the horizons for analysing the social, cultural and historic dimensions of the source text (Snell-Hornby, 1992; Chesterman, 2007), as well as reflect on the mental processes occurring while translating (Kiraly, 1995; Pym, 2001; Tymoczko, 2007).

There is a lot of debate among scholars about the relationship between translation theory and practice since the discipline has been established. For a long time, the focus on the necessary skills and knowledge of translators did not keep pace with theoretical considerations on how to resolve translation challenges at the word, sentence and text levels. According to Hanna Risku (2002), a change in attitude towards translation practice appeared in the 1980s with what the scholar considered the milestones of 'situated translation', including skopos theory (Reiss and Vermeer, 1984) and theory of translational action (Holz-Mäntärri, 1984). Hanna Risku (2002) also mentions that the second generation cognitive science emerged with its emphasis on translation as

situated practice, i.e., practice that is dependent not only on translator's knowledge and skills, but also on the relationship and collaboration of stakeholders involved in the translation process, digital tools and technologies, as well as material, social and cognitive factors that appear during the creation of the target text.

These insights demonstrate that translation pedagogy has become increasingly important in translator training. The chapter offers contextual background to the field of translation teaching. It begins by identifying a pedagogical gap in translation teaching and then presents different approaches to translation teaching. By examining current theoretical research on teaching approaches and practices in a translation classroom, the chapter addresses the second research question: *Which pedagogical principles should be incorporated in the specialised translation teaching process in order to promote the development of students' translation competence?* The subsequent sections will provide an overview of the fundamental contributions to translation teaching.

2.1. Identifying Pedagogical Gap in Translation Teaching

Didactics of translation as a research issue entered the discussion towards the end of the 20th century owing to foundational statements for this new discipline by James S. Holmes. Later, the meta-model of translation proposed by James S. Holmes has been developed by such scientists as Gideon Toury (1995), Basil Hatim (2001), Kirsten Malmkjaer (2005), Sonia Vandepitte (2008).

Recognising the need for translation pedagogy, Holmes (1988 reprinted from the 1972 original paper) proposed an overall framework for Translation Studies, being classified into "pure" (subdivided into "descriptive" and "theoretical" studies) and "applied" areas (the application of translation in other fields and disciplines). Descriptive Translation Studies is categorised into product-oriented, function-oriented and process-oriented, while Theoretical Translation Studies is either "general" or "partial". Partial theories are restricted by medium, area, rank, text type, time, or problem. Holmes emphasised that each area provided, gained insights from the other two areas. Applied Translation Studies is of importance for the present research and covers translator training, translation textbooks and other materials, as well as translation criticism. However, the theory of translation pedagogy still remained under development at that time.

As it was mentioned above, translation, for some centuries, was primarily used as a tool for the second language acquisition. The need for learning objectives in teaching just the art of translation was first acknowledged by Jean Delisle (1980), who proposed formulating learning objectives that could help create a meaningful learning environment, thus engaging students in the learning process. Simon Sui-cheong Chau (1984: 160) recognised the need to arrange the teaching contents according to the "linguistic – cultural – textual" sequence. The scholar argued that it was rational to teach one thing at a time, and in the target text bilingual competence should come before cultural competence, and both before interpretive competence. In terms of goals, objectives, student needs and interests, Carmen Villegas Rogers and Frank W. Medley Jr. (1988) emphasised the use of authentic materials as a means of establishing and promoting meaningful communication. The application of authentic materials helps students develop the skills necessary for participating in real-world events. Later, this opinion was shared by different scholars, who recognised that teaching translation without the use of different genres and authentic materials would be impractical.

Contribution to the theory of translation pedagogy was made by translation practitioners, who intended to establish a link between theory and practice. For example, Roger T. Bell (1991) approached the pedagogical principles from the practical perspective. He attempted to define skills and knowledge constituting translation competence. It should be noted that his standards for translation quality assessment are still relevant.

In translation pedagogy, according to Christiane Nord (1991), it is necessary, first of all, to establish a translation commission in order to determine the function of translation, which is followed by the analysis of the source text. Taking into account functional and cultural preconditions, the translator has to decide which parts of the source text may be maintained and which should be changed. However, the scholar also emphasised that the translator should remain loyal to the author of the source text. With regard to translator training, Nord (ibid.) developed a scale of easy up to difficult texts focusing on translation difficulties caused by the source text structure, pragmatics and cultural differences.

Practical suggestions to teachers were given in the study "Translation Theory: Four Fundamental Aspects" by Rune Ingo in 1992. He distinguished four areas of focus in translation teaching: grammatical structure, linguistic variety, semantics and pragmatics, which might help translation teachers structure their practical classes. This division into form and meaning is

important for the evaluation of the quality of the target text.

In 1993, Anthony Pym's systematic approach to translation teaching aimed at providing a complete and whole picture of the translation process. He advocated the need to take into account students' interests in order to make teaching more effective. Pym stated that translator training should not be rule-bound but rather based on choices in the process of translation. In translation teaching, students should discuss translation errors (the basis for the idea of *reflective thinking* in translation learning was created in his later works (see 2003, 2010)).

The need for translation pedagogy was also addressed by Daniel Gile (1995), who was proponent of the process-oriented approach to teaching, stating that at the early stages of translator training instructors should focus on translation challenges and solutions manifested in translation principles, strategies and methods. He also exemplified declarative and procedural knowledge that should be developed by students.

In "Pathway to Translation – Pedagogy and Process" (1995), the American linguist Donald C. Kiraly specialising in translator training placed an emphasis on situational context linked to cognitive activity. In his opinion, realistic and comprehensive learning objectives cannot be set without a complete understanding of mental processes involved. He viewed a pedagogical gap in translator training due to the lack of clear learning objectives and teaching methods caused by an incomplete understanding of the activities to be undertaken in order to educate and train professional translators.

Translator training was also approached by the Latvian scholars, dealing with syllabus design (Korolyova, 1996), the model of translator and interpreter training (Zaļkalne, 1997), academic writing as a basis for written translation (Farneste, 1999), didactic aspects of translation through the source text analysis and target text assessment (Korolyova, 1999), curriculum development strategies and interpreter training (Sīlis, 1999a, 1999b).

Kiraly's (2000) further proposal for the adoption of an innovative social-constructivist approach in translation classroom helps move from a teacher-centred instruction to a learner-centred teaching. The adoption of a social-constructivist approach is a response to a multi-faceted profession that requires the translator to constantly adapt to the changing environment. Scaffolding as an important part of the social-constructivist approach is viewed by Kiraly (ibid.: 45) as a flexible support service provided by the instructor to the student. The scholar approached translator training through the processes related to understanding, meaning (or meaningful learning) and

knowledge, involving the mind as part of collaborative learning.

Andrew Chesterman (2002) provided useful insights into both curriculum and didactic features. He listed teaching techniques comprising exercises with strategies, exercises on accountability, exercises on the communication norms, exercises on the relation norms and exercises on expectancy norms. However, in his study at that time there was no indication of the requirement for the authentic or collaborative translation classroom. For example, Kirsten Malmkjær (2004) and Martha Tennent (2005) discussed curriculum design, learning objectives, teaching policy and methods, as well as a system of measurements for translation quality assessment. Scholars also emphasised achieving a balance between the academic and professional side of translator training through applying teaching methods that could bring the profession into the classroom.

The application of teaching methods was also considered from the perspective of skills and competences to be obtained. For example, Silvia Bernardini (2004) distinguished between two levels of knowledge acquisition: the *basic level of training* involving the identification and application of translation strategies and procedures, as well as text analysis; and the *proficiency level* comprising project management and group work. She drew attention to *awareness*, *reflectiveness* and *resourcefulness* in translator training environment. In the study on developing translation competence, Rosemary Mackenzie (2004) suggested that translation teaching should incorporate a cooperative model involving translator, terminologist, reviser, proof-reader, etc.

Regarding advances in translation pedagogy, Dorothy Kelly (2005) undertook research into text types, prototypical discourses, content accessibility, student interest and motivation, as well as the feasibility of translation activities chosen. Maria González Davies and Christopher Scott-Tennent (2005) in their research into translation of cultural references through problem-solving emphasised that translator training should take place in student-centred and task-based classes, which can help students gain different experience depending on the translation tasks set.

While in the late 1980s and the early 2000s, product- and process-oriented approaches were adopted to translator training, David Katan (2009) changed the focus towards the translator and his role as a mediator either within a 'context of culture' or within a 'context of meaning'. The author relates cross-cultural competence to being able to mediate between particular countries or cultures. Intercultural competence is "generally associated with the ability to interact meaningfully with people of different cultural backgrounds […] as well as the willingness and ability to mediate

the difference" (Catan, 2009: 1).

Spanish translator and researcher Amparo Hurtado Albir (2015) approached translation teaching through competence-based training, dealing with matters related to the acquisition of translation competence and translation teaching. According to the scholar, competence-based training is based on cognitive constructivist and socio-constructivist learning theories, aimed at making learning more meaningful to students.

Kiraly et al. in their paper "Beyond Teaching: Towards Co-Emergent Praxis in Translator Education" (2018) introduced an abductive frame of reasoning in order to investigate processes taking place in translator training. A dynamic, multi-vortex curricular model for translation education was developed comprising several stages of training activities based on the complexity of tasks and students' autonomy levels. These stages are instruction, scaffolded problem-based teaching, facilitated project work, internship and workplace experience. The model depicts learning as an emergent and lifelong process that takes place within an individual and communities of practice.

Based on the review of the main studies devoted to translator training, it can be stated that translation teaching as a multi-component process is discussed at the following levels:

(1) *the institutional level* dealing with the development of curricula and the qualification of translation instructors;

(2) *the syllabi level* concerned with learning objectives, teaching aids, textbooks, relevant software, as well as teaching methods and models;

(3) *the student level* focusing on student's needs, motivation, and a range of competences to be obtained, as well as on student performance assessment;

(4) *the professional environment level* addressing the issue of creating an authentic learning environment and the cooperation with the industry representatives.

The translation scholar contributions demonstrate that translation pedagogy is evolving. The section has outlined the main insights into translator training from different perspectives, which can help consider the main teaching approaches applied in a translation classroom in more detail.

2.2. Pedagogical Approaches to Translation Teaching

To respond to the global trends and drivers, there is a necessity to re-evaluate and reconstruct the translation training process. The principles combining theory and practice are very important in translator training. Students need support in developing not only translation skills and competences but also attitudes and values that can help them respond to different situations. It is necessary not only to integrate contemporary events into the teaching content, but also to create the learning environment that is aimed at developing such skills and competences as collaboration, critical and creative thinking, integrated problem solving, and responsible decision making. The insight into translator training from different perspectives can reveal the main principles that should be taken into account in a specialised translation classroom.

2.2.1. Product-Oriented Approach to Translation Teaching

The development of translation studies has witnessed a wide range of theories proposed by scholars in an attempt to produce a crystallised multi-level system for treating the widest possible types of texts. Translation, being referred to as a cross-cultural communication and decision-making process, specified the framework for product-oriented teaching approach, which should primarily concern the determination of relevant translation strategies, approaches and methods, thus providing a set of principles, guidelines, rules and norms for translating different types of texts. Moreover, the product-oriented translation approach should also take into account a translation evaluation procedure based on a set of specific criteria. In general, the product-oriented approach to translation teaching focuses on the end product that is examined from different perspectives. The translation product theory is based on the linguistic, hermeneutic and cultural approaches. The representatives of translation product theory are the studies on translatability, equivalence, text typology, skopos theory, descriptive translation theory, relevance theory, post-colonial theory, corpus-based translation research (see Sections 1.2–1.4).

Traditionally, at the academic level, the emphasis has been placed on product-oriented translation, where the quality of translation products is mainly evaluated according to the degree of correspondence between the source and target texts. Product-oriented education is mostly corpus-based, and its main objective is to perform the analysis of the translated text, to arrange the

translation according to the target language norms as well as teach specific characteristics of target texts that are called the universals of translation. It also aims at teaching systematic patterns of language, which are employed by professional translators and are known as translation techniques and procedures (Palumbo, 2009).

In the product-oriented approach, translation focuses on an error analysis that is performed in three steps: identifying errors, explaining their cause and correcting them (pedagogical assistance). First of all, all the mistakes made in the translation are classified into primarily linguistic categories, and then all the mistakes are evaluated by the degree of significance with regard to translation quality. In the product-oriented approach, the target text readers are in the centre of attention.

The starting point of product-oriented theory is the description of individual translations or text-focused translation description. Comparative analysis of various translations of the same text either in a single or in various languages is also the area of research. These individual and comparative descriptions provide the data for investigation of large corpora of translations, focusing on a specific historical period, language, text type, etc.

Within the product-oriented theory, the unit of translation is a crucial concept determining the translation strategy employed. Being addressed as a challenging issue, it is defined as "the target text unit that can be mapped onto a source text unit" (Baker, 2001: 286). According to Peter Newmark (1991: 66–68), the main translation units should be viewed as a hierarchy: text, paragraph, sentence, clause, group, word and morpheme. The scholars have recognised that exactly the type of the text determines the main decisions during the translation process, as different texts focus either on content, form, or appeal. *The text has become the main object for investigation, around which the translation-product theory revolves*.

As the target text is the main focus of the product-oriented teaching approach, it is imperative to examine text types and their characteristic features as the determiner of the translation strategy to be adopted. The notion of a text, in general, and classification of text types, in particular, have been under consideration by various scholars, each proposing a new approach towards their study. Translation practitioners argue that proper identification of text type is the key in producing a successful translation.

The interrelation of different language functions with text types was studied by German linguist Karl Bühler. In 1934, the scholar proposed the theory according to which texts were

influenced by different functions of language. The model formulated by Bühler (1934) defined the following functions of communication: to express the views and opinion of the author, to make the appeal to the reader and to represent the message being conveyed. Thus, the author proposed the three functions of linguistic communication: the expressive function; the representation function; the conative function, i.e., appealing function. It should be noted that Bühler's research influenced Roman Jakobson for his communication model. Roman Jakobson (1960) was more focused on the meaning rather than the effect. According to the scholar, the construction and the interpretation of a text depend on the life-world of the participants. It means that the sociological and psychological aspects should also be included in the communication (e.g., social environment, self-image, personality structure, etc.).

The first scholar who officially suggested that the translation process was affected by the text type was Katharina Reiss. The typology proposed by Reiss was based on Karl Bühler's (1934) model of language functions. According to Reiss (1971/2000), the type of the source text helps define the criteria the translator should follow in order to produce the target text that performs the same function in the target language community. The scholar's typology comprises informative texts (e.g., textbooks), expressive texts (such as literary works), and operative texts (e.g., manuals). Table 2.1 provides more detailed information on each text type with regard to language function, text focus, as well as relevant translation methods.

Table 2.1. Functional Characteristics of Text Types Proposed by Reiss
(Source: Munday, 2001: 74)

Text type	Informative	Expressive	Operative
Language function	Informative (representing objects and facts)	Expressive (expressing sender's attitude)	Appellative (marking an appeal to text receiver)
Language dimension	Logical	Aesthetic	Dialogic
Source text focus	Content	Form	Appellative
Target text should	Transmit referential content	Transmit aesthetic form	Elicit desired response
Translation method	'Plain prose', explicitation as required	'Identifying' method, adopting perspective of the source text author	'Adaptive' equivalent effect

Later, Reiss also distinguished audiomedial texts (such as films, visual and spoken advertisements). However, it should be noted that this text type was considered all-inclusive and later was substituted with a multi-medial type so that texts comprising visual but not acoustic elements were taken into account (cf. Snell-Hornby, 2006: 84). As stated by Andrew Chesterman (1989: 111), "written texts often occur in communicative acts together with 'texts' of other signs, where the texts in the different sign systems have been produced to relate to each other in a constant way."

According to Reiss (1971/ 2000), translators of informative texts should strive to produce the target text that matches the source text in terms of function. In case of expressive texts, the main translator's concern is to preserve aesthetic effect and ideological functions in the target text, while maintaining the semantic content of the original. As the operative text aims at persuading readers, the translator should bear in mind that the equivalence effect is usually achieved at the expense of both form and content.

Katharina Reiss was not the only scholar, who developed a text typology based on Bühler's language functions. In 1981, Peter Newmark proposed his own categorisation, which added three more functions – poetic, phatic and metalinguistic – to those distinguished by Bühler. Taking into account six language functions, Newmark grouped texts into two major categories: frequent text types (i.e., expressive, informative and vocative texts) and less-frequent text types (i.e., aesthetic, phatic and metalanguage texts). Frequent text types have the same characteristics as those proposed by Reiss. Aesthetic text type includes poetry, advertising material designed to please senses through sounds, repetitions, rhyme. (cf. Newmark, 1988: 43). Phatic texts aim at establishing the confidence and the credulity on the side of reader, while metalanguage texts are verbal texts that refer to themselves or identify the language being used.

One of the well-known text typologies was introduced by Egon Werlich (1983: 23), who treated a text as "an extended structure of syntactic units such as words, groups, and clauses and textual units that is marked by both coherence among elements and completion". The scholar distinguished among five ideal text types: descriptive, narrative, explanatory, argumentative and instructive. As the names of text types suggest, Werlich concentrated on the purpose of texts.

Unlike Reiss who emphasised that the text should be based on one predominant function, Newmark (1988) maintained that one text might perform all language functions. Lawrence Venuti (2004: 164) states, "If we accept three text types, the informative, expressive, and operative type,

as the basic forms of written communication (intercultural), it should be taken into account that these types are not only realized in their "pure" form, that is, that they do not always appear in their "fully realized form". A similar opinion is shared by Bodil Helder (2011: 53), who argues, "In most cases, a text is multifunctional, i.e. it contains a number of text functions (mixed functions), but normally it is possible to point out one of the functions as the dominant text function."

Focusing on the interactional and communicative features of the text that serve an overall rhetorical purpose, Basil Hatim and Ian Mason (1990: 154–158) introduced the following three text types: argumentative, expository and instructional texts. The scholars, in turn, maintain that the text may have only one predominant rhetorical purpose, which they call the dominant contextual focus. The dominant focus of argumentative texts is on evaluating concepts and/or beliefs. Expository texts, which can be further divided into descriptive and narrative texts, focus on the presentation of concepts, events and objects. Instructional texts aim at controlling the way people think or act. Instructional texts can be divided into two types: instruction with option and instruction without option, depending on whether the reader can ignore the instruction or must follow it respectively.

Different types of texts call for different ways of translation and, therefore, all texts cannot be assessed according to the same criteria. According to Ieva Zauberga (2001: 16), the approach to translation depends on the text type; therefore, in order to choose the appropriate translation strategy, the purpose of the text should be defined. In some cases, the main purpose of translation is to make the target text close to the source text in terms of information conveyed; however, in other cases it might have the aim of evoking the desired response from the target readers. There have been many scholars and linguists who have endeavoured to elaborate such a text typology that would help translators draw conclusions concerning the principles of translation and translation methods to be employed.

To sum up, the product-oriented approach in translation teaching focuses on the evaluation of the translated text, i.e., the assessment of translation quality that should be based on the analysis of the source text type and function and the correspondence of the target text to the content of the source text and the conventions of the target culture. According to Basil Hatim and Ian Mason (1997), to assess the translation quality it is necessary to take into account communicative context (field, mode and tenor), pragmatic context, semiotic context (text type, genre and discourse),

structure and texture. For Juliane House (1997: 1), to evaluate the translation one needs to address "the heart of any theory of translation", and, in particular, the nature of the relationship between the source and target texts. To deal with this kind of relationship, the linguistic and situational features of the source text should be analysed and, correspondingly, the function of the individual text should be established. In translation teaching, quality assessment should follow the general principles: (1) teaching the difference between overt and covert translations and (2) analysing the source text and then translating the texts as overt or covert versions (ibid.: 167). Thus, when evaluating translation, one should not focus just on linguistic equivalence relationships between the source and target text, but rather assess whether the source text features have been identified and appropriately interpreted to preserve the function of a particular text.

2.2.2. Process-Oriented Approach to Translation Teaching: Psychological and Cognitive Processes of the Translation Activity

After the dominance of linguistic and cultural approaches in the study of translation, the cognitive dimension emerged bringing with it the shift in focus from the translation product to the translation process. Process-oriented approach mostly focuses on the translation process itself. The "black box" of the translator's mind as they create a new text in another language has become the subject of research of translation theorists. Recent publications on translation teaching demonstrate an increasing shift in scholars' focus from the study of translation as a target text end product to the source text analysis and the process of translation, involving the cognitive processing of a translator's mind. This kind of teaching, which is also called "protocol-based", aims at describing the behaviour of translators when dealing with translation challenges during the translation process.

Numerous investigations into the analysis of translation process have been initiated through Think-Aloud Protocols (TAP) borrowed from the field of psychology (e.g. Lörscher, 1986, 1991; Hatim and Mason, 1990; Neubert, 1991; Kiraly 1995). During these experiments, focus group participants are asked to verbalise their thoughts and activities while performing the translation task. Their verbalisations, which are considered valuable data for the investigation of translator's mental processes, are audio and/or video recorded and then transcribed. Information retrieved from TAP experiments includes such specific topics as problem-solving strategies, decision-making

criteria, creative and critical thinking in the translation process. Thus, depending on the issues being examined, TAP experiments can be grouped into studies on translation strategy, translation unit and translation brief. It has been also found out that the participants of TAP experiments need training to be able to explain their decisions and make their thoughts clear and understandable during the translation process (Göpferich and Jääskeläinen, 2009). Findings also indicate that TAP experiments slow down the translation process and even force participants to work with smaller parts of texts that could lead to a less coherent target text.

Paul Kussmaul's approach to translation teaching (1995) was based on the psycho-linguistic models of comprehension and text linguistics. The scholar (1995) recognised two important aspects of translation activity responsible for translator's decision-making: the psychological aspect of translation and the pragmatic aspect. When analysing TAPs, Kussmaul examined errors, thus attempting to identify the mental processes that caused them, relying on psycholinguistic models of comprehension. In the pragmatic dimension, the scholar emphasised three sub-divisions: situational, communicative and cultural. The situational factors relate to the dimension of the language user (geographical origin, social class, age, status, etc.) and to the dimension of language use (medium, mode, social role relationship, etc.). For Kussmaul, the text function is the most important frame of reference. The cultural background of a language user is also essential in the encoding of meaning. Translation instructors should take into account that people belonging to different cultures understand things differently.

According to Kussmaul's process-oriented approach to translator training, translation instructors should focus on the use of pragmatic analysis and the study of text type conventions in the source and target languages, considering the similarities and differences of text types so as to produce relevant target texts. Translation reports or commented translations are of particular importance because they provide information on the process followed when translating a text, difficulties encountered, the resources used, etc. While translations only give information on the product of a student's translation process, translation reports provide an insight into the process itself and the student's skills, readiness to undertake it appropriately. Translation reports serve a dual purpose since they not only enable instructors to gain such an insight but also develop students' awareness of the nature of translation process, thus helping them reflect on their learning process and monitor its progress (cf. Hurtado Albir, 2015: 265).

In an attempt to provide a more holistic view of the translation process, Donald C. Kiraly (1995) examines the social and cognitive aspects as the core of the translation activity. The scholar states that the social aspect is manifested in translator's account for the norms of the target culture and commissioner's requirements, while cognitive aspect refers to the mental processes that involve evaluating, analysing and retrieving information during the comprehension and production stages of the translation process. To construct a model of the translation process for translation teaching, the author resorts to Monique Boekarts's (1981) general model of language comprehension and production, which acknowledges the existence of a subconscious workspace and a conscious processing unit in the mind of the language user and identifies three types of understanding: input-based (bottom-up), schema-based (top-down) and context-based. Taking into account the social and cognitive aspects involved in source text comprehension and target text creation, the scholar also proposes the model of the translation process, which consists of the following components:

- *information sources*, i.e., long-term memory (mental networks) containing knowledge of the physical world, source and target language cultures, social schemata, discourse frames, translation-related schemata (such as translation norms, learned strategies, quality assessment criteria, potential sources of errors when translating), lexico-semantic knowledge, morpho-syntactic frames, source and target language signs;
- *source text input*: morphemes, words, sentences, sentence groups, global textual profile;
- *external sources* comprising an intuitive workspace (where uncontrolled and subconscious processes take place) and a controlled processing centre (where translation difficulties are processed consciously following the failure of the intuitive workspace to perform spontaneous associations).

The developed model depicts the nature of translation, which is mainly the result of "the interaction of intuitive and controlled processes using linguistic and extralinguistic information" (Kiraly, 1995: 100). As a frame of reference for translation teaching, the model addresses the issue of the acquisition of professional translation competence necessary for text comprehension and creation. The scholar determined two main areas for pedagogical intervention: *the relationship between source text input and long-term input*, and the *relationship between uncontrolled and controlled processes*.

As the main principles relevant for a process-oriented approach in translation teaching, Kiraly (1995) emphasised *focusing on translation theory*, *developing a translator's self-concept and raising students' consciousness of their mental processes* (see Fig. 2.1).
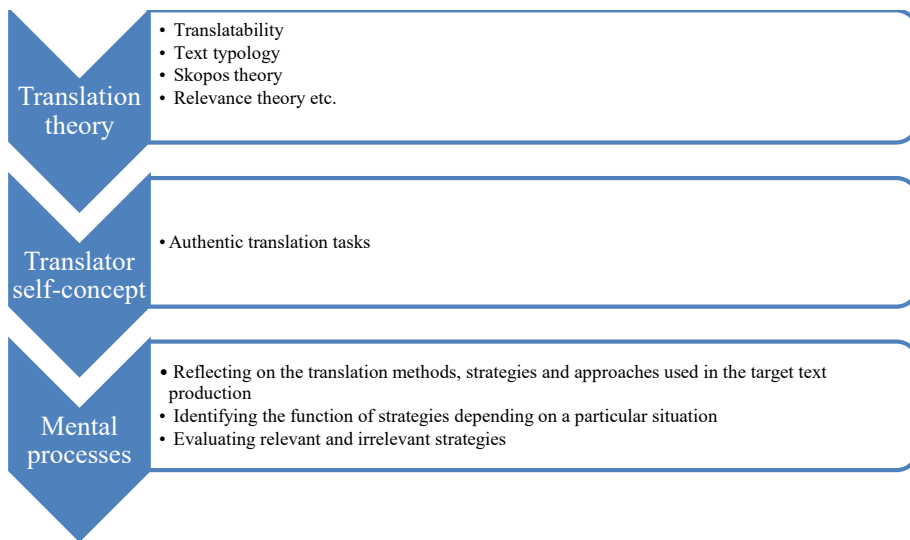
Fig. 2.1. Three pillars of process-oriented approach in translation teaching. (Developed by the author based on Kiraly (1995))

Instructors should cover the issues of *contemporary translation theory*, for example, scenes and frames semantics, text analysis, text typology, cultural context (culture specific problems, cross-cultural differences, culture and the translator), genre in translation, the relationship between translation and linguistics, translation competence, etc. Developing a *translator's self-concept* refers to the awareness of translator's duties and responsibilities. To enable students to acquire a translator self-concept, instructors should give them authentic translation tasks in the classroom. Real-life tasks will enable students to encounter challenges and constraints that professional translators face on a regular basis. Raising students' *consciousness of their mental processes* should involve reflecting on the translation methods, strategies and approaches used in the target text production, identifying the function of strategies depending on a particular situation, evaluating relevant and irrelevant strategies etc.

From the discussion above it follows that the process-oriented approach to translation teaching is based on two perspectives: internal and external. The internal perspective focuses on mental and psychological processes arising in translation, while the external perspective takes into account the social aspects of translation, in which many stakeholders are involved (cf. Palumbo, 2009).

Approaching the translation process as the source text analysis and a new text production, Susanne Göpferich (2009) proposes the following activities in the translation classroom. As the translator needs some time to look through the source text and get the main idea of it, the scholar distinguishes three main stages of translation process teaching: pre-phase, main phase and post-phase. The pre-phase begins with the students reading the text, which is followed by the main phrase or the translation process itself. After completing the whole translation process, the revision or post-phase begins. There can be one or several post-phases depending on the number of revisions aimed at producing a high quality translation.

Thus, the process-oriented teaching approach demonstrates an increasing shift from the study of translation as a newly created text to the source text analysis and the process of translation itself, involving the mental processing that makes complex cognitive behaviour like translation possible. This teaching approach is also based on examining the behaviour of students while resolving translation challenges during the process of translation.

2.2.3. Task-Based Approach to Translation Teaching

The task-based approach was developed within communicative language teaching in the 1990s. The teaching methodology advocates the authenticity of materials and activities, focusing on the students, the process of learning as well as the reflective practice of learning. The idea behind the task-based approach is that students learn more effectively when they are focused on a particular task they have to complete. The approach views the task as a unit on the basis of which the learning process takes place. The focus of task on student independence, authenticity and real-life situations makes it an efficient medium for acquiring and developing professional competences.

Task-based approach implies a range of different tasks. Jane Willis (1996) distinguishes seven stages of task-based teaching, starting from pre-task to practice. *At the pre-task stage*, the instructor introduces the topic and provides the students with clear instructions regarding the task itself. *During the task stage*, the students complete a task in pairs or groups under the guidance or assistance of the instructor. *The planning stage* involves writing a report on the process of completing the task. It is followed by *the reporting stage*, during which the students present their written reports. Then *the language analysis* of their reports is undertaken by the students. As a result of findings from the task and report stages, *the instructor's evaluation stage* takes place, when language areas are determined for the students' *practice*. Furthermore, tasks can be performed in or outside classroom, with or without assistance, individually or in groups. They can differ depending on the competence to be acquired.

In translator training, there are two types of tasks: authentic and simulated translation tasks. An authentic translation task is a genuine assignment from a real client, where the students should create a target text according to the terms and conditions stipulated by the client. Throughout this process, the students face difficulties, choose appropriate strategies to solve them, and thus learn how to communicate with stakeholders involved in order to provide the respective translation product. The possible limitations of authentic tasks include strict deadlines and quality assurance. Therefore, simulated translation tasks may be the best alternative. According to Davies (2004), simulations have the following benefits: increased student motivation, self-directed learning and increased responsibility for one's own learning. Simulated translation tasks do not have a real commissioner. Therefore, they should be introduced to the students with clearly set requirements, stating the purpose and functions of the source and target texts, the possible target readers, the medium of delivery of the text, as well as the terms and conditions for the translation (cf. Munday 2001). The *task should be designed so that to engage students in resolving translation challenges, making relevant decisions, experiencing time pressure as if in the real-world professional environment, which could motivate the students to deal with the translation in a professional rather than in a learning mode* (cf. Malašonoka, 2009). In addition, the task-based approach draws students' attention to both the translation process and the translation product rather than the translation product alone.

Young people today "have to face a world subject to dramatic changes, a world where our know-how doubles every five years, where the very web of social structure is modified

continuously […] and professional abilities are renewed every day" (Blasi, 1999: 28). It is necessary for young people to learn and solve problems independently in order to be able to deal with an infinite number of new situations. All the necessary knowledge and skills are activated and enhanced in the process of fulfilling the authentic or simulated translation activities (see Fig. 2.2).
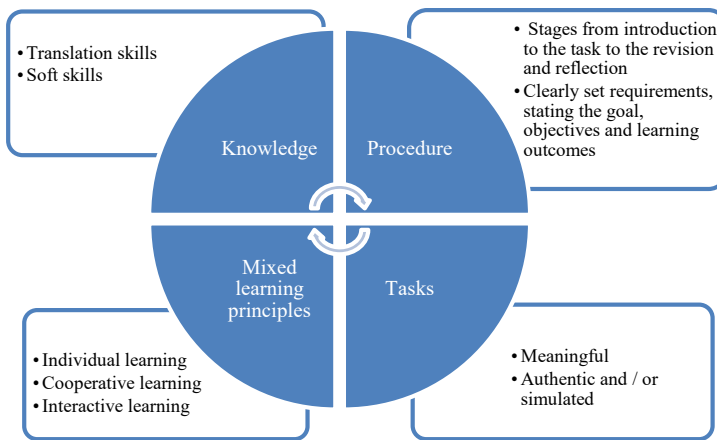
Fig. 2.2. The fundamental elements of task-based approach applied in translation teaching. (Developed by the author based on the literature review)

Task-based teaching approach emphasises learning itself, assigning the responsibility for efficient and successful learning to instructors and students. "The responsibility cannot be taught and learnt in an abstract way, it is necessary to provide students the opportunity within the available resources to learn to take responsibility in practice […], to recognise the meaning of the activities through diverse pedagogical approaches in both: formal and non-formal education, as well as to reveal each student's ability to take responsibility, thus promoting students' own understanding of the necessity to take responsibility" (Jurs et al., 2017: 5765). The shared responsibility for learning achievements implies that instructors guide students towards acquiring and developing competences demanded on the translation market, while students are viewed as active learners who construct their knowledge through participation in learning activities as well as interaction with the instructor, their group mates or even possible commissioners.

Task-based teaching also encourages students to learn from their experience. Some researchers have developed learning cycles (concrete experience, observation and reflection, forming abstract concepts, testing in new situations) where the learners have a learning experience and then reflect on it. Reflection is considered to play an integral role in learning from experience. It enables students to form abstract concepts from their experience in order to guide active experimentation and further learning experiences (Kolb, 1984). In the learning process, reflection takes places through analysing and understanding the activities or tasks accomplished. Gibbs' Reflective Cycle (1988) offers a framework for examining experiences through six stages (see Fig. 2.3).

Fig. 2.3. Six stages of reflective cycle (Gibbs, 1988). (Developed by the author)

According to Moon (1999), reflection performs the following functions:

- it slows down activity: the students have time to *process the material*, linking it to the previous knowledge;
- it gives students a sense of ownership of the acquired material, making it more *personally meaningful*;
- it promotes *metacognition*, the awareness of one's own cognitive processes;
- it encourages students to *challenge their learning*, which results in a greater commitment.

The key benefits of reflective practice include, for example, enhanced learning and resources for learning about practice, increased professional and social support, more effective intervention for individual students or groups of students, given shared purpose, responsibility, and expertise among members of the group (York-Barr et al., 2006: 22). Reflective practice binds the classroom ecosystem together; therefore, instructors should create many opportunities for students to reflect on their learning. Reflective thinking is also central to student self-evaluation, which fosters an attitude of inquiry and promotes self-directedness. Self-assessment also asks students to establish an active relationship with the learning material. This way, students may discover what they have learnt, identify what they still lack, formulate learning needs and more actively direct their process of learning.

The translation task has been recognised as a suitable methodological framework allowing for the integrated development of general and specific competences. To sum up, task-based teaching provides an opportunity for creating a dynamic interactive environment at several levels: between student and instructor, student and peers, student and learning, learning and knowledge, knowledge and action.

2.2.4. Corpus-Based Approach to Translation Teaching

The nature of the language for specialised purposes as well as the relationship between language, mind and culture can be examined through the use of a parallel corpus as a means of teaching various characteristics of the translated text, such as the growing information density; increased degree of intertextuality; multimodality manifested in the relationship of different semiotic systems in the creation of images; blurring of the boundaries between scientific and popular scientific generic forms. Being considered a complex social, cultural, textual and cognitive activity, the translation practice enables students to develop accuracy, fluency, language awareness and intercultural competence (cf. Laviosa, 2014). Research into corpus-based translator training has attracted scholarly attention, particularly with respect to the application of corpora for pedagogic purposes (Hatim, 2001).

In corpus-based teaching, students examine corpus data using the principles of data-driven learning proposed by Tim Johns (1991) in foreign language teaching. Data-driven learning is an inductive approach in which students learn bottom-up from data observation. The scholar sees a

student as a researcher whose learning should be driven by access to linguistic data in order to identify the rules and patterns in the examples, thus discovering the characteristics of the translated text. The instructor, in turn, should provide the context, in which students can develop their ability to note and learn regularities.

In translation pedagogy, *specialised corpora serve both as resources* that assist in terminological work and *as databases* used for raising students' awareness of the process of translation. The corpus-based teaching approach allows determining the way translators use the target language as well as revealing the nature of translation through the investigation of frequency word lists, keyword lists and concordance lines. For example, this approach may be used to identify and classify culture-specific units present in the corpus as well as find out the decisions made by translators. Applying this teaching approach, the learning objectives may become familiar with corpora as one of the computer-assisted translation tools, to identify, classify and analyse characteristics of the source texts, to determine solutions adopted by translators in order to convey meaning in the target text. Thus, corpus-based teaching approach enables students to examine similarities and differences between languages and cultures, this way developing translation competence. With regard to pedagogy, *parallel corpora can be applied to develop a variety of assignments aimed at promoting the students' understanding of source and target texts, and their ability to produce relevant translation*.

2.2.5. Telecollaborative Approach to Translation Teaching

The primary motivation to use technologies in education is the belief that they can support constructivist practices. Students can be highly engaged and work together on meaningful tasks with the aid of digital tools. Technology can help students understand more about the way they think, make judgements and decisions, thus promoting their professional development. The major tendency in the contemporary translator education is the integration and innovative use of digital technologies, which results in the paradigm shift from traditional teaching to teaching of the 21st century skills, with focus on digital literacy. The 21st century skills include, among others, critical-thinking, problem-solving, decision-making, multi-literacy, creativity, learning to learn, as well as linguistic and cultural competence. Many digital tools facilitate the learning process through collaboration, communication and interactivity.

Telecollaboration as a pedagogic practice, which is also referred to as virtual exchange, collaborative online international learning (Rubin & Guth, 2016) and globally networked learning, has been increasingly adopted in translator training over a recent decade. The growing attention of scholars and instructors has resulted in theoretical and empirical studies, which aim at creating a theoretical framework for the design of telecollaborative projects as well as sharing best practices. Telecollaboration is viewed as a flexible teaching and learning method that is accessible, personalised and technology-enriched for students.

Based on Leo Vygotsky's (1978) theory of learning as a social activity, David A. Kolb's reflection-enhanced experiential learning theory (1984) and William E. Doll's postmodernist theory of learning (2008), telecollaboration is a type of collaborative learning that is greatly improved with the adoption of computer-mediated communication tools. Collaborative learning is seen as a potential to develop student's autonomy, promote self-learning, introduce adaptation in learning and enhance knowledge retention (Beckman, 1990). It may also be viewed as a teamwork mode, in which students construct their own vision of the world or as context-dependent emergent learning (Kiraly, 2015), which makes students solve problems in authentic projects.

Telecollaborative practice is structured around the defined tasks or problems, which includes a step-by-step procedure being of importance in terms of students' motivation, productivity and progress. For example, a clear-cut preparatory stage informing students about the volume of work, the meeting of deadlines, etc. is a key element of an effective telecollaborative practice, which can affect the learning outcomes. According to Sonja Knutson (2003), projects involve the following phases: (1) exposure, where students are introduced to the idea of the project in a way that activates past experiences and reintegrates previous knowledge with new skills; (2) participation, which is the actual activity; (3) internalisation, i.e., reflection on the activity performed.

The adoption of telecollaboration in translation teaching corresponds to Kiraly's (2006, 2015) call for shifting translation pedagogy from the teacher-centred instruction to the learner-centred teaching. It provides a complex context for education as it involves the development of a wide range of 21st century competences through the design of authentic settings, for example, communication skills, teamwork, interpersonal skills, cultural awareness, information literacy, self-organisation, analytical, critical and creative thinking skills. Within this social-constructivist approach, students can become more experienced, responsible, competent, reflective, and professional.

Telecollaboration translation projects employ a range of didactic solutions available to translation teachers. They may be simulated or real, online or blended with face-to-face activities. Furthermore, telecollaborative practice may vary in terms of project duration, degree of students' autonomy or teacher guidance, and reflection and assessment types. It may also involve various student roles, for example, the role of a commissioner, project manager, software localiser, terminologist, translator, editor, proof-reader, etc. Thus, the presence of many adaptive working modes enables instructors to *optimise the learning environment in order to meet students' needs*. It should be noted that by expanding the learning space, technologies may also affect *the cognitive, social and emotional development of students*. The pedagogically sound use of technologies promotes active learning as it stimulates students' interest, increases motivation, improves productivity and ensures self-paced mode of learning.

Within the dynamic, fast and ever-changing political, social, economic and technological situation, the contemporary knowledge-intensive society should keep pace with the changing environment and be flexible in adapting their skills and competences. Today's instructional design should enhance metacognitive skills through collaborative learning, as well as encourage and prepare students for lifelong learning that is a response to the changing requirements for knowledge and abilities.

Due to the continuous development of translation tools, the translation industry is moving to the automation of the translation process, such as augmented translation or translation 4.0 (Sandrini, 2017). The automation is manifested in the outsourcing of routine tasks to translation technologies, which will enable the translator to perform creative tasks applying high-order thinking skills. Translators should become co-creators of digital tools they will need in the future. Digitisation of the translation process will continue and the modern translator will have to work with an increasing number of digital tools.

The digital nature of texts and the automation of translation also diversify the roles that translators need to play. Using CAT tools, they change their working mode from an individual (isolated) activity to a telecollaborative one, which involves sharing the responsibility among a networked project manager, a team of translators, terminologists, editors, computer programmers, graphic designers, etc. Therefore, technology-enabled learning environments provide new opportunities in terms of contextual, distributed, meaning-making and collaborative learning.

2.2.6. Emergentist Approach to Translation Teaching

Integration and interoperability brought about by technologies into the learning environment make it possible to develop students' cross-disciplinary skills and higher-order skills, such as critical and creative thinking, synthesis or metacognitive skills. The advances in information and communication technologies promote complex learning that complies with Donal C. Kiraly's (2013; 2015) emergentist approach to translator education.

In emergentist pedagogy, *knowledge is a complex adaptive system* which emerges "through the translator's embodied involvement (habitus) in actual translation experiences" (ibid.: 203). Within the emergentist approach, *students are active participants who seek to acquire knowledge, while teachers act as learning partners*, who guide students towards translation competence, which is a situated outcome of the dynamic interplay of human and material resources, personal, interpersonal and psycho-physical dispositions. Situated learning emphasises an environment that integrates people, tools, and context. Arthur L. Wilson (1993: 73) maintains that learning is social in nature; it is 'tool dependent' because the setting provides mechanisms that aid and structure the cognitive process. Thus, the situated view of learning maintains that people learn as they interact with a community of practice.

Emergentist epistemology, proposed as a solution for translator education by Kiraly (2006; 2013; 2015; 2018), is based on such theories as Alfred N. Whitehead's (1950) process theory, Brent Davis' complexity theory (Davis and Stimmt, 2003) and Leo van Lier's (1996; 2000; 2010) ecological approach to language acquisition. The process theory maintains that the world undergoes constant changes and therefore it is difficult to create a universally precise and correct picture of it, which would be an adequate reflection of reality. According to the complexity theory, knowledge is not static and transmittable, but rather a complex entity that emerges from experience. The ecological approach to translation views translation as an environmental context, which goes beyond the source and target texts and the cognitive processes involved in the process of translation. It is influenced by interaction of stakeholders as well as the physical media and resources used.

The emergentist approach also relies on Donald C. Kiraly's (2000) social-constructivist approach, which is based on Lev S. Vygotsky's (1978/1994; 1986) concept of the social construction of knowledge and John Dewey's (1938) concept of learning through action. While

Vygotsky (1986) emphasised the social nature of learning, Dewey (1938) stated that experience is essential in the learning process, since students "learn by doing". The combination of these approaches constitutes translation pedagogy that ensures a student-centred, authentic or near-authentic, telecollaborative environment, in which knowledge is obtained though practice and experience.

This kind of pedagogy can facilitate learning in various contexts. For example, in translator training, it may be implemented using collaborative translation projects, which have been administered and examined by Donald C. Kiraly (2013; 2015), Mariusz Marczak (2016), Gary Massey (2016), where students form teams and perform translation jobs using computer-assisted translation tools as well as information and communication technologies. As a result, students have the opportunity to explore translation through practice, to become familiar with available theories and modes of research and to develop a range of translation competences. Thus, it may bring a balance of teaching and learning to expand students' knowledge of translation theories.

To train students for translation of specialised texts, translator education should be based on student-centered work modes through which students will be able to learn how to independently find the necessary information, check the trustworthiness of the resources, and update knowledge after graduation.

2.2.7. Ecological Approach to Translation Teaching

The theories adopted before undertaking the translation task can provide different answers for texts, different possibilities and decisions. As 21st-century translators, we should bear in mind that such different decisions will not be irrelevant, because choices although considered solely linguistic always imply ethical standards that have made the process of translation the vehicle of such values as integrity, responsibility, fidelity and humility (Sontag, 2007). 21st-century translators are viewed as multitasking agents, who require multiple competencies, starting from linguistic and intercultural communication skills to information and digital literacy. Bearing in mind that we live in a globalised era characterised by constant migration, our aim as translators can only be to find the most appropriate association for the local and the global, for the Self and the Other, through specific cultural experiences which are also related to what is alien, unknown and different to us (Cronin, 2006: 3). Despite the opportunities viewed as challenges provided by modern technologies, professional translators should adapt to the evolving international translation

environment. New translator's roles and competences required by the translation industry undoubtedly affect the translator education system, which calls for a deeper understanding of translation teaching and requires the implementation of reforms with regard to the teaching mode, student–instructor–technology interaction and translation teaching environment.

Following a dynamic development process and adopting an ecological perspective, a new translation theory – eco-translatology – has been proposed on the basis of the translation theory of adaptation and selection. Introduced in 2001 by Gengshen Hu, eco-translatology adheres to the theory of translator-centeredness, emphasising that in the process of translation the adaptation and selection activity should be performed by the translator. Ecology has been adopted as a general framework for understanding "the dynamic interaction between language users and the environment as between parts of a living organism" (Kramsch, 2002: 3). The ecological approach reinterprets such translation phenomena as the nature, process and method of translation taking into account the whole system of translation.

Translation ecology is viewed as "the study of social, cultural, political, and economic factors affecting the interaction of humans with other humans, other organisms and the physical environment" in order to include "all forms of translation thinking and practice that knowingly engage with the challenges of human-induced environmental change" (Cronin, 2017: 2). Treating ecology as the main factor governing the survival and sustainability of human societies, cultures and languages, Michael Cronin (ibid.) studies how the perspective of the Anthropocene forms, modifies and transforms the nature of translation. Ecological approach implies that, "each of us is a unique moment in history: a distinctive blend of our genetic inheritance, of our experiences and of the thoughts and feelings that have woven through them and constitute our unique consciousness" (Robinson, 2011: 122). According to the educational theorist John Dewey (1938: 20), an ecological approach seeks to develop its principles constructively as it recognizes that "all principles by themselves are abstract. They become concrete only in the consequences which result from their application". Hence, "the work of teaching and learning incorporates practice, research and teaching in equal measure" (van Lier, 2010: 1). Therefore, in the translation environment, it is necessary to take into account language communication, cultural background and practice environment.

With regard to translation teaching, this theory views the entire translation teaching process as a large and complex ecosystem. Compared with other translation theories, eco-

translatology focuses on macro research, developing a new vision for translation studies, which is based on the sustainable development of the reform of translation teaching. Unlike traditional translation teaching that mainly focuses on text translation, *the principle of translator-centeredness requires students to cooperate in the process of individual study and group work in order to fulfil the translation tasks and perform the analysis and evaluation of translations through group discussion. Students become active participants in the translation classroom, which also motivates their enthusiasm and creativity*.

The key components of the ecosystem as distinguished by Cowley et al. (2002) are the students and the instructor, the learning content, the learning environment, technology facilitating the learning process, as well as skills to perform in the ecosystem. The entire teaching process is viewed as the process of instructor's multi-dimensional adaptation and selection, and various teaching elements are adapted to the students' needs and expectations. Based on student surveys, the needs of students are determined, and a respective teaching concept is established, which implies the adjustment of curriculum, the improvement of teaching methods and the promotion of instructor-student interaction, thus creating a balanced translation teaching ecological environment.

Translation principles, from the perspective of eco-translatology, involve multi-dimensional and selective adaptation being regarded as a three-dimensional transformation covering the dimensions of language, culture and communication in order to study translation for its broader development (cf. Hu, 2010). Since there are differences between the source language culture and target language culture, translators not only need to make linguistic transformations, but also adapt themselves to the cultural system of the working languages. It has also been acknowledged that as adaptation, selection and decision-making constitute the translation process, an ecological translation approach that involves all these components may lead to more comprehensive and conscious translation practice (see Fig. 2.4).

Ecological Translation Approach

Multi-dimensional adaptation

Selective adaptation

Three-Dimensional Transformation

Langauge

Culture

Communication

Translation process

Selection

Adaptation

Decision-making
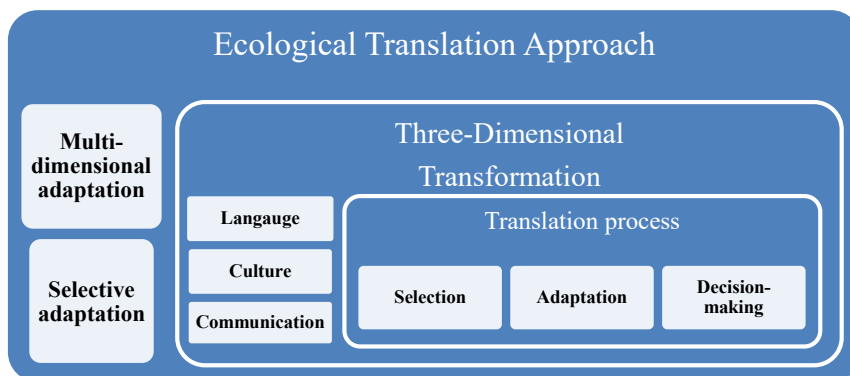
Fig. 2.4. Ecological approach to translation as a three-dimensional transformation process based on Hu (2010). (Developed by the author)

The principles combining theory and practice are very important in translator training. Therefore, instructors are recommended to take advantage of interactive teaching methods and approaches, such as classroom discussion, workshop, task-based method, problem-based or project-based learning. For example, students may be given such a training activity as managing the entire life cycle of a translation project. As it involves various activities (e.g., communication with the commissioner, text analysis, terminology management, translation, editing, proofreading, etc.), each step of a translation project should be properly managed. As stated by Esselink (2000: 429), a translation project is successful when it is completed "on schedule, within the budget, and according to previously agreed quality standards". The entire translation project should comply with the requirements of a wider production environment, which views multilingual information management in the form of information objects, i.e. a collection of information identified as a unit and defined by its communicative purpose, specific user, business entity, the content and publishing restrictions (Hofmann and Mehnert, 2000: 61). With the perspective of ecological translation in mind, the process of translation teaching is not based on a solely one teaching method but rather implies the combination of various translation teaching principles that reflect the diverse and dynamic nature of translation.

The theory under discussion also recognises the importance of ecological rationality (Gigerenzer, et al., 1999) that focuses on dynamic balance, contributes to diverse integrity and emphasises the overall relevance (see Fig. 2.5). This concept is applied for the assessment method of student's translation tasks. The assessment system should take into account the whole process

of student learning, as well as develop different forms of assessment methods, depending on learning objectives and respective stages of training. Instructor, peer and self-assessment should be carried out to make a comprehensive evaluation of student's learning progress. The combination of formative and summative evaluation allows achieving the balance of the translation evaluation system.
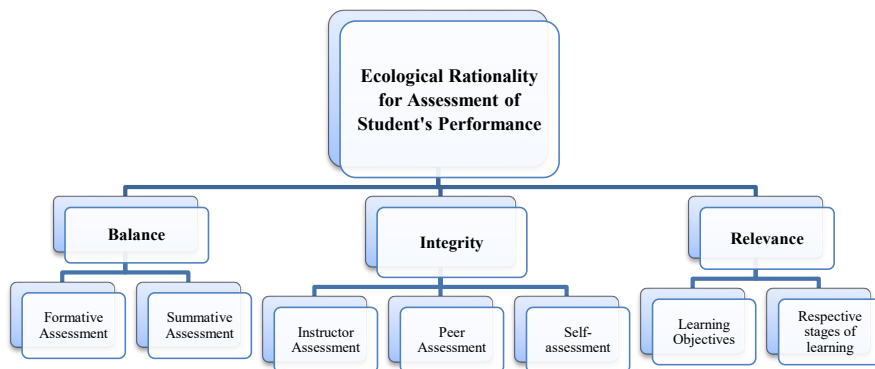
Fig. 2.5. Application of ecological rationality to the integrated assessment of student's performance based on Gigerenzer et al. (1999). (Developed by the author)

Compared with the traditional translation teaching, eco-translatology emphasises the interaction of many elements, such as learning objectives, teaching methods, assessment, which brings a new vision for the translation teaching mode. Thus, *the ecological translation teaching approach adopts the student-centred concept, focusing on instructor's guidance, students' collaboration and interaction with the environment, through the adaptation and/or selection mechanism to obtain translation skills*.

2.3. Summary

The number of theories devoted to translation teaching has considerably increased over the past decade. However, it does not mean that the contemporary translation teaching methodology is based on sound and thorough pedagogical and translation principles. Having examined different approaches to translator training, it should be noted that little attention is devoted to the implementation of the *whole process of product-process-translator activities in translation teaching*. To develop students' translation competence, it is necessary to evaluate the application of translation theories in practice, the way students use translation strategies and methods in fulfilling a translation task, and how they treat relevant socio-cultural elements or demonstrate their awareness. Relevant reflection on the student's translation task and translation performance should be an integral part of the training process.

From the perspective of the evolution of the translation theories, the pedagogical implications of these theories can be evaluated in translator training. Translation theories were initially related to the study of translation end product, focusing on the issue of equivalence between the source and target languages. Therefore, they considered different types of equivalence, translation errors, text typology, translation approaches, strategies and methods. After the adoption of linguistic and cultural approaches to the study of translation, the scholars' attention was drawn towards the cognitive dimension that initiated the shift from the translation product to the translation process theories. The advances in technologies have considerably promoted the research into translators' activities as the contemporary digital tools can provide information on different stages of the translation process. The development of machine translation and computer-assisted translation tools has affected not only the environment of professional translators, but also the areas of teaching and learning. The acquisition of ICT skills relevant for translators can also be useful for the development of pedagogy due to requirements for the creation of appropriate learning environment, the use of computer-assisted and machine translation tools, and textual analysis of source and target texts.

The literature review has also revealed that there is an apparent shift *from a teacher-centred to a student-centred approach*. The digital age has enabled a shift from the transmissionist learning theory to the constructivist model. Thanks to social networking, learning has become a social experience taking place in a setting where an instructor supports the learning process and students construct their knowledge themselves. The new paradigm of teaching and classroom organisation

is no longer solely based on either learners, challenges or methods, but is rather aimed at adopting the combination of teacher-oriented, learner-centred, task-based and IT enriched learning environments. The shift towards this paradigm has been prompted by the needs and requirements of the contemporary society of the information age.

With regard to translation teaching, *eco-translatology views the entire translation teaching process as a large and complex ecosystem.* Compared with other approaches to translation teaching, ecological approach focuses on the macro research, developing a new vision for translation studies, which is based on the sustainable development of translation teaching.

Each teaching approach considered aims at improving and developing certain students' skills and competences by focusing on a *specific area, such as translation quality, translation process, personality development, collaboration, reflexive practices, and technology integration*. The analysis of the teaching approaches has enabled the author to look at *translation pedagogy from a more systematic point of view*. Thus, based on the literature review, the author considers the following principles to be important for specialised translation teaching:

- balance, integrity and relevance;
- knowledge as a complex adaptive system;
- students' construction of knowledge;
- combination of individual, collaborative and interactive learning;
- strategically designed learning activities and materials;
- reflection;
- student–instructor–technology interaction;
- use of computer-assisted and machine translation software, digital text analysis tools, translation corpora and termbases, etc.

Having identified relevant tenets of various approaches used in translator training, the further chapter discusses translation competence as a complex learning outcome to be achieved, introduces to the concept of specialised translation, and proposes the rhetorical model for meaning decoding and encoding in specialised translation.

3.   Teaching Specialised Translation in the New Media Age

The chapter starts with the exploration of translation competence in line with the OECD Future of Education and Skills 2030. Specialised translation teaching is examined through the tenets of rhetoric of science, the characteristics of specialised texts, and the sample tasks designed based on authentic texts in various fields (economics and marketing, civil engineering and architecture, telecommunications and information technology). The tasks cover the issues of interpretation, cross-cultural and intertextual awareness raising, as well as the analysis focusing on the essential features of specialised texts. As an evolving research framework, digital rhetoric is also introduced in the chapter in order to emphasise the need to develop translators' textual competence through the analysis of different new digital genres and digital rhetoric elements in their training process. The chapter addresses the third research question: *"What is the theoretical substantiation for the development and application of rhetorical model in the specialised translation teaching process?"* Based on the investigation of rhetoric of science, the characteristic features of specialised text, digital rhetoric and digital texts, the author proposes the rhetorical model of specialised translation teaching that addresses the main issues related to specialised text understanding in a source language and a new specialised text creation in the target language.

3.1. The Future of Education: Translation Competence Revisited

The section addresses the issue of future skills through the examination of disciplinary, interdisciplinary, epistemic and procedural knowledge. These four types of knowledge proposed by the OECD Future of Education and Skills 2030 project (2018) are also related to the nature of translation competence. In translation studies, competence is the proven ability to use knowledge, skills and personal, social and/ or methodological abilities, in work or study situations and in professional and personal development. Knowledge means the outcome of the assimilation of information through learning, and knowledge refers to the body of facts, principles, and theories. Skill means the ability to apply knowledge and use know-how to complete tasks (EMT, 2017: 3). The process of translation competence acquisition is outlined through the study of various translation models.

An increased level of digitization and automation have significantly affected education in recent years. As the digital age has made information accessible from almost anywhere, there has been growing attention paid to thinking of the world as the system of interrelated rather than discrete units. This change of conceptualising the world has also been reflected in education systems that have been moving towards understanding disciplines as interrelated systems. The importance of understanding how knowledge in different disciplines connects, as well as understanding the application of knowledge to solve complex problems is more valuable in the contemporary age than ever before.

Knowledge, skills, attitudes and values are developed interdependently. The concept of competence implies more than just the acquisition of knowledge and skills; it involves the mobilisation of knowledge, skills, attitudes and values in a range of specific contexts to meet complex demands (cf. OECD, 2018). As Klieme et al. (2004) assert, "higher competence levels are characterised by the increasing proceduralisation of knowledge, so at higher levels, knowledge is converted to skills". For example, developing content knowledge provides the basis for acquiring skills, while the skills are necessary to learn. Similarly, UNESCO researchers have emphasised the growing importance of being able to understand, interpret and apply knowledge and skills in various situations. Scott (2015) states that *learning to know* is not the only necessary skill for students. The other three pillars of education are: *learning to do*, which includes problem-solving skills, critical thinking and collaboration; *learning to be*, which includes social and cross-

cultural skills, personal responsibility and self-regulation; and *learning to live together*, which includes teamwork, civic and digital citizenship, and global competence.

The OECD Future of Education and Skills 2030 project recognises four different types of knowledge:

- *disciplinary* (subject-specific concepts and detailed content). When students acquire a basic level of disciplinary knowledge, they are able to develop it further into specialised knowledge or to create new knowledge.
- *interdisciplinary* (relating the concepts of one discipline to those of other disciplines). Transferring knowledge to different situations is more difficult compared to similar situations, as it is necessary to invoke previous knowledge in a new context (cf. Benander, 2018).
- *epistemic* (the understanding of how practitioners of disciplines work and think);
- *procedural* (the understanding of how something is done). The aim is to provide students with experiences, such as participation in group / team work, commitment to action-oriented problem solving, decision making.

Recent research shows that the patterns of students' professional development vary. Students can demonstrate different levels of skills and competences at different moments depending on the learning situation. As students develop their competence in different domains of knowledge, they experience repeated cycles of learning in which their performance level may rise quickly and then drop as the focus of the task or the situational context changes. A challenge for education is to help students develop deeper understanding by facilitating both disciplinary and procedural knowledge, and connecting them with the skills, attitudes and ability to transfer knowledge (cf. Benander, 2018). As students acquire disciplinary knowledge, they also become able to connect knowledge across different disciplines (interdisciplinary knowledge), they learn how this knowledge is applied in different situations by practitioners (epistemic knowledge), and they learn about different processes and methods for using this knowledge (procedural knowledge).

Understanding of the nature of translation competence is of high importance in translator training since it allows identifying the areas on which instruction should focus. Translation competence has been studied by many translation scholars. However, the true nature of translation competence has remained a controversial issue, dividing the field into two main groups of

translation scholars. The first group argues that the ability to translate emerges from the moment the process of second language learning is started. Thus, translator training implies "the natural evolution of translation competence in the increasingly bilingual individual" (Kiraly, 1995: 15). According to the second group of translation scholars, translation competence involves "the ability to decompose texts according to text types, the ability to identify a hierarchy of the relevancy of features of different types, the ability to transfer fully and efficiently those relevant features, in order of their relevancy, and finally the ability to recompose the text around the transferred features" (Toury, 1974: 88). It follows that second language learners cannot translate because they do not know the strategies, methods and approaches that are required to produce translation, as well as they cannot evaluate relevance or quality of their translation. Within the framework of the research, the author supports the view of the second group.

With regard to translation pedagogy, Anthony Pym (1992: 281) maintains that since translating is "a process of generation and selection between alternative texts", then, "this is presumably what should be taught in the translation class". According to Donald C. Kiraly (1995: 16), translation pedagogy should focus on "the specialised skills of the professional translator".

Many models of translation competence have been developed to identify the sub-competences that should be approached in translator training. In a comprehensive review of the literature on the translation competence, Roger T. Bell (1991) argues that translation competence involves target-language knowledge, text-type knowledge, source-language knowledge, subject area ("real-world") knowledge, contrastive knowledge, then decoding and encoding skills summarised as "communicative competence". For example, Christiane Nord (1991: 235) distinguishes several sub-competences that constitute translation competence: competence of text reception and analysis, transfer competence, competence of text production, competence of translation quality assessment, and linguistic and cultural competence both on the source and the target side. Lance Hewson (1995: 108) emphasizes that translation competence also involves "professional elements". Basil Hatim and Ian Mason (1997: 204–206) propose a three-part competence model inherited from linguistics (source text processing, transfer, target text processing). According to Gregory M. Shreve (1997: 125), translation competence is "an endless process of building and rebuilding knowledge, evolving through exposure to a combination of training and continuous practical experience and leading to changes in the way that translators actually conceive of translation". In general, translation models "combine a number of different

sub-competences that seem to include the world, the universe and everything and are intricately interrelated" (Beeby, 2000: 185).

With the increasing use of computer tools, the scholars have been expanding the multi-component model of competences to include new skills and proficiencies required in the field of translator training. There are different classifications of translation competences, for example, Albrecht Neubert (2000: 15) proposes the following hierarchical definition of translation competence that consists of language competence, textual competence, subject competence, cultural competence and transfer competence, which encompasses the strategies and procedures that allow translating the text quickly and efficiently. Transfer competence is superordinate to the previous four competences because it is "triggered off" by the nature of the text. The scholar (ibid.) also distinguishes seven features that reveal the nature of translation competence: *complexity, heterogeneity, approximation, open-endedness, creativity, situationality and historicity* that are interrelated with each other (see Fig. 3.1).
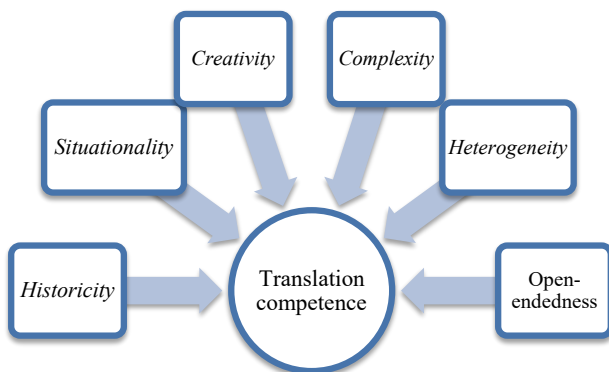
Fig. 3.1. The nature of translation competence based on Neubert (2000). (Developed by the author)

The model by Christina Schäffner (2000: 146) additionally includes the research competence, i.e., general strategy competence aimed at the ability to resolve problems specific to the cross-cultural transfer of texts. The author argues that these competences are interrelated and interact together depending on a translation task. To be able to fulfil all the contemporary demands, translators are required to possess all the above-mentioned competences.

The PACTE Group formed at the Autonomous University of Barcelona distinguished five translation sub-competences: bilingual sub-competence, extra-linguistic competence, knowledge of translation, instrumental sub-competence, and strategic sub-competence. Apart from these five sub-competences, the PACTE model also lists psycho-physiological components, which are viewed as different types of cognitive components and psycho-motor mechanisms, for example, memory or attention, critical and creative thinking, logical reasoning, etc. For each sub-competence, the PACTE group provides a brief description of their nature:

- Bilingual sub-competence is predominantly procedural knowledge made up of "pragmatic, socio-linguistic, textual, grammatical and lexical knowledge in the two languages";
- Extra-linguistic sub-competence is predominantly declarative knowledge made up of bicultural knowledge, encyclopaedic and subject knowledge;
- Knowledge of translation sub-competence is predominantly declarative knowledge "about what translation is and aspects of the profession";
- Instrumental sub-competence is predominantly procedural knowledge "related to the use of documentation sources and information and communication technologies applied to translation";
- Strategic sub-competence is procedural knowledge to "guarantee the efficiency of the translation process and solve the problems encountered" (PACTE, 2017: 39-40).

Strategic sub-competence is the central one because its function is to carry out the translation project by activating different sub-competences, identifying translation difficulties and applying relevant strategies and methods to solve them, as well as evaluating the translated text.

The framework for translation competence introduced by the European Master's in Translation (EMT) network in 2009 has become one of the main reference standards in the academic environment and the language industry. The EMT competence framework has been developed by an expert group as a reference for member institutions of the EMT network. The competence model is based on the premise that translation is a multi-faceted activity that covers many areas of competence and skills. According to the model proposed in 2009, there are six competence areas: *translation service provision competence, language competence, intercultural competence, information mining competence, thematic competence and technological competence*. The mastery of the six areas of competence results in the "mastery of a transversal

'supercompetence' which can be termed competence in translation" (EMT, 2009: 3). In the EMT model, the translation service provision competence takes the central role.

To meet the labour market needs with regard to the future translator's professional skills portfolio, the main areas of EMT translation competence model (EMT, 2017) have been revised as follows:

1. *Language and culture (transcultural and sociolinguistic awareness)*. This competence encompasses all the general or language-specific linguistic, sociolinguistic, cultural and transcultural knowledge and skills that constitute the basis for advanced translation competence.

2. *Translation* (*strategic, methodological and thematic*) *competence*. It should be understood in the broadest sense, encompassing not only the actual meaning transfer phase between two languages, but also all the strategic, methodological and thematic competences.

3. *Technology (tools and applications)*. It includes all the knowledge and skills used to implement present and future translation technologies within the translation process. This competence also includes basic knowledge of machine translation technologies.

4. *Personal and interpersonal competence* area includes all the generic skills ("soft skills") such as time management, setting and following deadlines, teamwork etc.

5. *Service provision* covers all the skills necessary for the implementation of translation, from client awareness and negotiation to project management and quality assurance (EMT, 2017).

Each area of translation competence is further subdivided into skills and abilities. The skills are clearly related to the integration and interrelation of the competence areas in the translation process. The EMT translation competence model will be further referred to in the research. It should be emphasized that the model envisages that the competences do not exist in isolation, i.e., to complete a translation task the translator should apply all of these translation competence areas. Therefore, in the teaching process the instructors should consider how the competence areas are interrelated.

Some common aspects can be identified in the translation models under consideration, such as language and culture competence, thematic competence, research competence, technological competence, transfer competence, service provision competence (see Table 3.1).

Table 3.1. Translation Competence Models (Developed by the author)

Translation competence models by	Translation sub-competences					
Bell (1991)	Target-language knowledge	Source-language knowledge	Subject area knowledge	Contrastive knowledge	Communicative competence	
Nord (1991)	Transfer competence	Text production competence	Translation quality assessment	Linguistic competence	Cultural competence	
Hatim and Mason (1997)	Source text processing	Transfer competence	Target text processing			
Neubert (2000)	Language competence	Textual competence	Subject competence	Cultural competence	Transfer competence	
Schäffner (2000)	Linguistic competence	Cultural competence	Textual competence	Domain / subject specific competence	Transfer competence	Research competence
PACTE (2017)	Bilingual sub-competence	Extra-linguistic sub-competence	Knowledge of translation sub-competence	Instrumental sub-competence	Strategic sub-competence	
EMT (2017)	Language and culture	Translation competence	Technology	Personal and interpersonal competence	Service provision	

The section has provided an insight into the nature of translation competence, highlighting the focus of research within this area of translation studies and presenting various translation competence models. The analysis of translation competence has been primarily based on the theories presented by Pym (1992), Toury (1995), Hatim and Mason (1997), Schäffner (2000), Neubert (2000), Chesterman (2007), PACTE group (2017) and EMT (2009, 2017). The overview of translation models has contributed to revealing the essential translation sub-competences. The theoretical background will help establish the translation competence coverage area by the rhetorical model used in specialised translation teaching. In compliance with recent UNESCO research concerning the necessity to promote student's ability to comprehend, interpret and communicate knowledge, the author of the Doctoral Thesis will demonstrate in further sections how the rhetorical model encourages students to *understand, interpret and apply knowledge and skills in various situations.*

3.2. The Contemporary Rhetoric of Specialised Text

The section presents scientific rhetoric with its rules, approaches, functions, strategies and methods to be applied in professional communication. Contemporary specialised texts as a rich source of field-specific knowledge are discussed to identify their information structure, hierarchical organisation and rhetorical modes of expression. The analysis of rhetorical strategies and devices in specialised texts may contribute to identifying the cognitive value of rhetorical devices beyond their specific persuasive and aesthetic value, thus overcoming difficulties of meaning decoding at different levels during information processing.

The language of science refers to professional communication or to a system of meaning creation. As part of professional communication system, specialised texts are the ones that contain vocabulary and terminology specific to a particular domain of knowledge. Initially, the frame of scientific writings implied the use of rules and conventions that limited the play of words, as the main aim was to avoid figurative language. However, today specialised texts are not purely neutral as they tend to incorporate mythical thinking, classical images and rhetorical devices in scientific reasoning and explanation. Literary characters and celebrities have become the rich source of modern scientific terminology, such as *Faust program, Anna Kournikova worm, Ceylon programming language*. At present, rhetoric usually operates at the language level, but also, more or less frequently, at the contextual level of communication to get acquainted with new meanings of well-known lexical items.

The opinion that the scientific text is devoid of cultural influences is due to the judgement that the laws of physical sciences are above the constraints of any one national culture; however, it is not true because "… science is not just a collection of laws, a catalogue of facts. It is a creation of the human mind, with its freely invented ideas and concepts" (Einstein and Infeld, 1938 [1971]). Such aspects as implicatures, metaphors and allusions are often linguistically and culturally bounded and therefore are not the same in different languages. They also present the main challenges for meaning decoding and encoding in the process of translation.

The contemporary scientific rhetoric includes "those persuasive forms of reasoning or argumentation that aim at changing the belief system of an audience in scientific debates" (Pera 1994: 58). The concept of rhetoric is understood not only as "persuasive discourse" but also as the system triggering deep cognitive mechanisms that might provide reasonable explanations in

the rhetorical model. Various forms of communicating (arguing, reasoning, persuading, etc.) can be achieved through various language means. Therefore, rhetorical studies are concerned with how language and other symbolic forms influence the way a particular audience thinks, feels or acts.

Classical rhetoric has developed a set of rules, approaches, functions, strategies and methods that are used to achieve a certain communicative purpose. Traditionally, the study of rhetoric is concerned with oral and written communication; namely, the use of rhetorical strategies and techniques that set and govern the conventions for successful communication. In written communication, special attention is devoted to invention, arrangement and style (cf. Enkvist et al., 1964). Invention characterises the selection and classification of information according to the principle of relevance, arrangement deals with the structural organisation of the arguments, whereas style has traditionally been considered as ornamentation added to a message.

The main focus of rhetoric is persuasion, and implicitly in any definition of rhetoric there is the notion of power (Brummett 2000 in Higgins & Walker 2012), i.e., the power of words, the power of personality, and the power of knowledge. Rhetoric can be understood as a textual norm system in a particular text. Cezar Ornatowski (2007: 4) states that rhetorical approaches to science begin with different assumptions about the relations between practice, discourse and knowledge. They can also be described as the author's means of encoding information for the reader.

According to Daniel Anderson (2011: 178), rhetorical strategies are "methods of communicating the details of a message". With regard to specialised texts, the common rhetorical strategies are order (time order, space order, order of importance), comparison/contrast, metaphor/analogy, and illustration (cf. Trimble, 1985). To distribute scientific study and research information to the reader, the following rhetorical strategies have become of particular importance:

- *Comparison/contrast strategies* are primarily used for developing ideas. Comparisons help create descriptions using figurative language. Contrasts, in turn, analyse differences of specific, theories, methods, concepts, criteria, etc.
- *Metaphor/analogy* refers to an extended comparison of two objects and may be defined as a subcategory of definition. Dense information can be encoded in the text using metaphor/analogy.
- *Illustration* strategy refers to the use of examples aimed at explaining an idea, clarifying the meaning, or describing a particular situation. The examples are used in all rhetorical

situations as they help authors to accentuate nuances, to draw reader's attention to the details through the illustration of processes, classifications, etc.

General and specific functions of rhetoric of science as discussed by Louis Trimble (1985: 11) include *description, definition, classification, instruction as well as visual and verbal relationship*. Each of them may be divided into numerous detailed descriptions, for example, definition may be formal, semi-formal, informal or expanded. Classification can be described as complete or partial. *Rhetorical functions* are often used as a set of rules to guide the author in creating an effective text to influence the audience (Iļinska et al., 2016a):

- Description is present in all types of writing because it provides the significant details which explain scientific ideas. These definite and precise details also facilitate the decoding of the abstract ideas and implicit information.
- Narration is usually defined as a process of story-telling. This strategy is not typical of special texts, except an introductory paragraph written to attract the reader's interest, which may be considered a descriptive narrative.
- Process analysis / instruction is also a form of description, which explores how a phenomenon works. Historical information is often presented as a process in chronological order.
- Definition is used to clarify meaning, explaining unfamiliar terms that belong to different domains, or distinguishing one from another similar idea. Such rhetorical strategies as exemplification and comparison are useful when there is a need to create a detailed definition.
- Classification is an important rhetorical strategy when the author's intention is to analyse and then group similar items or divide one item into parts. Critical thinking relies on the power of classification during the analysis of complex information. A description or explanation may be divided into useful categories so that the information is well-organised and meaningful.
- Visual and verbal relationship is information transfer that deals with illustrative (graphical) material and the verbal text, which explains it (cf. Widdowson, 1978). The application of visual modes has become extremely popular and widespread in the contemporary special text as new meanings are often obtained from the interaction of different semiotic systems (cf. Ruthrof, 1997).

In general, text analysis is concerned with how "language communicates meaning, considering pragmatic and semiotic dimensions, as well as the socio-linguistic and semiotic implications" (Munday, 2001: 90). The rhetoric of a text organises the message by establishing relations between textual units.

According to James A. Herrick (2005), the art of rhetoric has six social functions, namely ideas are tested, advocacy is assisted, power is distributed, facts are discovered, knowledge is shaped, and communities are built. Five canons of rhetoric are the discovery of argument, arrangement of information, style, delivery, and memory. As acknowledged by Alan Gross (2006: 5), "rhetoric is constitutive of scientific knowledge". The authors of specialised texts use rhetorical strategies to share and disseminate their knowledge, to promote audience's awareness, understanding and acceptance of inventions and discoveries, to shape public opinion. Rhetorical elements should transfer information in such a way that it would coincide or at least partially coincide with the conceptual inventory and world knowledge of the readers.

Information and communication technology has transformed the work environment of the 21st century translators, who must follow the trends in the industry and work with new channels of information. As a result of the development of digital media, the modes of creating and conveying relevant meanings in the translated texts have changed. It is apparent nowadays that information is transferred using different channels of communication, which consequently requires students to decode information communicated not only by verbal but also by visual and other symbolic modes. Visual–verbal mode refers to the application of drawings, schemes, tables, images, charts or any illustrative material, as the rhetorical function of visual aids is to add information, which is not provided in the text. It is the purpose of the translation instructor to train students in understanding the most difficult visuals used in special digital texts, such as schematics, flowcharts, graphs, etc. Thus, to address the challenges raised by digital transformations, translation instructors should also place special emphasis on the importance of the non-textual information evolving around digital texts.

Non-textual information can be used in two different ways in the specialised translation classroom: as an object of translation and as instructional resources when translating a contemporary special text. The interaction of textual and non-textual information facilitates the student's comprehension and learning process, knowledge representation, meaning creation and interpretation in the translation process, as demonstrated in further sections.

In the same way as information and communication technology has changed the range of competences to be possessed by translators, it has also extended the perception of specialised translation, which is no longer associated solely to specific terminology in the field. At present, specialised texts include new formats and new channels of information, requiring transcreation and localization of content.

The language, structure and format of the specialised text have been changing and developing due to various factors, such as:

- transdisciplinary character of scientific discourse;
- emerging domain of Internet linguistics;
- development of digital rhetoric;
- an apparent tendency for hybridisation of genres;
- a shift from formal to more colloquial style of writing (foregrounding) (cf. Iļinska, Ivanova, & Senko, 2016b).

Therefore, due to the development of multimedia and information technologies, contemporary specialised texts have experienced rapid transformation with respect to *changing traditional modes of expression, promoting genre hybridity, foregrounding, intertextuality and multimodality*.

As a result of the above-mentioned changes, specialised translation teaching is characterised by the growing complexity of information structure and information density, as well as reliance on the background knowledge of the students. To activate the readers' background knowledge, the authors often use allusions to well-known sources (e.g., the Bible, Greek mythology, historical events) and/or professional books in different scientific domains, including the names of famous scientists. In such cases, intertextuality as a phenomenon strongly influences text interpretation. It consists of multiple layers, and is based on background knowledge expressed in references, citations, allusions, metaphoric images. Therefore, the emerging associations should be perceived and processed at all levels simultaneously. The authors often bring some novel information into focus using various foregrounding techniques such as, for example, application of metaphoric terms, allusions, idioms, proverbs, etc. Since the foregrounding devices can be introduced at different levels, they are used to activate different layers of knowledge ensuring that the new information is not unnoticed or missed. Geoffrey Leech (1970: 121) points out, "Foregrounding, or motivated deviation from linguistic or other socially accepted norms, has been

claimed to be a basic principle of aesthetic communication". Decoding information, the reader immediately pays attention to the lexical units that are not directly associated with a given genre.

At present, genre in specialised texts is becoming a highly controversial phenomenon. Due to the possibilities provided by the new digital technologies, new genres challenge the established concepts of textual analysis. Today genres are discussed not only in terms of their traditional form, but mostly in terms of purpose and function of the text as the term "genre" is used to denote different types of communicative events (Swales, 1990). Contemporary specialised texts fulfil not only informative and persuasive, but also expressive functions in an attempt to attract attention to the information presented.

It has become increasingly widespread to transfer information by different channels of communication, thus requiring the reader to decode additional information communicated not only by verbal, but also by visual and other symbolic modes. Meaning in a particular situation is composed through the selection and configuration of modes (cf. Jewitt, 2009). The use of different modes activates alternative ways of message interpretation by readers, thus evoking additional shades of meaning or drawing attention to specific information.

Multimodality is a new focus in specialised text translation teaching, with special emphasis on effective teaching and learning practices. Adopting multimodal resources in translation classroom, students learn to create rhetorically rich texts. As Jody Shipka (2013: 88) maintains, a multimodal framework "requires students to assume responsibility for determining the purposes, potentials and context of their work". Multimodal perspective not only offers flexibility in the range of materials, resources and tools that students can use, but it also requires students to create new rhetorical meanings in the process of text production. The multimodal framework favours rhetorical awareness of both form and content. The multimodal training resources can add value in the acquisition of subject field knowledge and terminological competence and contribute to the development of textual competence, intercultural competence and research competence.

The subsequent sub-sections demonstrate how to use authentic specialised texts in a translation classroom to develop students' ability to decode and create meaning through metaphorical and creative thinking, raise students' awareness of intertextual devices, promote their cross-cultural competence, as well as responsible decision-making skills.

3.2.1. Developing Students' Ability to Meaning Creation and Comprehension through the Conceptual Blending Theory and Cognitive Metaphor Theory

Cognitive and associative way of thinking is a pre-requisite in the translation process as it involves several factors such as language, knowledge, culture, expertise, and communication. The study of cognitive processes in translation is a relatively new theoretical perspective, which views translation as information processing, problem-solving and decision-making activities.

In general, there are two main approaches to the translation of special texts. According to the theory of relevance, the translator should convey information that is needed in any given context of communication. However, establishing a conceptual model for communication, a significant amount of relevant information might be implicit, thus requiring considerable background knowledge to decode the meaning conveyed.

The integration of translation studies and cognitive sciences has attracted increasing attention of the scholars over the past few decades. "Translation is the result of the complex integration of a variety of common cognitive mechanisms acting over specific configuration of neural sites." (Shreve & Diamond, 1997: 246). Application of the interdisciplinary approaches to the process of translation has contributed to the development of new translation models, re-formulation of the necessary competences and revision of translation strategies and methods.

One of the main areas of research in cognitive linguistics is the conceptual metaphor theory that identifies metaphor with "the network model of complex categories" (Tyler & Evans, 2003: 227). The metaphor research has undergone considerable changes. Until the 1980s, metaphor and metonymy were considered the main rhetorical devices primarily used in literature. However, the cognitive approach introduced in the 1980s draw the attention to the role of these devices in human thought and comprehension.

Societies differ in terms of the associations they make between conceptual metaphors and abstract target domains. The cognitive metaphor theory allows explaining universal aspects of language and culture (Kövesces, 2002). The function of metaphor is seen as maximizing "the possibilities for mapping rich conceptual structure in the source domain onto the target domain" (Lakoff, 1992: 8). Metaphor is far more than an ornamental figure of speech. It permeates many aspects of language and may serve a key role in structuring conceptual representation and inference (Lakoff and Johnson, 1980, 1999; Semino, 2008). Thus, the study of metaphors can reveal how ideas are generated and negotiated within groups.

A more recent framework developed by Fauconnier and Turner (2002) is the theory of conceptual blending, which unifies the analysis of metaphor with the analysis of a variety of other linguistic and conceptual phenomena. As stipulated by the authors (ibid.), any representation of specialised knowledge must be dynamic. The conceptual mappings occur in the minds of the students, if students connect mental images to words, and relate conceptual categories to their previous knowledge. Along with the development of cognitive linguistics, the analysis of metaphor is performed considering a new perspective. Now metaphors are investigated not only as linguistic, but also as cognitive phenomena because metaphoric mapping is an essential characteristic feature of human cognitive activity.

Many factors might facilitate the understanding of the metaphorical expression in the context, i.e., previously encountered metaphor with similar contextual meaning can help understand a metaphor in a text. Most conceptual metaphors are based on concepts that possess a certain level of generality and have a specific generic-level. It makes easier to understand them due to the fact that the context is more familiar to the majority of readers. Metaphors are increasingly used in scientific texts, because modern perception requires brighter concepts and associations to produce a stronger effect.

The tasks provided below focus on examining the role of metaphors in special texts in the fields of economics, civil engineering and telecommunications. The aim is to develop students' understanding of different approaches to cognitive models, for example, to be able to perform the analysis of metaphors. Completing the tasks, students acquire the basic concepts of cognitive metaphor theory, identify different approaches to metaphor analysis, as well as investigate digital tools used for metaphor analysis. It should be noted that tasks make sense if theoretical explanation is given to the students.

TASK 1

ST: ***The debt spider has devoured farms, homes and whole countries that have become trapped in its web***. *In "The Death of Banking", financial commentator Hans Schicht states that he had an opportunity in his career to observe the wizards of finance as an insider at close range. Their game, he says, has gotten so centralized and concentrated that the greater part of U.S. banking and enterprise is now under the control of a small inner circle of men.*

(Source of the authentic text: Brown, 2008: 1)

Didactic purpose. The students are invited to identify the most common views of metaphor in the sentence "*The debt spider has devoured farms, homes and whole countries that have become trapped in its web*" taken from the book "The Web of Debt: The Shocking Truth about Our Money System and How We Can Break Free" (2008) by E. Brown. Students have to determine that metaphor is a linguistic phenomenon, a property of words. Second, metaphor makes an implicit or hidden comparison between two things. Thus, in the sentence *debt* shares some essential features with a spider. Third, metaphor is used for rhetorical purpose to create special effects. Fourth, the students are encouraged to have a view on metaphor as the deviant use of words because it is used instead of equivalent literal expressions (a means of foregrounding). Finally, according to the dead metaphor view, due to the fact that metaphors have been conventionalised over years, they may not be viewed as metaphors anymore. The students recognise that metaphor has become an omnipresent characteristic of the human language and, for this reason, proper natural language understanding depends on the personal ability to identify and properly understand metaphors. Metaphoric competence is a complex competence, which develops gradually and is constantly changing. Activities of this kind help develop metaphorical competence, which plays an important role in advancing students' linguistic competence and cognitive skills.

Task 2 is devoted to the interpretation and translation of metaphors characteristic of the texts in the field of economics because metaphor is essential to economic thinking and may be regarded as the most important example of its rhetoric.

TASK 2

ST: *The President believed that if he poured up to 787 billion dollars into the American economy, nationalized banks, lowered tax rates, and supported the financial industry he would resolve the crisis. **He also tightened regulation of the financial industry to rein in the financial "wizardry" that had accelerated the popping of the bubble in 2008 and made it far more painful.** In 2010, a second, bigger than the first, recovery plan was launched. It was called the American Recovery and Reinvestment Act, Federal Stimulus Funding in the January 2010 Financial Plan, and relied on the same principles of increasing government deficit and pouring funds into the financial system, into firms and households.*

(Source of the authentic text: Isaac et al., 2012: 44)

Didactic purpose. The fragment that is taken from the book "The Benefits of the New Economy. Resolving the Global Economic Crisis through Mutual Guarantee" (2012) by G. Isaac et al. involves the metaphorical terms "bubble" and "financial wizardry". Based on the context, the students should decode the meaning of the above-mentioned items. For example, financial wizardry can refer to exceptional creative ability that leads to the artful performance of impossible effects. The metaphorical expression can also refer to mystical, unexplained financial undertakings or unpredicted changes in the stock market. Practicing the translation of metaphors and metaphor-based terms, students are taught to recognise that the understanding of the metaphor depends on the context and background knowledge.

Meaning creation is a process of great importance, especially in the period of dynamic lexical innovation and creativity. The research on the meaning of newly created metaphorical terms offers new dimensions to the investigation of the professional language. Cognitive approach to the study of terminology and the vocabulary of special text, acknowledging the creative potential of the language of science, has become especially important in term formation.

Allusions, which are considered to be extended metaphors, provide some key not only to the hidden meaning of the lexical item, but also to the map of the associated concepts. In learning activities, students can be invited to determine the meaning of acronyms such as HERA, ZEUS, APOLLO, FAUST, which can be regarded as "false" allusions. For example, by determining the meaning of HERA, students can come across various definitions (see Table 3.2).

Table 3.2. An Illustrative List of Various Definitions of Acronym HERA (Developed by the author based on the Online AcronymFinder Dictionary)

Acronym	Definition
HERA	Higher Education and Research Association
HERA	Heavy Engineering Research Association
HERA	High-Explosive Rocket Assisted
HERA	Higher Education Role Analysis
HERA	Human and Environmental Risk Assessment
HERA	Housing Education and Research Association
HERA	Housing and Economic Recovery Act of 2008

For example, the acronym FAUST, which is a "false" allusion to Goethe's play "Faust", stands for *Functional AUdio STream* (domain-specific purely functional programming language), *Flexible Acquisition and Understanding System for Text* or *FAr-Ultraviolet Space Telescope*. This phenomenon demonstrates the characteristics of the digital age, in which scientific discoveries take place very fast. The creation of such lexical innovations is governed by the need to compress information following the contemporary principle of linguistic economy. After completing the tasks presented above as examples of learning activities, students are able to recognise meaning creation patterns of metaphorical terms, reveal new additional meanings, identify the relationship between linguistic forms and patterns of meaning creation.

Metaphorisation as a type of human cognitive activity is in the focus of researchers' attention due to the capacity of metaphorical terms to create new meanings by designating new concepts. Cognitive theories are important for understanding how mental representations of the concepts are created in the specialised text. The cognitive science research on meaning, reasoning, conceptualization and language determines metaphor as one of the main sources of creativity and innovation in the language.

A number of strategies have been developed for metaphor analysis. Pre-existing research methods are developed to be used with evolving digital technology. The students are introduced to three strategies: *anomaly detection, comparison of two groups* and *subculture analysis.* Anomaly detection strategy is based on an inductive method and starts with the analysis of an anomalous example of metaphorical language (Ignatow and Williams, 2011). Comparison strategy, in turn, is based on a deductive method, which requires systematically selecting groups to compare. The construction of metaphorical models can help better understand how relations are constructed in the mind.

The subcultural strategy is a qualitative method of text analysis based on metaphor, which was developed by Rudolf Schmitt (2005). It is a rule-based and step-by-step approach. It operates at a sociological level of analysis that involves making inferences about the community that creates the text being analysed. The analysis involves several stages, such as setting the goal, choosing the topic, making a broad collection of metaphors by using different sources (e.g., journals, encyclopaedias etc.) and comparing the metaphorical concepts in the source and target cultures.

When the strategy for analysis is chosen, the students should determine a research method. The methods can be grouped into qualitative, quantitative and mixed methods. Qualitative methods

rely on human interpretation and coding of metaphors in texts. Mixed methods involve human coding of metaphors and statistical tests.

With regard to text mining applications, the first attempts to identify metaphors in texts were based on predefined semantic and domain knowledge (Fass, 1991). Semantic annotation tools were proposed to extract metaphorical expressions from texts. Some scholars approached this problem through the classification of phrases into concrete and abstract ones, as metaphor involves a mapping from a concrete domain to a more abstract domain (Turney et al., 2011). The algorithms aimed at identifying metaphorical phrases work by comparing the abstractness of adjective-noun phrases, i.e., the phrase is determined metaphorical when the abstractness passes a predetermined threshold. There is great potential in teaching students automated methods of metaphor identification in text mining applications.

The following qualitative data analysis software can be used for metaphor analysis: NVivo, MAXQDA, WordSmith.

TASK 3: Setting up the Project

1. Select texts as data for metaphor analysis.
2. Choose a metaphor analysis study as a pattern to be followed in your research.
3. Identify patterns of metaphorical language used in the selected texts.
4. Apply metaphor analysis methods to your data.

From a pedagogical perspective, metaphorical competence involves student's ability to identify the similarity between different domains, thus being able to understand and create metaphors. Metaphorical competence is also based on imagination, which in turn requires two skills: the willingness to discover the richness of language and the ability to make reasoned and substantiated decisions on the most relevant translation variants. The difficulty lies in the fact that students may lack the sense of language needed to choose among different translation variants. In such situations, a cognitive approach to interpreting the source text may be especially helpful. The cognitive approach also facilitates students in conscious application of appropriate translation strategies and methods. It provides a framework for masterful acquisition and practice of such translator's competences as metaphorical competence, intercultural competence, transdisciplinary knowledge, as well as analytical and critical thinking skills.

3.2.2. Developing Students' Awareness of Primary and Secondary Meaning in Translation

Two main aspects of translation activity involve meaning creation and contextual analysis. It is very important for a translator to extract the meaning of words in a particular situation taking into account context. Halliday (1992: 15) defines translation as a "guided creation of the meaning" and emphasises the role that contextual parameters play in the process of meaning making guided by a target text context.

Producing the target text, attention is mainly paid to information that seems relevant for a particular receiver in a particular situation. In the target text creation, new meanings are often added to existing words to express concepts, notions and phenomena that are absent in other culture. If we see language as a social phenomenon set in culture and view the well-interpreted meaning of a linguistic item related to the cultural context, translation should be performed taking into account both a linguistic and cultural perspective.

Contexts as cognitive structures or mental models store everyday experience in a wide range of conceptual and thematic domains, within which language users interpret the world and establish communication. Text production and comprehension cannot be separated from cognition, as texts exist as mental representations in the individual. During comprehension, contextual information influences how meanings are interpreted.

The readers should be able to intuitively select meaning according to the principle of optimal relevance. Meaning is basically a conceptual structure. Relations between meaning and context are of particular importance as they represent an interactive process that develops cognition and productive communication. The translation resembles the source text, but the culturally different context and the background are very important. Often, translators cannot simply use their own cognitive environment when trying to understand the original; rather they have to share the mutual cognitive environment between the author and target readers.

In translation studies, "a translation-relevant text analysis" is necessary for adequate translation (Nord, 1991: 17). Text analysis is meant to guarantee comprehension, overcome subjectivity and secure the concept of translation as an inter-linguistic transfer of a source text into a target text (cf. House, 1997: 52). The translator must decide which part of the source text material may be preserved and which one should be changed for cultural or purpose reasons (cf. Nord,

1991). The author also discusses the adaptation of conventions regarding text genre to target norms by "paraphrases" or even the adaptation of verbalised and non-verbalised information to the knowledge of the target readers by expansion or reduction. The usual linguistic approach to the text analysis is text-genre, text-context, text-culture, text-knowledge of the relevant cognitive environment.

Task 4 is based on the fragment from the text on economics "Values Based Leadership in the Business Innovation" (2013) by W. Baets & E. Oldenboom.

TASK 4

ST: *Particularly in the African context, mining is important business, with a lot of "**baggage**".*

(Source of the authentic text: Baets & Oldenboom, 2013: 25)

Didactic purpose. The aim of Task 4 is to develop students' awareness of primary and contextual meaning in translation. The contextual meaning of the lexical item *baggage* implies past experiences or long-held attitudes or responsibilities, which can be treated as burdensome encumbrances. To make the target text understandable to readers, students can use the explanatory translation method to clarify the situation under discussion in the source text.

Analysis of contextual meaning of terms they acquire in the process of meaning shift and extension is of considerable theoretical and practical importance in the language of any specific scientific and technical domain. The final translation variant depends on the translator's linguistic competence and background knowledge, purpose and function of the target text, and the target reader as the intended recipient of a message.

3.2.3. Developing Students' Awareness of Intertextual Devices

As specialised texts belong to particular thematic fields, the students should be aware of intertextual devices and understand their translation methods. The development of students' thematic competence is closely related to their ability to identify and comprehend implicit information hidden in allusions, metaphors, symbols representing the intertextual character of the contemporary special text.

Intertextuality may be defined as "the relationship between a given text and other relevant texts encountered in prior experience" (Neubert & Shreve, 1992: 117). It is characterised by the relevance of the text. Often, if a recognizable lexical unit is used in a new context, it may acquire a new shade of meaning or even a new meaning. Information conveyed in the special text may be processed at multiple levels simultaneously, thus requiring students to activate various levels of background knowledge.

In the translation classroom, the instructor should guide students to understand the intertextual links between the source language culture and the target language culture. Students, in turn, should search for appropriate intertextual references in the target language culture, thus ensuring the acceptability of the target text. If the target readers lack the background knowledge of the source culture, they can misunderstand the information. Therefore, the students should add necessary information according to different situations to meet the requirements of the target readers.

From a pedagogical perspective, the training activities should be aimed at developing students' ability to determine intertextual references in the special text, to decode their implicit meaning and to choose a relevant translation strategy for maintaining the intertextual character of the target text.

The tasks provided below focus on acquiring the necessary skills for the translation of intertextual references.

TASK 5

ST: *Before this linear understanding of time, a **cyclical-Sisyphean** perception held rule. In **the Epic of Gilgamesh**, history does not go in any direction. Everything is a cyclical repetition with minor variations, as we see in nature (the repetition of seasons, life and death, the cycle of the weeks, months, etc.). And stories take place in a strange time-loop: **Gilgamesh's story** ends where it begins. There is consistency a consistency in this with Greek myths and fables: At the end of the story, no progress occurs, no essential historic change; the story is set in indefinite time, something of a temporal limbo.*

(Source of the authentic text: Sedláček, 2011: 47)

Didactic purpose. The excerpt from the text "Economics of Good and Evil: The Quest for Economic Meaning from Gilgamesh to Wall Street" (2011) by T. Sedláček is a useful source to teach the translation of interdisciplinary special texts that employ various foregrounding techniques. The source text author makes an attempt to answer fundamental questions of economics, such as: What is the meaning and the goal of economics? What is the axes of good and evil in economics? What is the invisible hand of the market? Sedláček proposes to view economic value through placing the wisdom of philosophers, mathematicians, scientists, and even poets over sound and precise mathematical models of human behaviour patterns.

Analysing such intertextual devices as *cyclical-Sisyphean perception* and *Epic of Gilgamesh*, students not only develop their linguistic competence but also improve their procedural knowledge with regard to translation of these devices, i.e. choosing the target language counterpart with the same expressive value and load.

Task 6 demonstrates that to decode the intended information, the students should have a certain degree of background knowledge.

TASK 6

ST: *If the enabling services to the user organization who gets ready for cloud computing apply* **Monet's principles***, then they may be* **worth its salt.** *If project control is asleep at the wheel of governance and there are overruns, then the enabling assistance and the project itself will be a failure. Let me moreover add that the final responsibility for cloud computing management should be with the CEO of the user organization, not with the vendor's consultants.*

(Source of the authentic text: Chorafas, 2011: 47)

Didactic purpose. Analysing the fragment from the book "Cloud Computing Strategies" (2011) by D. N. Chorafas, the students learn that *the use of allusions* can give additional (explicit and hidden) meanings to the common ideas, objects or well-known facts. The students should be aware that allusions may be misleading and the necessary subject field knowledge is required to decode the meaning. For example, in the excerpt provided, the *allusion to Monet* may be associated with famous French painter Claude Monet, while the source text author refers to Jean Monet, an investment banker, father of the European Union, who proposed the best concept of project management. In turn, idiom *worth its salt* is used for the purpose of comparison in the source text, which requires students to search for possible functional analogues in the target language. In the process of rendering idioms, the students also practise the application of different translation strategies, such as using an idiom of similar meaning or form, using an idiom of similar meaning but dissimilar form, translation by paraphrase, omission, and compensation. As a rule, the students cannot choose one strategy and apply it to all cases. Every idiom should be considered separately in the context, taking into consideration the message the author intends to convey through the idiom. The choice of translating idioms will depend on the existence of analogue in the target language, the significance of the idiom in the text, as well as the appropriateness of using idiomatic language in the created target text. At the same time, the students can practice *the cause and effect writing strategy* to convey the desired information in the target language.

Task 7 is based on the fragment of the text "The Spider Network: The Wild Story of a Math Genius, a Gang of Backstabbing Bankers, and one of the Greatest Scams in Financial History" (2017) by D. Enrich. It demonstrates the challenges students may face if due to the lack of certain background knowledge they fail to identify and decode intertextual references made by the author of the source text on banking and finance.

TASK 7

ST: *Larry Summers, the Treasury secretary in the Clinton administration, noted that "starting in the 1970s, the finance industry was transformed from a field that was dominated by people who were good at meeting clients **at the nineteenth hole** to people who were good at solving very difficult mathematical problems that were involved in pricing derivative securities".*

(Source of the authentic text: Enrich, 2017: 11)

Didactic purpose. The expression "at the nineteenth hole" may seem ambiguous to the students if they are not familiar with the game of golf as a social activity. The source text communicates the idea of social networking practices in doing business. The author implies that the players meet after the game in a restaurant of an elite golf club to discuss some business matters. Direct implicature is that the players belong to the same social class and share the same interests. Discussing this intertextual reference, the students evaluate possible translation methods with regard to the degree of relevance of the target text. To ensure relevance at the level of content, the students may employ such methods as explanatory translation and paraphrase, losing some stylistic colouring in order not to compromise the accuracy of content. To communicate the indented meaning, the students develop their strategic competence.

In Task 8, in order to understand and interpret the information conveyed in the book "Travels in Architecture" (2009) by R. Harbison, the students should be aware of the imagery of the Greek mythology, Bible and the Renaissance, including Mannerism. The language of the special text is complex, artistic and symbolic, which is achieved through the use of allusions, metaphors, similes, epithets, and other rhetorical devices.

TASK 8

*In the next generation at the Casa Buonarroti in Florence, **Michelangelo's pronipote**, known as Michelangelo the Younger, created his own modest **studiolo**, part of an elaborate Mannerist shrine to his great kinsman that turned Michelangelo's life into ritualized images and embedded a few **small pieces of his work in the exquisite setting like flies in amber**. It was inevitable, no doubt, that Michelangelo's innovations, the fruit of fervent searching, should be turned to something less disturbing by even the most fully attuned of imitators. The proportions of the Sistine Chapel ceiling, where the border takes over from the centre and energy is diverted from biblical scenes to contorted nude figures who have no place in the action, which had their particular causes in the artist's temperament and the physical form of the vault, later became a standard decorative formula in a variety of other situations.*

(Source of the authentic text: Harbison, 2009: 162–163)

Didactic purpose. Task 8 aims at demonstrating that the use of allusions goes beyond the scope of individual work as they connect the works of the world cultural heritage. In the process of text interpretation, the students come to a conclusion that the level of intertextuality of the text increases, thus requiring activation of various levels of their background knowledge.

To conclude, fulfilling the above-mentioned tasks the students acquire deep knowledge of intertextual devices, which are used to illustrate, to create additional meanings and to achieve and facilitate the needed stylistic effect. The intertextual devices express implicit meanings that are often hidden in special words and images. The students develop their information processing skills, recognising that the interpretation of the specialised text should be performed taking into account not only pragmatic aspects, but also the most complicated cognitive aspects.

3.2.4. Developing Students' Cross-Cultural Competence: Pragmatic Adaptation

The translator should be aware of the challenges conditioned by differences of both linguistic systems and by cross-cultural differences in order to transfer meaning adequately, since the cultural adaptation undoubtedly is an essential part of a creative process for providing an adequate translation. Cultural differences that require adaptation in the process of translation are mostly expressed by metaphors, allusions and other stylistic devices.

According to Piaget's (1964) theory, adaptation is one of the important processes guiding cognitive development. Adaptation theories formulate principles for meaning making, focusing on the type of information that is relevant, deserves attention or needs explanation. In translation studies, the adaptation is the continuous process of making choices in linguistic forms and communicative strategies. The adaptation theories investigate creative adaptation, cultural adaptation, pragmatic adaptation; all of them involve imaginative practices as all of them can cause misinterpretation due to the misunderstanding of the cultural and pragmatic differences between the target and source languages.

Taking into account the distinction between micro-level and macro-level translation problems, strategies are divided into the local ones that deal with text segments and global strategies that refer to the whole text. Both local and global strategies interact with relevant elements of the translator's background knowledge: critical awareness of the style and content of the text, norms and conventions of the target language, register, as well as imagination and creative thinking. Adaptation is considered a translation strategy, which involves the application of such translation methods as lexical addition, synonymy, paraphrase, functional analogue, explanatory translation etc. When content of the source text undergoes adaptation, it is subject to a variety of factors, which are determined by the nature of the source text, the reason for adapting the text, medium, and culture into which it is adapted. Adaptation theories explore the continuous development of creative adaption and state that the practice of adaptation is central to the story telling and image creation (cf. Hutcheon, 2006).

It is essential that adaptation is acknowledged as a type of creative process, which searches for restoring the balance of communication between the source text and the target text. There are notions, subjects and phenomena unknown in some cultures, which have no name or no use in one of the languages involved in translation. In some cases, the most acceptable decision is to change

a word or a phrase to another, to express the notion or concept that can be familiar to a target audience. Adaptation in the target text creation has always been defined in relation to cultural differences, meaning transformation, and the role of linguistic conventions.

Peter Newmark (2010: 176–177) proposes five main translation strategies: *transference* (used when a culture-specific concept has already been adopted in the target language); *cultural equivalent*; *descriptive equivalent* (when a culture-specific concept is translated by a more generic term with supplementary components); *componential analysis*; and *transonym* (conversion of personal, geographical, and literary proper names). The scholar also maintains that "other translation procedures are marginal", e.g., literal translation, synonymy, modulation, paraphrase, reduction and expansion, shifts, and cultural footnotes. In practice, translators usually use several translation strategies, for example, loanword, calque, substitution and explanation to meet the necessary requirements in the target culture.

The tasks below illustrate that the students striving to achieve interpretive resemblance between the source and target texts may employ more focused types of adaptation, i.e. creative and cultural adaptation to ease the text processing effort on the part of target readers.

TASK 9

ST: *The requirements of these building types were in a large part determined by medieval social and economic structures. As their positions became more secure, the nobility moved from often dark and uncomfortable castles into domestic residences. The consequent emergence of new typologies, in the English manor-house, the French* **château** *and the German* **schloss***, provided new possibilities for architectural expression that borrowed and adapted elements of the Gothic from its ecclesiastical contexts. One direct link was the private chapel, an essential component of these new types of building.*

(Source of the authentic text: Hopkins, 2014: 44)

Didactic purpose. Task 9 aims at teaching the students the levels of relevance. The fragment taken from the book "Architectural Styles: A Visual Guide" (2014) by O. Hopkins demonstrates that several adaptive strategies may be used at the same time to produce relevant translation. The source text author uses foreignisms – *chateau* and *schloss* – to create a certain

stylistic effect, as well as to emphasise cultural and geographic distance between different forms of architecture. Three adaptive methods (footnote, lexical addition and paraphrase) have to be used by the students in order to ensure relevance at the level of content.

Task 10 is based on the fragment from the text on economics "Bad Banks: Greed, Incompetence and the Next Global Crisis" (2014) by A. Brummer.

TASK 10

ST: *Ultimately the Halifax Bank of Scotland deal was a rather **mend-and-make-do affair**, but it did also signal indications of a more **joined-up approach**.*

(Source of the authentic text: Brummer, 2014: 37)

Didactic purpose. The aim of Task 10 is to practice with the students the use of pragmatic adaptation in translating the idiomatic expressions. The text fragment for Task 10 features two idioms – *mend and make do*, whose word order and the meaning of the original idiom has been changed by the author of the source text (the original one is *make do and mend*), and an idiom *joined-up*. The significance of idioms reveals itself only if we take into account the mind of the reader. The idiom *joined-up* is a transparent and compositional idiom, which can be understood based on contextual meaning of the sentence. By conducting research, the students find out that these idioms do not have their pragmatic equivalents in the target language; therefore, they have to use paraphrase as a form of pragmatic adaptation. The students develop an understanding of pragmatic adaption and are able to choose various translation methods to produce a relevance target text. The students learn that as a result of pragmatic adaptation, losses and gains both at the level of content and that of expression are inevitable, since the source text is subject to changes in the new communicative situation governed by the norms, rules, customs and traditions of the target language.

Despite the frame of the scientific and technical text implies the application of rules that limit the use of figurative language or double meanings, as the aim of the text is to avoid possible ambiguity, today it is impossible to find a text, which would be purely neutral or written according to the conventions of scientific and technical language. It is also obvious that cultural differences that require adaptation are mostly expressed by irony, jokes, idioms, puns, metaphors, allusions and other stylistic devices.

3.2.5. Developing Students' Responsible Decision-Making Skills

Some translation theoreticians discuss translation as a cognitive process (rather than as a linguistic product); the mental process of regenerating text in another language. Albert Neubert (1991: 25) defines translation in terms of a series of problem-solving processes: problem identification, comprehension, retrieval, problem reduction, and decision-making. Translation as a decision-making process can be examined from a different point of view that includes the way how decisions are categorized. Jiri Levý (in Venuti, 2004:151) suggests that "the translator's decisions may be necessary or unnecessary, motivated or unmotivated." However, other classification variants are also possible. The categorization of decisions can be based on the degree of consciousness, focus, required new information, flexibility, and cognitive processes. Sharon O'Brien (2011: 71) maintains that decisions can also be classified into the following four groups:

- routinized decisions;
- stereotype decisions;
- reflected decisions;
- constructed decisions.

For example, routinized decision-making processes take place when one option is unconsciously retrieved in a pattern-match process. In stereotype decisions, the evaluation of translation options happens mainly unconsciously, and usually more than one option is available. In turn, reflected decision-making begins with automatically retrieved options using an internal or external search followed by controlled evaluation. After the reflected decision-making process, constructed decisions are made. Students formulate their own answers using knowledge and critical thinking skills (cf. ibid.).

The application of decision-making stages can be practiced through translation challenges at the level of expression related to the rendering process of rhetorical devices, culture-specific concepts, neologisms etc. Categorization of decisions can help students understand the decision-making process better, thereby developing the necessary translation skills.

The task below illustrates that the students have to apply different categories of decision-making to resolve the translation challenges.

TASK 11

ST: Moreover, his theory tended to overlook content in favor of form, while ignoring the social, economic or material factors that determined the creation of a building or a work of art. In **Wölfflin's essentially Hegelian conception**, *'style' had its own life and its own trajectory, with artists and architects relegated to mere actors performing from a script pre-ordained by the* **zeitgeist**.

(Source of the authentic text: Hopkins, 2014: 5)

Didactic purpose. Fragment from the text by O. Hopkins (2014) is characterised by high information density, which requires considerable processing effort from the students. They should be familiar with German philosopher Hegel, understand the notion of style in architecture, as well as the origins of architectural history. Moreover, the students should associate the use of a German word *zeitgeist* with the reference to Hegelian philosophy and the concept coined by Swiss art historian Wölfflin.

Ensuring relevance in translation is a challenging and time-consuming task. Students should develop an understanding of the cognitive and cultural differences between the source and target languages through different translation practices. Apart from translation tasks and resources, students have to use the computer, network and multimedia learning platforms to meet their autonomous needs. Translation problems through decision making can be seen to teaching source text comprehension, target language skills, interlingual issues, and translation competence problems or target text production problems.

The range of competences translators should possess has changed, requiring a profound knowledge of both languages, thematic competence, higher level of intercultural competence, cross-disciplinary knowledge, as well as critical and analytical thinking skills. A translator should still be able to recognise the challenges conditioned by differences of linguistic systems and by cross-cultural differences and transfer meanings adequately, since the cultural competence is essential for creating an adequate target text.

3.3. Digital Rhetoric as a Space of Creativity

As patterns of communication are constantly changing in the global world, it raises the necessity for developing translators' textual competence of digital texts and digital rhetoric elements in their training process. The term *digital rhetoric* was coined by rhetorician Richard A. Lanham in 1989 and explained in his collection "The Electronic Word: Democracy, Technology, and the Arts" (1994). The scholar described digital rhetoric primarily through the verbal and visual features. Influenced by Lanham, James P. Zappen (2005) proposed the definition of digital rhetoric as a space of collaboration and creativity between the composer of the message and the audience. The three main elements should be included in the definition of digital rhetoric – rhetoric, digital and text. Digital rhetoric is a way of informing and persuading an audience through digital media that is created through multimedia platforms. Studies of the new digital rhetoric should explain the transformation of the old rhetoric of persuasion and some of the basic characteristics of communication in digital spaces.

Douglas Eyman maintains that digital rhetoric is "the application of rhetorical theory… to digital texts and performances" (2015: 44). For Angela Haas (2018), digital rhetoric is the digital negotiation of information – and its historical, social, economic, and political contexts and influences – to affect change. The scholar stresses that digital rhetoric does not apply only to text-based items as it can also relate to image-based or system-based items. To sum up, digital rhetoric can be defined as an extension of human communication that takes place in the digital sphere. From this point of view, digital rhetoric studies many different forms, including but not limited to text, image, audio and video (cf. Eyman, 2015). Similarly, digital rhetoric can take on a variety of meanings based on what is being analysed. The concept of digital rhetoric is undergoing changes.

At present, some scholars interpret the rhetorical aspects with greater focus on the digital aspect. Digital is no longer just one of the many different tools that can be used to enhance traditional rhetoric, but an "ambient condition" that encompasses our everyday lives. In other words, as technology becomes more and more ubiquitous, the difference between traditional and digital rhetoric starts to blur. It is also assumed that technology and rhetoric can influence and change each other.

Rhetorician Elizabeth Losh (2009) offers four-part definition of digital rhetoric that includes the *conventions of new digital genres* that are used for everyday communication, as well as for special occasions; *public rhetoric*, often in the form of political messages from government institutions, which is represented or recorded through digital technology; the emerging *scholarly discipline* dealing with the *rhetorical interpretation of computer-generated media* as the objects of study; and *mathematical theories of communication* from the field of information science. According to Losh's definition, digital rhetoric incorporates and relies on different methods to examine various types of information, for example, text, visuals, and videos.

Eyman (2015) argues that classical theories can be applied to digital media; however, special attention should be paid to the adaptation or "extension of rhetorical theory". Rhetoric is the core discipline of the humanities and, thus, digital rhetoric should be developed in line with the development of digital humanities. Digital rhetoric certainly has its own techniques and methods, the ways of reading and interpreting the material, but still it is based on the traditional rhetoric. According to Zappen (2005: 320), the main activities within the field of digital rhetoric include:

- the use of rhetorical strategies in the creation and analysis of digital texts;
- the identification of characteristics, features and constraints of new media;
- the development of rhetoric of technology;
- the use of rhetorical methods for cultural formation in digital texts.

Digital rhetoric may use traditional rhetorical theories, strategies and methods, as well as incorporate contemporary theories of visual rhetoric and computational rhetoric. In other words, digital rhetoric as an interdisciplinary field may use the methods from a wide range of related disciplines. Technologies have promoted the use of different modes to transmit information and the digital environment, in its turn, has changed the modes of creating meaning, thus leading to multimodality of digital texts. Therefore, to achieve effective communication, it is suggested to combine modes since some meanings are characteristic of particular modes that have their own potentials and/or limitations.

Scientists make attempts to create the digital rhetoric theory that can account for multimodal communication. At present, there are no clear distinctions between digital and non-digital environments, as well as digital and traditional rhetoric. As digital technologies are constantly developing, a variety of newly-created media differ greatly from traditional printed

documents while simultaneously retaining print-based visual forms. Therefore, there has been an increased interest in visual rhetoric as it is foregrounded in digital media.

Nowadays scholars are adapting the fundamental principles of rhetoric to realities within the digital space. Classical rhetoric is used as the basis for developing digital rhetoric and new media (see Table 3.3).

Table 3.3. Canons of Classical Rhetoric within the Digital Space. Source: Eyman (2015: 65)

Canon	Classical Definition	Digital Practice
Invention	Finding available means of persuasion	Searching information by using multimodal and multimedia tools
Arrangement	Formalised organisation	Manipulating digital media as well as selecting ready-made works and reconstituting them
Style	Use of appropriate form	Understanding elements of design (colour, font choice, appropriate use of multimedia, etc.)
Delivery	Oral presentation	Understanding and applying systems of distribution (including the technical frameworks that support varying protocols and networks)
Memory	Memorization	Information literacy, i.e., knowing how to store, retrieve, disseminate and manipulate information

According to Table 3.3, the canon of invention is characterised by two features: the search for materials that will be appropriate for the creation of texts, and the multimodality of texts, i.e., the use of different tools to create the text. The canon of arrangement in digital rhetoric is not just the organisation of the text, but it is the connection of several texts, resulting in the creation of a new text. The canon of style primary refers to the visual characteristics of the text, i.e., the choice of font, colour, layout, etc. The canon of delivery provides methods for understanding and using different systems of information distribution. The canon of memory is the knowledge of how to find, disseminate and store the required information on the Internet.

As rhetoric continues to engage with new and old media, different analysis procedures might be required that would allow considering the complex ways in which various types of digital texts evolve.

3.3.1. The Digital Text

Since a digital text is made available in digital devices that continuously evolve, the definitions of digital texts also evolve. Therefore, there is no single definition of the digital text in general and its constituents in particular. Some researchers (e.g., Nelson, 2008) define a digital text as the digital version of printed texts read on a digital device. However, there is also opinion that the digital text, unlike printed texts, offers some additional features that allow readers to interact with the text through sound, visuals, and hyperlinks. Others (e.g., Vassiliou & Rowley, 2008) view it as a digital format created with the application of new features, such as search and cross-reference functions, multimedia features and hypertext links. Following various definitions, a digital text may be a linear text in digital format […], a nonlinear text with hyperlinks […], a text with integrated media […]; and a text with response options […] (Dalton and Proctor, 2008: 300). Despite all the differences in definitions, scholars agree that a digital text involves technological tools for its production and consumption.

The digital environment requires different considerations with regard to text organisation. As digital texts are electronically generated and multimodal (combining texts with audio, video, image, and hypertext), they become more interactive than a printed text and offer the readers to explore them in a nonlinear way. Moreover, the digital text is becoming shorter and more fragmentary. Thus, digital revolution has changed the traditional text structure and promoted its modularity and multilinearity. This transformation accordingly calls for in-depth research into new methods of teaching special text translation in the digital environment.

The main distinguishing features of digital texts are the following:
- interactivity (focus on the most important information);
- self-selective reading mode (users navigate based on their needs and preferences);
- style is different throughout the content provided (as there are usually more than one author);
- regular update of the content (i.e., dynamic – changes are frequently made);
- non-linearity (the content is presented in any possible order on the website, e.g., alphabetically by author or title, or by the date of publishing) (for more information see Iļinska & Ivanova, 2020).

The features of the digital text should be examined as a united whole as they create the

overall meaning of the text. The digitisation of translation breaks way with the Saussurean syntagmatic axis of text, i.e., its linearity. With the use of digital tools, electronic texts are now read vertically (in chunks, segments) rather than horizontally (from the beginning to the end), which has traditionally been the case. Anthony Pym (2011) makes a precaution that translators may fail to establish the cohesion of the text if they tend to focus on the terminological consistency based on a segment-by-segment analysis of the target text.

Digital texts are often based on three aspects of digital rhetoric: ethos, interactivity, and intertextuality. The distributed communication environment in the web can raise questions about message credibility, thus making ethos challenging for rhetorical analysis. Interactivity can be seen as technological features of the resource, leading to text-to-reader interaction through the presence of rhetorical devices, non-textual information and other elements in order to attract reader's attention. Research on decoding the meaning in the digital environment emphasises the role of cognitive and metacognitive strategies that help find information in complex, multisemiotic, multimodal and dynamically changing systems (cf. Dalton & Strangman, 2006) by applying relevant search techniques, understanding the function of hyperlinks, deciding on the sequence of reading and interpreting the textual and visual information.

In **Task 12 – Rhetorical Analysis of Corporate Site**, students are required to analyse a corporate site, for example, TechnipFMC (https://www.technipfmc.com/) that is a leading technology provider in the power industry. A fragment of the corporate site under analysis is provided below.
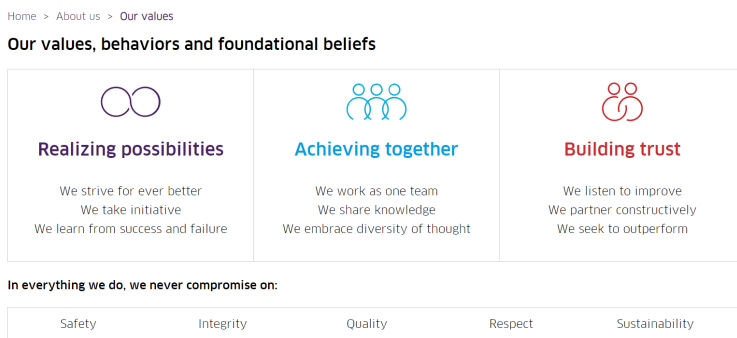
Fig. 3.2. Fragment of TechnipFMC website for analysis.

ANALYSIS PLAN

1. Determining Rhetorical Appeals

LOGOS
Appeals to the head using logic, numbers, explanations, and facts.

ETHOS
Appeals to the conscience, ethics, morals, standards, values, principles.

PATHOS
Appeals to the heart, emotions, sympathy, passions, sentimentality.

2. Determining the Audience / the Purpose / the Context and Meaning(s) of the Website

3. Determining Focus and Interactivity Elements
- **Emphasis** (how is the emphasis achieved?)
- **Contrast** (elements that stand out)
- **Colour** (the choice of color and the meaning of colours used)
- **Information structure** (how is the website organised?)

4. Identifying Rhetorical Strategies/Devices in the Corporate Site

- **Imagery** – language that evokes one or all of the five senses: seeing, hearing, tasting, smelling, touching. Imagery is a technique that can be consistently used throughout a text to develop irony, satire, or symbolism. It is very important to identify it and discuss how it creates meaning in a text.
- **Metaphor and symbolism**
- **Style, tone, voice** (Is tone appropriate? Is voice efficient?)
- **Repetition** (why are the certain words repeated?)
- **Hyperbole /irony / oxymoron / paradox /sarcasm** etc.

The conventions specific to a particular type of digital text often determine its content, purpose and audience. Choice in text structure and language features defines a text type and shapes its meaning. It is important that students consider form and content in greater detail. They should know the conventions or, in other words, the accepted practices, norms, methods and structure of both textual and non-textual information so that they can evaluate how a composer of the message has followed these conventions or deviated from them.

Task 13 is devoted to the analysis of the meaning conveyed by the website visual mode that is manifested through the use of character style (lower-case vs. upper-case), font and size of letters, spacing, letter and page colour, illustrations (shapes, images, charts, tables).

TASK 13. Analysis of the Visual Elements of Homepage *GreenEnergy Systems Ltd.*
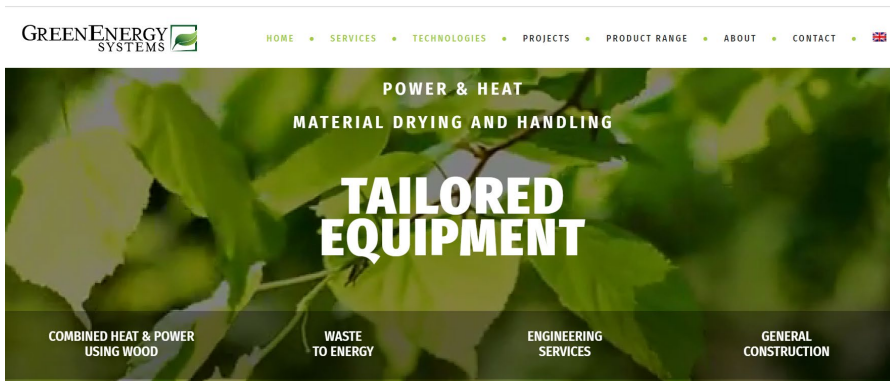
Students are asked the following questions that will help them evaluate the website design, in general, and the function of visual elements, in particular:

Is the menu easy to navigate?
Does the website look up-to-date or outdated?
Is all the content easy to perceive visually?
Do the colours facilitate the reading process?
Is there a good balance between textual information and visual elements?
Do the visual elements promote the user experience navigating the website?

Task 14 is aimed at developing critical thinking skills through determining the key dimensions of the website. Site dimensions that students are invited to evaluate:

- Navigation;
- Layout (balance / contrast);
- Consistency;
- Organisation and structure.

An efficient way to learn the basics of well-organised and resourceful design is the deconstruction of the website. Students also have to prove whether more important information is located in the central place.

TASK 14. Using a grid-based layout provided below, deconstruct any institutional site of your choice by putting on the grid its main elements. Pay special attention to sequencing. You do not need to deconstruct an entire website, just its main subsection.
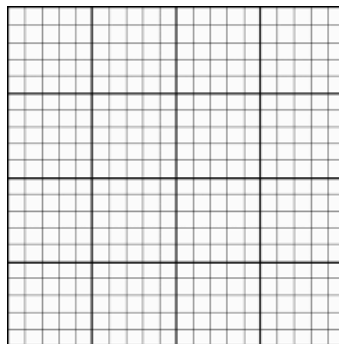
Task 15 intends to demonstrate students the role of visual mode in written communication. Students are also promoted to develop their visual style.

TASK 15. Find a scientific article in the field of telecommunications that would benefit from the visuals (a graph, chart or table). Write guidelines for the creation of the visual layer of information, indicating the data from the article that should be presented. Note that visuals should help the reader better understand the information conveyed in the article.

Task 16 serves as guidelines for assessing information quality of digital texts. Students learn how to consider the audience in terms of the type of information that is relevant to a particular group of readers. In their research, Huang et al. (1999) have found that when people visit a website, they evaluate the quality of information mainly on how well that information matches what they are searching for. They have also proposed four dimensions of information quality that will be used as a basis of the learning activity (see Table 3.4 below).

Table 3.4. The Information Quality Categories and Dimensions (Huang et al., 1999)

Information quality category	Information quality dimension
Intrinsic information quality, or information that has quality for the reader	- Accuracy - Objectivity and believability - Reputation
Contextual information quality, or information that must be considered within the context of the reader's tasks	- Relevancy - Added value - Timeliness and completeness - Amount
Representational information quality, or any surrounding systems that provide information, such as databases	- Interpretability - Ease of understanding - Concise and consistent representation
Accessibility information quality, or provision of information	- Access - Security

The ability to identify information quality dimensions helps students evaluate the appropriateness of the content for readers as well as improve the content if some of the crucial dimensions are not addressed.

TASK 16. Find a website in the field of finance and evaluate its content using the information quality assessment scheme by Huang et al. (1999). Rate the website according to the information quality dimensions and write recommendations for creating better reader's experience with the content of the website.

Task 17. With regard to the investigation of the nature and characteristics of digital news texts, students are introduced to the concept of news value system, which is important for any textual analysis of digital news. According to Thompson and Hunston (2000), one of the functions of evaluation is to reflect a value system. The main purpose of news stories is to present events as 'newsworthy', i.e., as conforming to the news values. The concept of news values can be used to analyse how news values are constructed through "evaluative language" (Bednarek, 2006) or through the "value-laden" lexicon of newsworthiness (Bell, 1991: 177).

Carroll (2020: 148) distinguishes eight fundamental news values that help create "actionable" digital news stories as well as evaluate their usefulness to the readers:

- **Impact**. This is the most important of the values.
- **Conflict**. Most of the news are built on conflict, depicting winners and losers.
- **Proximity**. It is about locality of the reader to the subject or event.
- **Timeliness**. It often equates for the reader to relevance. To determine whether the value of timeliness is present in the news text, it is necessary to identify trending ideas.
- **Prominence**. It refers to authority, famous people and events.
- **Novelty**. It can be considered an innovative approach to presenting some aspect of a well-known issue.
- **Human interest**. It refers to social aspect. People like reading about other people.
- **Visual interest**. Readers enjoy illustrations and videos. It is also important to find appropriate ways for demonstrating the crucial content rather than describing it.

News values help examine and evaluate the quality and appropriateness of news texts.

> TASK 17. Find a digital news text that is published on the web and whose content is shared by social media users. Analyse news values in the selected digital news text based on the classification of news values by Carroll (2020).

The learning assignments may consist of reading and interpreting different digital genres examined above, by using a variety of digital analysis tools. The students should be informed about the learning outcomes to be achieved with regard to a particular digital text, i.e., to be able to analyse the text at different levels, to demonstrate the necessary level of linguistic, thematic, textual and technological competence, to be able identify intertextual references and rhetorical devices, as well as to decode hidden meanings in the context. Students should also be able to analyse such features of digital texts as format, colours, symbols, icons, lighting, and sound effects. Students should always determine the purpose of digital text in order to identify relevant rhetorical strategies and techniques to analyse.

Students gain new experience from digital texts. Principles of digital text analysis refer to the information search process, reading and writing activities that involve students in the interpretation and creation of meaning in the digital environment. Applying digital texts in translation classes, instructors can promote the development of students' multiple competences, i.e. textual, visual, digital and technological competence.

3.4. The Rhetorical Model of Specialised Translation Teaching

Based on the literature review conducted and personal translation experience, the rhetorical model of specialised translation teaching is developed that includes a mosaic of meaningful teaching and learning activities that are viewed as a whole that is greater than the sum of its parts. The rhetorical model aims at engaging cognitive dimensions of learning and enhancing students' ability to discover and maximise their unique strengths through collaborative inquiry. The model also emphasises the role of procedure, during which students learn how to learn. The model proposed by the author of the Doctoral Thesis can also be useful for the design and development

of teaching materials and tasks in the context of specialised translation and digital rhetoric at the tertiary level.

Based on the review of pedagogical approaches to translation teaching, the author of the Thesis suggests observing the following principles in specialised translation classroom (see Fig. 3.3.):

- Co-construction of knowledge;
- Collaboration (teamwork as well as provision of feedback from an instructor and peers);
- Active peer-to-peer online interaction;
- Use of reflection in action (critical thinking and self-assessment);
- Engagement with real-life professional translation environment;
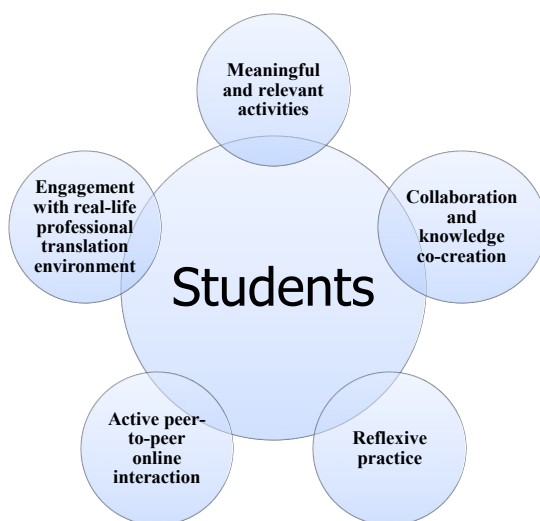- Strategically designed learning activities to develop students' translation skills.

Fig. 3.3. Constructing the learning environment in the specialised translation classroom. (Developed by the author)

The author of the Doctoral Thesis suggests that the translator training with regard to teaching and learning activities should be based on the following principles:

- authenticity (with regard to materials and activities);

- variability (selection of texts for translation from simple towards more complex);
- translatability (focus on overcoming different translation challenges);
- personalisation (selection of tasks to meet specific students' needs);
- digitalisation (application of digital tools).

In order to achieve academic excellence, it is necessary to constantly, consciously and systematically examine the learning process in order to analyse and predict the performance results of the students.

Specialised translation teaching should be extended in the classroom to include more than terminology alignment and adherence to the scientific style of writing. The translation tasks should contain translation difficulties at a level of difficulty appropriate for students. Moreover, the activities should be meaningful in order to engage students in the problem-solving and decision-making process. It is necessary to ensure the interaction of student–instructor, student–student and translation teaching environment.

Training activities should enable students:
- to identify potential localisation problems of a special text in a particular field;
- to become aware of the tools available to perform textual analysis with human intervention;
- to promote their awareness of translation challenges caused by intertextuality, foregrounding, cross-cultural aspects, contextual meanings, and field-specific terminology;
- to become aware of the principles of linguistic economy as a recent trend of scientific and technical language;
- to strengthen their collaboration and teamwork skills.

Basic tasks of the modern learning environment are to create conditions for building and strengthening professional knowledge and skills, to engage students' in high-level cognitive processing, to promote learning motivation, curiosity, develop creative skills, as well as activate critical thinking.

The rhetorical model of specialised translation teaching takes into account the principle of wholeness. It focuses on the critical analysis of the source text (by identifying its form and function, lexical means, created effects, readers) and creation of the target text in compliance with the conventions of the target culture and commissioner's requirements (see Fig. 3.4). The application of the model results in practicing all types of activities representing the real professional environment.
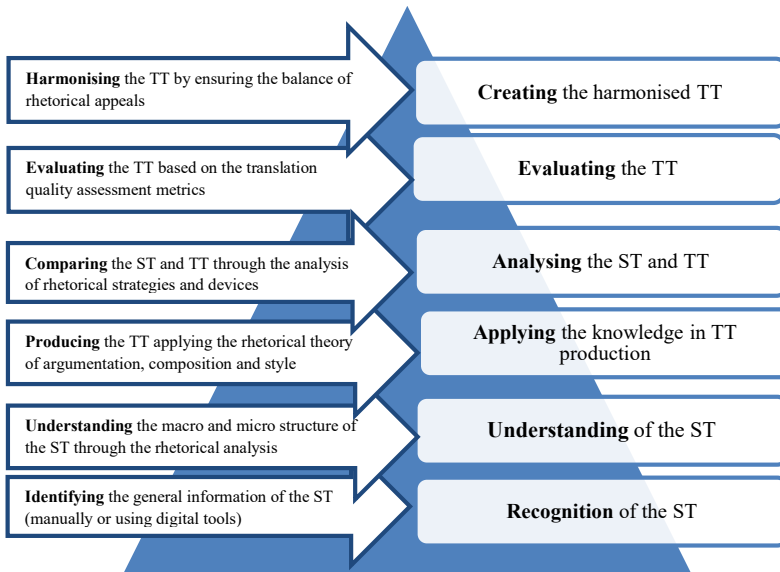
Fig. 3.4. Rhetorical model of specialised translation teaching in relation to Bloom's revised taxonomy. (Developed by the author)

The author suggest distinguishing the following stages in translator training to develop students' translation competence: *data collection and analysis*, *target text creation, editing / proofreading and reflection* (see Fig. 3.5). Within practical activities, students learn to identify text types, determine characteristic features of a particular text type, apply the basic principles of text organisation and choose appropriate digital tools to facilitate the process of text analysis.

Data Collection and Analysis

At the stage of data collection and analysis, students first are introduced to a text; then they identify key concepts (the main idea of the source text; the keywords of the source text; the relevant and even irrelevant information) and collect available information on the main concepts. Such digital tools as TextAnalyst, MALLET, Leximancer, InfraNodus, WordCloud can be used to gather and process the information of the source text. Using the appropriate digital tools students determine the frequency of words, identify patterns characteristic of a text, find all meanings and undertones, draw a diagram of the concept sphere of the source text, make a glossary of terms etc. Training activities can be based on the use of specific methods of digital text analysis, such as

concordance, the frequency analysis, topic modelling identifying the reoccurring theme of texts based on computational linguistics and common words, and the statistical analysis of style (stylometry). Specialised translation teaching requires students to become more educated, capable of using different tools and resources in order to understand, convey or create additional, often implicit, meanings.

Table 3.5 provides a list of contemporary analysis tools that can support students in developing textual competence in the digital age. The list below is a merely illustrative and not exclusive example of tools that can be used for digital text analysis in the translation classroom.

Table 3.5. An Illustrative List of Digital Text Analysis Tools (Developed by the author)

Digital text analysis tool	Application area
Google's Keyword Planner	An application that provides examples of what keyword phrases people use when they search
Soovle	A web-based keyword research tool that provides results from other search engines
Voyant	A web-based set of tools for reading and analysing digital texts. It is possible to analyse and visualise the text in various ways using corpus terms, corpus collocates, correlations, retrieval of phrases, wordtree, etc.
TextSTAT	An application that reads text files and HTML files from the Internet and generates a word frequency list from the files.
Leximancer	A concept mapping and sentiment analysis tool. For concept mapping, it generates a grid of concepts defined in text blocks; for sentiment analysis, it maps the frequency of concepts with a built-in thesaurus of sentiment terms.
TextAnalyst	An open source tool that generates a semantic network of the interrelated themes within a text
AntConc	A tool used to perform concordance of texts
MALLET	A tool used for digital text analysis through topic modelling
Bookworm	An easy-to-use way to visualise trends in digital texts

The author proposes focusing on the following categories during the **text analysis**:

- thematic environment (subject of the text, the principles of content organisation);
- overall structure of the text (the use of rhetorical strategies);
- meaning relationships (identifying links at the linguistic and conceptual levels of the text);
- special language (terms, professionalisms, abbreviations, slang, nonce formations);
- literary language (the use of rhetorical devices such as metaphor, metonymy, simile, personification, etc. to masterfully strengthen the text);
- sentiment (the application of positive / neutral / negative expressions to demonstrate the attitude to the topic / idea communicated);
- multimodality (the use of different sign systems for meaning representation).

On the basis of the identified categories for text analysis, the respective activities can be proposed to students. The tasks can be divided into groups depending on their overall purpose. The author of the study proposes the following groups: tasks related to the *macro and microstructure* of the source text (see Tables 3.6–3.8).

Table 3.6. Evaluating Macro Perspective of the Specialised Text (Developed by the author)

Element under analysis	Question-based analysis
Author	Who is the author(s) of the text under discussion?
Reader	Who is the author's intended audience? Determine the author's attitude to the audience. Identify techniques and methods used by the author to capture interest of the audience.
Text purpose	What is the purpose? (To inform? To educate? To amuse? To persuade? To argue? To criticize?)
Text function	What is the function of the text?
Text type and genre	Define the type and genre of the source text and substantiate your decision. Specify the main features of the source text.
Mode of communication	What modes are used in the text to convey meaning? What is the function of each mode?

Table 3.7. The Process of Determining Rhetorical Appeals (Developed by the author)

Rhetorical appeal	Question-based analysis
Logos	Is the text clear and specific? Is the text supported by strong reasons and reliable evidence? Is the argument logical?
Ethos	What are the author's qualifications/expertise? Does the author present various viewpoints by using sources in the text? Are sources trustworthy? Does the author use a tone that is appropriate for the reader? Is the text presented in a professional manner?
Pathos	Are vivid examples used to trigger the reader's emotions and imagination? Does the author appeal to the values and beliefs of the reader by using relevant examples?

Table 3.8. Analysing Microstructure of the Specialised Text (Developed by the author)

Element under analysis	Question-based analysis
Terminology	Make a list of terms related to the topic under consideration.
Rhetorical strategies	Identify rhetorical strategies, as well as determine their role in the text.
Intertextual references	Identify intertextual references in the text.
Cross-cultural aspects	Identify culture-specific items (if any) and find their interpretation.
Aspects of linguistic economy	What means of compressed information transfer are present in the text?

Text analysis that can be considered one of the constituents of translation training allows investigating the organisation of specialised texts. The new possibilities to text analysis provided by digital tools show a rich potential that should be employed in the teaching process of translators.

During the *target text creation stage*, students also work with text corpora, explanatory and etymological dictionaries, termbases, as well as use computer-assisted translation tools. Producing the translation, students should take into account the rhetorical theory of argumentation, composition and style.

Editing stage involves the critical analysis of rhetorical strategies and devices used in the target text. Students should carefully examine each translated sentence, making sure that it complies with the aim, structure, and style of the source text. Students also check for errors related to terminology alignment, accuracy, linguistic conventions, style and locale conventions. *Proofreading* involves checking for grammatical and spelling mistakes.

At the *reflection stage*, students evaluate the analysis/summary/abstract or the translation produced by the group mates and reflect on the feedback provided by an instructor. Reflection is important for student self-evaluation, which fosters an attitude of inquiry. This way, students may discover what they have learnt, identify what they still lack, formulate learning needs and more actively direct their process of learning.
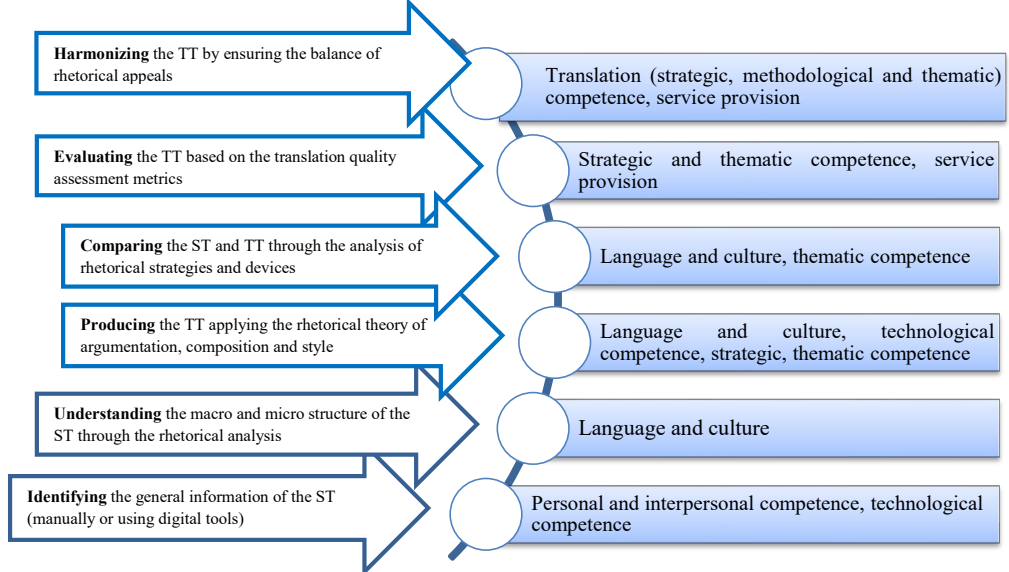
Fig. 3.5. The coverage of translation sub-competences by the rhetorical model used in specialised translation teaching. (Developed by the author)

Translator training should no longer be based on either students, translation challenges or methods, but should rather use the combination of learner-centred, instructor-oriented, collaboration and authentic task-based and IT enriched learning environments. Such a teaching and learning framework allows achieving a holistic goal, i.e., through performing an in-depth and comprehensive analysis of the source text, students master the process of translation, in which a wide range of students' skills and abilities is involved.

3.5.   Summary

The chapter has presented the key characteristics of specialised texts, thus determining the process of meaning decoding and encoding in specialised translation. Specialised translation teaching is characterised by the growing complexity of information structure and information density, as well as reliance on the background knowledge of the students. The rhetorical model of specialised translation teaching focuses on the critical analysis of the source text and creation of the target text in compliance with the conventions of the target culture and commissioner's requirements. The application of the rhetorical model results in practicing different types of activities representing the real professional environment. Thus, students develop transversal skills (i.e. transferable in different life situations). For the 21st century translator affected by digitalization, artificial intelligence and smart automation, the rhetorical model also serves as a description of the emerging skill sets. Rhetoric involves not only learning and implementing new tools and techniques; it also involves making information understandable, relevant and appropriate. Specialised translation teaching has been examined through the prism of rhetoric as a process of meaning creation. The author suggests distinguishing the following stages in translator training to develop students' translation competence: data collection and analysis, target text creation, editing / proofreading and reflection. The author proposes focusing on the following categories during the text analysis: thematic environment; overall structure of the text; meaning relationships; special language; literary language and multimodality. Within practical activities, students learn to identify text types, determine characteristic features of a particular text type, apply the basic principles of text organisation and choose appropriate digital tools to facilitate the process of text analysis. The analysis of rhetorical strategies and devices that remain in the target text may also contribute to indicating the cognitive value of rhetorical devices beyond their specific persuasive and aesthetic value in the target language.

Nothing has such power to broaden the mind as the ability to investigate systematically and truly all that comes under the observation in life

(Marcus Aurelius)

4. Empirical Research Methodology: Approbation of the Rhetorical Model of Specialised Translation Teaching

The chapter presents the methodological approach of the present research. It explains the rationale of the research, i.e., the application of the constructivist philosophical paradigm and the mixed methods research. In translation research, target texts created by students have been used for data analysis. The analysis of the target text creation process provides a practical opportunity to examine how the students handle some issues in the translation process; it may be an acceptable alternative to explore and analyse pedagogic issues that may occur in the teaching process. The observation of students has also contributed to examining their experiences in the study process. The major advantage of using a questionnaire as a data collection method is to find out from the respondents attitudes and viewpoints that cannot be directly observed. The different perspectives have been gained in the research by using the self-perception questionnaire, translation tasks, and content analysis. These multiple methods for data collection provide a holistic picture of understanding how students perform their tasks and think of their translation studies. The author of the research also characterises different types of measurements obtained during the data collection process. Examples are provided in the chapter to demonstrate how the data have been approached and used in the framework of the research.

4.1. Description of the Empirical Research

Research rationale. The research aims at developing an understanding of the nature of specialised translation teaching and the knowledge, skills and abilities students have to acquire in the learning process. The research also evaluates how translation students use their knowledge in translation activities, overcoming translation challenges. The evaluation makes it possible to determine the students' progress in translation performance.

Research Rationale

Research Paradigm: Constructivism

Mixed Methods Research

Qualitative Methods

Quantitative Methods

Self-perception Questionnaire

Statistical Translation Error Analysis

Translation Tasks: Observation

Students' Performance Statistical Analysis

Content Analysis

Data Processing and Analysis
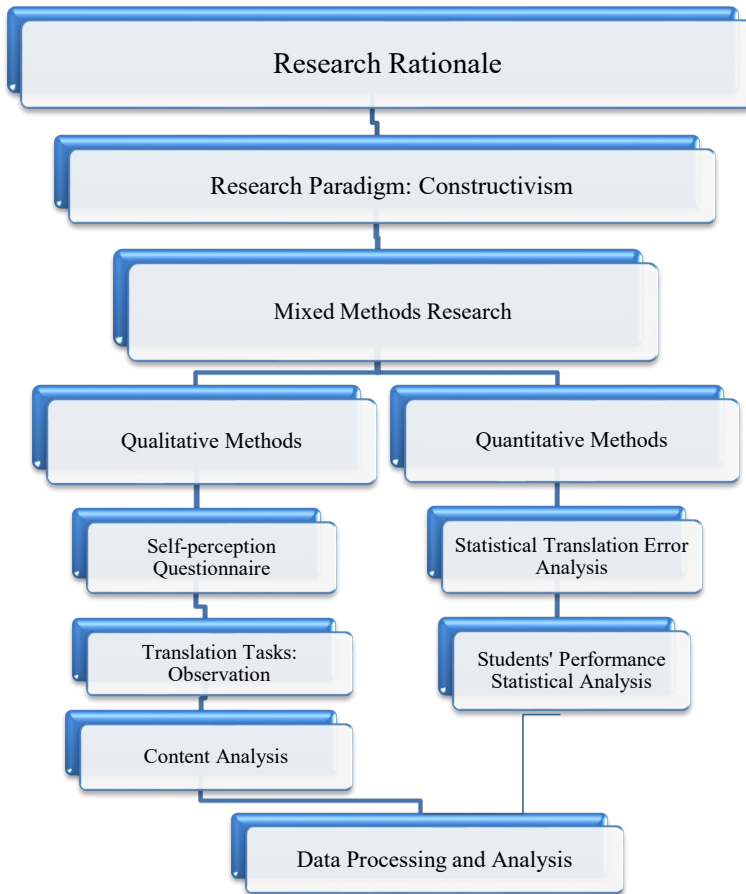
Fig. 4.1. Methodological approach of the research. (Developed by the author)

Research paradigm. The use of research paradigms, in general, depends on the goal of the research. In the present research, the paradigm is used to imply "a pattern, structure and framework or system of scientific and academic ideas, values and assumptions" (Olsen et al., 1992: 16). According to Denzin and Lincoln (2005), a research paradigm is viewed as a researcher's basic belief system that has three major dimensions: ontology, epistemology and methodology. A research paradigm can be viewed as a system of interrelated practice and thinking that define the nature of enquiry along these three dimensions. Ontology concerns the nature of reality, epistemology deals with the nature of knowledge, and methodology focuses on the ways to understand the world and on justified approaches to exploring it. The three-fold classification of

research paradigms into such philosophically distinct categories as *positivism, interpretivism* and *critical postmodernism* (Gephart, 1999) is considered relevant for the present research. The philosophical assumptions underlying the present research come from *interpretivism* and *critical postmodernism* (as it supports constructivist philosophies). Interpretive approaches can provide a better understanding of the nature of the educational process, by addressing issues of influence and impact, and asking questions such as "why" and "how", which help design an effective learning experience (Fink, 2013). Crotty (1998: 67) maintains that the interpretivist approach "looks for culturally derived and historically situated interpretations of the social life-world". It should be noted that constructivism is closely related to interpretivism. If interpretivism addresses essential characteristics of shared meaning and understanding, constructivism extends this issue with the process of knowledge construction. In the context of the research, students construct their knowledge within the socio-cultural context, which is influenced by their prior knowledge and understanding. In terms of constructivist approach, social constructivists maintain that reality is socially constructed, and that knowledge as a human product can be socially and culturally constructed (Richards, 2003). Constructivists base their assumptions and theories on situated cognitive epistemology, claiming that knowledge, meaning and understanding of the world are constructed through the relationships between people and their environments (Guba and Lincoln, 2008). Thus, constructivism promotes interactive and student-centred learning.

It is also essential to emphasise that translation is the process of constructing meaning: translators decode the meaning of the source text and construct it in the target language, which is then reconstructed by the target readers (cf. Williams, 2013). From this perspective, the constructivist paradigm is relevant for exploring the translation process. Therefore, applying the constructivist paradigm to the current research, the author attempts to explore the way students construct knowledge and apply it in practice. As the focus is on the socially constructed nature of reality, the translation environment has to be created taking into account the internal and external factors influencing the learning process (such as student–instructor interaction, peer-to-peer collaboration, the choice of teaching methods and approaches, digital tools employed). Such a research environment enables the author of the Doctoral Thesis to observe, investigate, and understand the learning process, as well as document the students' unique individual experiences through various strategies, such as questionnaire, observation, qualitative content analysis of various translation tasks.

4.1.1. Mixed Methods Research: Qualitative and Quantitative Research Methods

Qualitative Approach

Qualitative research is designed to help researchers investigate the regularities, similarities and differences of the objects under study. At this level, qualitative research involves an interpretive approach to the world. Denzin and Lincoln (2005: 3) specify that qualitative research "involves the studied use and collection of a variety of empirical materials", such as "case study; personal experience; introspection; life story; interview; artifacts; cultural texts and production; observational, historical, interactional, and visual texts that describe routine and problematic moments and meanings in individuals' lives".

The present research has been conducted in the natural study settings of the students of the professional Bachelor study programme "Technical Translation" implemented by the Institute of Digital Humanities of the Faculty of Computer Science, Information Technology and Energy (before the consolidation process (until 31 December 2023) the Institute of Applied Linguistics of the Faculty of E-learning Technologies and Humanities) of Riga Technical University.

Qualitative research focuses on the behaviours and meanings that participants bring to situations, and intends to obtain a deep understanding of participants' experience. It allows a variety of empirical data to be collected. To explore the nature of specialised translation teaching, several research methods have been used: self-perception questionnaire, translation tasks, and content analysis.

Translation tasks provide the data with regard to learning activities, themes, and knowledge students construct. Translation tasks are authentic materials selected from the real world. University-level teaching of translation tends to focus on task knowledge by practising text production for two reasons. First, by analysing and discussing translation, students can be trained as translation thinkers and problem solvers (Dam-Jensen and Heine, 2009). Second, one of the goals of translation tasks in teaching is to provide students with an experience of professional reality: target text creation can help reveal translation skills and competences acquired by students. Within the framework of the research, authentic English specialised texts were chosen for students majoring in technical translation. Specifically, the exploration of the translated texts was to provide a general idea of how the students would manage the task and how they would deal with translation difficulties.

Content analysis has been used to evaluate students' performance and knowledge in producing translations and examining the relevant pedagogic issues. The data from these resources can give rich and complex details, which can provide an in-depth understanding of the students involved in the relevant environment.

Quantitative Approach

Quantitative research relies on measuring variables, analysing these measurements, and reporting relationships and associations among the studied variables. Table 4.1 illustrates the variables to be obtained for the analysis of the students' translation process and the assessment of their translation product.

Table 4.1. Data Collected for the Analysis through the Translation Tasks

Translation Process Assessment	
Primary competence(s) to be assessed	*Personal and interpersonal competence, technological competence, strategic and thematic competence.* The ability of students to translate a text by following a procedure consisting of data collection and analysis, target text creation and editing / proofreading.
Variable	Duration of data collection and analysis stage, target text creation stage and duration of editing stage
Analysis	• Relationship between the time spent in each stage before training, during training and after training. • The total time spent to perform a translation task before training, during training and after training.

Translation Product Assessment	
Primary competence(s) to be assessed	*Language and culture competence, translation (strategic, methodological and thematic) competence, service provision.* The ability of students to find an acceptable target text functional analogue to the difficulties proposed in the text.
Variable	The weight of translation errors
Analysis	• Relationship between the time spent on data collection and analysis and the quality of translation measured by the number of errors. • Relationship between the time spent on editing and the quality of translation measured by the number of errors.

Students were given translation task No. 1 (see Appendix 2) to understand the students' initial performance and to compare the data received from the self-perception questionnaire. The data measured included how much time the students spent to perform a translation task in general and the time invested in each stage of translation process (data collection and analysis, target text creation and editing).

The aim of translation tasks No. 2 and No. 3 (see Appendix 2) was to determine students' approach to solving translation challenges and whether their approach changed during the training that was focused on the application of the rhetorical strategies and techniques, translation methods, and computer-assisted translation tools. Changes in the editing stage are assumed important as they signal a moment of critical and creative thinking, decision making thus indicating that students are searching for solutions to the translation challenges encountered. The duration of editing stage can be caused by different reasons: to search for a translation variant, to assess, improve or delete the previously translated segment. It is assumed that a decrease in the time and number of changes might signal an improvement in the students' ability to solve translation challenges. The aim of translation task No. 3 was also to assess the quality of translation tasks fulfilled by students before training and after training.

4.1.2. Translation Quality Assessment

In the field of translation studies, translation evaluation has received much attention and there have always been some efforts to investigate the issue both in theory and practice. Providing a concrete and automatically measurable definition of translation quality is a difficult task. In fact, such a definition does not yet exist despite the effort of academic linguists and natural language processing scientists. According to Juliane House (2001: 255), translation quality is a problematic concept if it is taken to involve individual and externally motivated value judgment alone. Different views of translation result in different concepts of translation quality, and different ways of assessing it. Some of them are as old as Plato's certain level of excellence that should be achieved. The newer definitions include statements such as "…zero defects" (Crosby, 1985); "...the extent to which a set of inherent characteristics meets the requirements" (ISO 9001:2000).

Over the past 30 years, many methods of evaluating translation quality have been developed and proposed. Malcom Williams (2004) classifies these methods into two categories: quantitative-centred systems and argumentation-centred systems. Williams characterises quantitative-centred methods by some method of error counting, while argumentation-centred methods take a more holistic approach. The advantage of the quantitative-centred methods is that they quantify errors and, therefore, make measurements possible.

As translation quality can be measured by the ratio of errors, a distinction should be made between a change and a correction because not every change corrects a real error. Therefore, the error should be identified in terms of:

- Category (a type of an error);
- Subcategory (a subtype of an error); and
- Weight (severity of an error).

Category and Subcategory

To categorise errors, the present research uses the Multidimensional Quality Metrics (MQM) (https://themqm.org/), which is a translation quality assessment framework that provides metrics for evaluation of target text.

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The most important criteria for evaluation of translation:

- There are no spelling or grammatical mistakes.
- The translator has used the appropriate terminology consistently.
- The translation conveys the meaning of the source text accurately.
- The style of the translation corresponds to the source text (unless required otherwise by the commissioner).
- The translated text is fluent.
- Culture-specific aspects have been adapted to the target culture.
- The translation complies with the commissioner's guidelines and requirements.

The above-mentioned criteria are reflected in the five main quality categories of MQM that have been adopted for the goal of the research:

- terminology;
- accuracy;
- linguistic conventions;
- style;
- locale conventions.

According to the Multidimensional Quality Metrics (https://themqm.org/), *terminology alignment errors* are classified as:

- Inconsistent use of terms according to a terminology resource (i.e., use of a term that differs from term usage required by a specified termbase);
- Inconsistent use of terms within a target text;
- Wrong term (use of a term that it is not the term a domain expert would use).

Accuracy errors refer to errors when the target text does not accurately correspond to the content of the source text. Accuracy errors are classified as follows:

- Mistranslation errors (target content that does not accurately represent the source content);
- Over-translation errors (target text that is inappropriately less specific than the source text);
- Under-translation errors (target text that is inappropriately less specific than the source text);

- Addition errors (target content that includes content not present in the source);
- Omission errors (errors where content is missing from the translation that is present in the source) (https://themqm.org/).

Linguistic errors refer to inappropriate use of linguistic rules and are classified as follows:

- Grammar errors;
- Punctuation errors;
- Spelling errors (https://themqm.org/).

Style errors occur in a text that deviates from organisational style guides or uses inappropriate style:

- Organisational style errors occur where the text violates company/organisation-specific style guidelines;
- Register errors occur when a text uses a level of formality higher or lower than required by the specifications or by common language conventions;
- Awkward style involves excessive wordiness or overly embedded clauses, often due to inappropriate retention of source text style in the target text;
- Unidiomatic style is characterised as unnatural, often due to interference from the source language;
- Inconsistent style that varies inconsistently throughout the text, often due to multiple translators contributing to the target text (https://themqm.org/).

Locale convention errors occur when the translation product violates locale-specific content or formatting requirements for data elements:

- Errors in formatting requirements, such as errors in number, currency, measurement, time, date, address etc. format;
- Errors in translation of culture-specific references (errors arising from the use of content in the target text that is inappropriate for the target audience) (https://themqm.org/).

Weight

Following best practices, errors can be divided according to their relative importance (or the severity of their impact on translation quality) into three groups: **minor, major** and **critical**. Minor errors "are noticeable but […] do not have a negative impact on meaning […] major errors […] have a negative impact on meaning […] and critical errors […] have major effects not only on meaning, but on product usability […]" (O'Brien, 2012: 62). Not all errors are equal. For example, there is a difference between a typo on the front cover of a manual and the same typo in a footnote. There are also typos that alter the meaning of a word, and typos that do not lead to confusion. Therefore, different weights should be assigned to errors depending on their consequences. Each type of error was awarded a point on the scale from 1 to 3.

Table 4.2. Type of Translation Error and Score (Developed by the author)

Type of translation error	Score	Description
Minor	1	Noticeable errors that do not have critical effect on meaning
Major	2	Errors that have a negative impact on meaning
Critical error	3	Errors that have a negative impact not only on meaning at a word /sentence level, but also at a paragraph / text level.

As each translation task consisted of 10 challenges, translation of which was evaluated from the perspective of the translation errors made (0 – no errors; 1 – minor error; 2 – major error and 3 – critical error). The maximum weight of errors is 30 (unacceptable translation). See Table 4.6 for conversion scale of errors to the assessment of translation quality according to a 10-grading scale.

Table 4.3. Error Conversion Scale (Developed by the author)

Weight of errors (points)	Mark
0–1	10
2–3	9
4–6	8
7–9	7
10–12	6
13–15	5
16–18	4
19–30	Failed

4.1.3. Respondents

The respondents were two groups of students of the professional Bachelor study programme "Technical Translation" at the Faculty of Computer Science, Information Technology and Energy (before the consolidation process (until 31 December 2023) the Faculty of E-learning Technologies and Humanities) of Riga Technical University. The first group consisted of 8 students in academic year 2019/2020, and the second group consisted of 19 students in academic year 2022/2023 (autumn semester). The students of both groups were in their fourth semester of study and had passed several courses in grammar, analytical reading, fundamentals of written speech, and specialised theoretical and practical courses in the field of translation. In order to have a homogenous group of respondents, the author of the Doctoral Thesis selected the students specialising in the translation of specialised texts from English to Latvian and vice versa. There were both male and female respondents. All of them were in the age range of 20 to 26 years.

Ethical practices and strategies were taken into consideration to ensure that the research was conducted in an ethical research environment. The respondents were informed about the aim of the research and their right to refuse to participate in the research. Participation was voluntary. Data were collected anonymously. The principles of the Code of Conduct for Scientists were applied and followed through the entire process of the research (Latvian Academy of Sciences, 2017).

4.2. Procedure of the Research

4.2.1. A Self-Perception Questionnaire

First, a self-perception questionnaire was given to the both groups of the students. The questionnaire had eight questions related to students' translation habits. The questionnaire aimed at identifying students' awareness of the translation process stages and determining any gaps in translation related skills and abilities. The first four questions dealt with the stages of the translation process and students' activities, skills and abilities at each stage. The purpose of the fifth question was to find out translation issues that students found most difficult. Questions 6 and 7 addressed

the issue of computer-assisted and machine translation tools. Question 8 served to reveal the students' activities undertaken to improve their professional skills (see Appendix 1).

The results of the two groups are presented further in the section. The answers to the first question related to pre-translation stage demonstrate that students can identify the necessary background information, key concepts, as well as collect available information. The lack of knowledge is observed in terms of the analysis of the source text at the micro level, the use of digital tools for text analysis, as well as determining the rhetorical appeals (see Fig. 4.2).
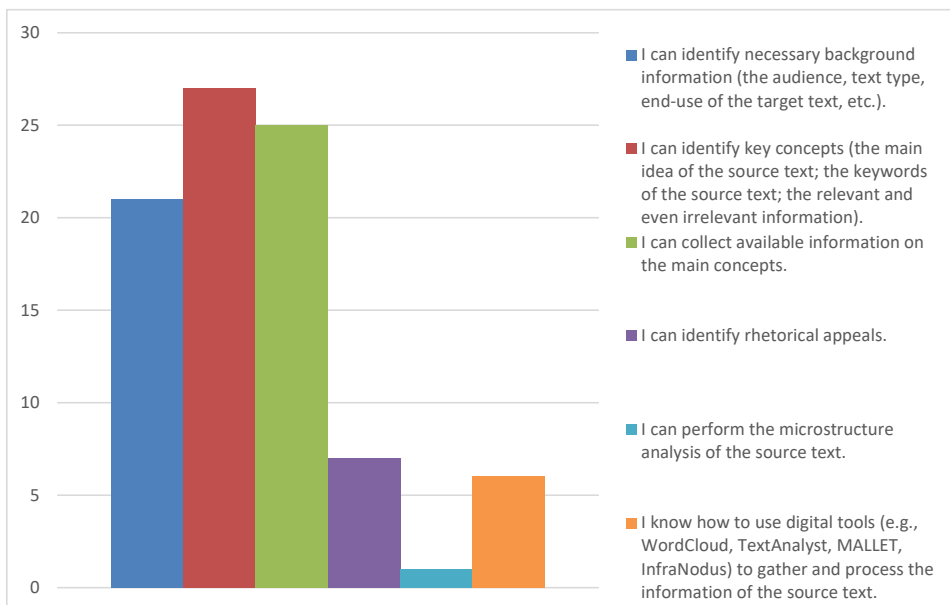
Fig. 4.2. Pre-translation stage: Data collection and analysis of the source text. N=27.

The answers to the second question related to the students' skills in the process of translation reveal that students can select the most suitable translation strategies, justify their choice and reformulate texts where necessary. Based on students' responses, attention should be paid to the creation of target texts that have different purposes compared to the source text, and the use of computer-assisted / machine translation tools (see Fig. 4.3).
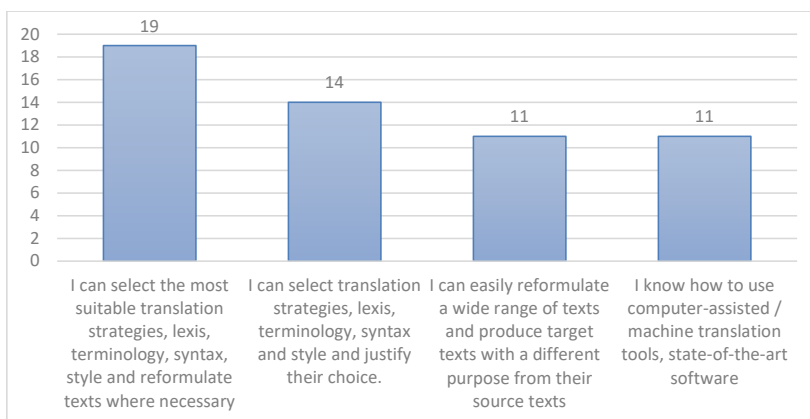
Fig. 4.3. Translation stage. N=27.

The results related to the proofreading and editing stage demonstrate that students consider that they are able to correct linguistic and style errors, organise and structure the text, as well as work with visual information. The challenging issues concern the knowledge of established reference manuals and guidelines. Students also underline that they lack knowledge of editing methods and practices (see Fig. 4.4).
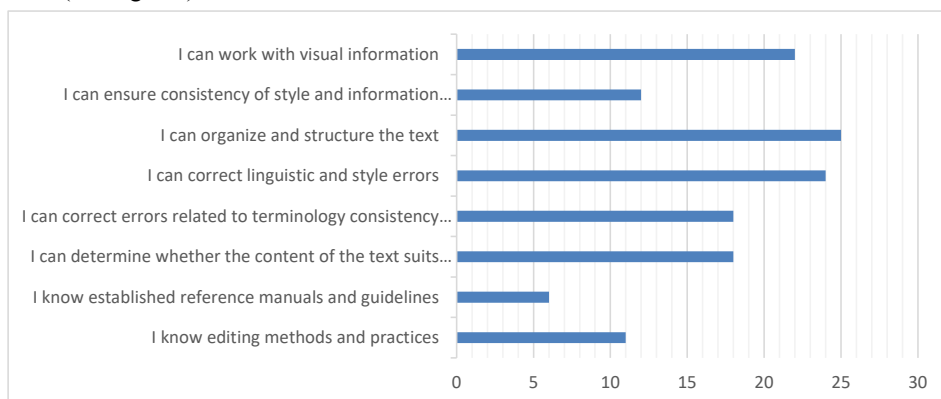
Fig. 4.4. Proofreading and editing stage. N=27.

Students constructively act during the reflection stage. They recognise the importance of this stage for their professional development. Therefore, they request constructive feedback and accept criticism in order to improve their skills (see Fig. 4.5).
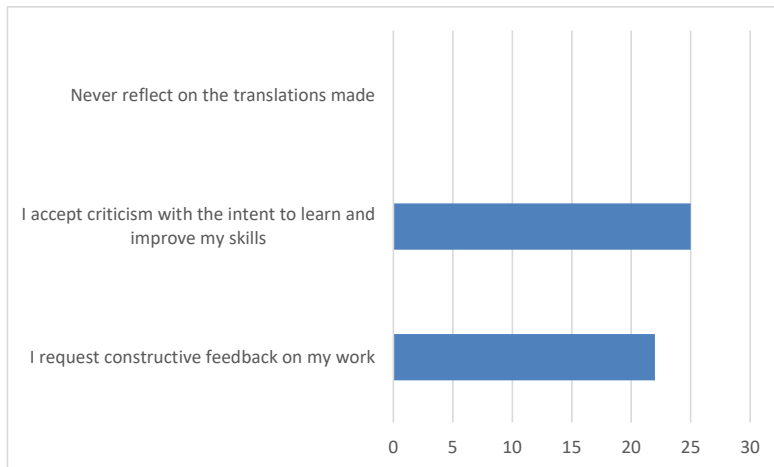
Fig. 4.5. Reflection stage. N=27.

In the fifth question, the students were asked to rank the translation issues from less difficult (1 point) to most difficult (5 points). According to the results, the students consider locale conventions to be the most difficult translation challenges, which are followed by style and terminology alignment issues. Accuracy and linguistic conventions are treated as the less difficult translation issues (see Table 4.4).

Table 4.4. Ranking of the Translation Issues from Less Difficult (1 point) to Most Difficult (5 points)

Translation issues	Mean value
Accuracy	1.4
Linguistic conventions	2.4
Terminology alignment	3.1
Style	3.6
Locale conventions	4.5

In the sixth question, the students were invited to share their experience with translation tools applied and the reasons for their use. The students listed three computer-assisted translation tools: *MateCat, memoQ* and *SmartCat*. The favourite machine translation tools used by the students are *Google Translate* and *DeepL*. As parallel corpora, students use *Reverso Context* to find out real-life examples for the use of words and expressions in a particular context. For terminology alignment issues, students apply *EUR-Lex, letonika.lv, tezaurs.lv, akadterm.lv, termini.gov.lv, likumi.lv*. Only one student mentioned *Grammarly* as a tool for correction of misprints, grammatical and lexical errors (see Table 4.5).

Table 4.5. The Students' Answers with regard to Translation Tools Used

The list of translation tools and the reasons for their use
MateCat - it is easy to use and provides a great translation solutions (mainly) in legal field, Dictionary
Google Translator for quick translation, Reverso Context for vocabulary purposes, Grammarly for punctuation and grammar editing
I don't tend to use any translation tools right now because I want to find the errors or mistakes by myself and try to look into the problems with many different points of view. Although, in the future I will try to trust some machine-translation tools, e.g. ChatGPT, for grammar or spelling checking and collocations. However, I do use tools like eurolex, letonika, tēzaurs, and etc.
I have not yet used specialized tools for translation, so far I translate manually using appropriate resources to determine the accuracy of terms and translations.
I don't use any translation software regularly yet because I don't feel as comfortable, but I have tried memoQ and I'm trying to build my skills using it. For tools, I use termini.gov, Letonika, EurLex, akadterm.lv
I use the CAT tools, such as MemoQ, in case we are required to use this program during other courses and are practicing with it.
When I translate a text I usually use some translation websites and websites that provide accurate terminology, like likumi.lv, termini.gov.lv and akadterm.lv. These websites usually prove to be useful for when I translate text and cannot think of a term or phrase by myself.
Dictionary - to find out more definitions of words Machine translation: DeepL, Google Translate - to catch the main sense of long sentences, especially in German computer-assisted translation tools: MemoQ - to make the process of translation faster and easier
Mostly I use termini.lv- (to find the right terms), akadterm.lv-(to find terms for technical texts), eurolex.lv-(for specific terminology in law), likumi.lv (to find specific translations used in law documents).
I use DeepL very often. I also use Google Translate because it is very fast and accurate
akadterm.lv to find terminology deeptl.com to translate words I forgot termini.gov for terminology tezaurs.lv for terminology likumi.lv for terminology eur-lex.europa.eu for terminology

Terminology websites, such as, termini.gov; akadterm; tezaurs. Deepl (machine tranlation website) likumi.lv and Eur-Lex.
I often use Reverse Context and Lingvo because these tools give full information about a word, as well as examples of its use in context.
terminology webpages, word office editing and compare function.
l use MateCat
Sometimes I use SmartCat tool as a convenient way how to translate a text. Also I use Deepl and reverso context to see synonyms for the words
Machine translation (Yandex translator, Google translator) to speed up the translation

Finally, the students were asked to select the activities they undertake to improve their professional skills. A majority of students prefer reading activities as a source of vocabulary development. Such important activities as developing glossaries and keeping up with changes in the field(s) of specialisation are not in their priority list (see Fig. 4.6).
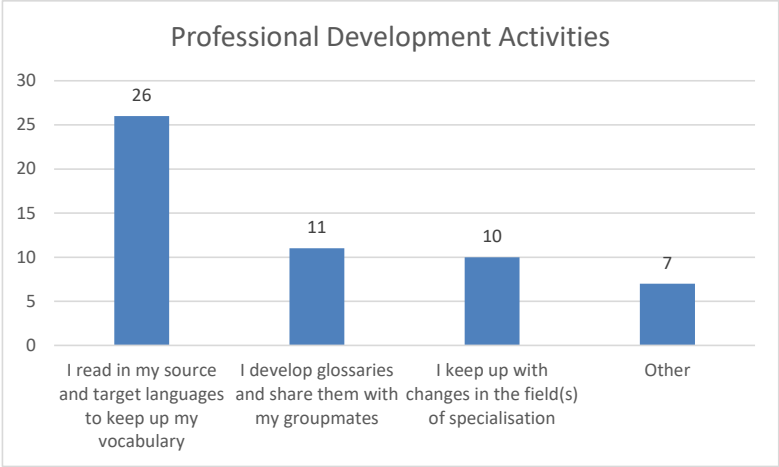
Fig. 4.6. Activities undertaken by the students to improve professional skills.

According to the results of the self-perception questionnaire, the students should improve skills in the analysis of the source text at the micro level, as well as acquire basics of editing and proofreading skills. Attention should also be paid to the creation of target texts that serve a different purpose compared to the source text. The students should practise using various computer-assisted / machine translation tools depending on the situation, and they should be able to determine which tools to use and for what purpose. The students should also be encouraged to develop their own glossaries that is a logical continuation of the translation and reflection stages.

4.2.2. Translation Tasks

All three tasks were English-to-Latvian translation tasks (see Appendix 2). The texts to be translated were excerpts (with a length of between 1700 and 1800 printed signs) from popular science books in English. Each translation task focused on 10 translation difficulties pre-identified by the author of the research, such as accuracy, linguistic and style errors, terminology alignment as well as locale conventions.

In all translation tasks, students were allowed to use translation tools and resources, such as computer-assisted tools, online termbases, glossaries, etc. The texts were selected on the basis of pre-identified translation difficulties from a translation decision-making perspective, which required students to search deeper in order to find a relevant solution online. The choice of target language variants for some translation challenges required students to develop their own translation techniques and approaches. Each subsequent task contained some familiar translation difficulties from previous tasks and some new situations to students. This way, the students' progress in fulfilling their translation tasks could be evaluated.

4.2.2.1. Group of Students in Academic Year 2019/2020

Analysis of Students' Performance before Training

The research was carried out in academic year 2019/2020 and 2022/2023 at the Institute of Applied Linguistics of the Faculty of E-learning Technologies and Humanities at Riga Technical University (since 1 January 2024 – the Institute of Digital Humanities of the Faculty of Computer Science, Information Technology and Energy). The research involved 27 students of the professional Bachelor study programme "Technical Translation".

For illustration purposes, the data are provided for each group of students in the respective academic year, while further sections will illustrate the trends in all the surveyed students' performance and translation competence development.

The quality of the text students created before the training was assessed using the error analysis. As the translation task contained 10 translation difficulties pre-identified by the author of the research, the translation of the challenging items was evaluated using the scale 0–3, where 0 refers to no error, 1 – minor error, 2 – major error and 3 – critical error (see Table 4.3). The weight of errors varied from 3 to 15. According to the error conversion rate, the student's weight of errors was converted to the mark (Appendix 8).

As discussed previously, one of the variables measured in the research is the duration of the data collection and analysis stage, target text creation and editing stage. The students were grouped by the mark obtained and the average duration of each stage was calculated (see Appendix 4). Figure 4.7 displays the students' results demonstrated in the translation of Task 1, which are represented as the ratio of each stage to the total time devoted to the translation task.

Fig. 4.7. Students' translation behaviour represented by the data collection and analysis stage, target text creation and editing stage. The data are collected before training, academic year 2019/2020, students are grouped by the level of competence.

With regard to the amount of time dedicated to the analysis of the text, three groups of students are distinguished: (1) those who spent 5% of the total time to the analysis; (2) those who dedicated an average of 10% of the total time and (3) those who spent more than 10% of the total time. The first group was represented by 2 students who earned for the translation the mark 6. The second group was represented by 3 students who scored 7, and the third group consisted of 3 students who obtained the mark 8.

During the target text creation stage, the first group of students spent 85% of the total time to produce translation. The second group and third group of students spent 79%–80% of their time. The editing stage reveals that the first group of students spent 10%, the second group of students dedicated 10% to editing and the third group – 9%. Students of the first group spent more time editing the translation compared to data collection and analysis stage. The second group of students devoted approximately the same amount of time to the analysis stage and the editing stage. The third group of students spent less time editing the translation compared to data collection and analysis stage.

Analysis of Students' Performance during Training

With regard to the amount of time dedicated to the analysis of the text (Appendix 5), the students, who initially spent 5% of the total time to the analysis, slightly increased their time to 8% and improved the quality of their translation product expressed in a lower weight of errors. The results of the second group of students slightly changed (1%), while the students of the third group did not show any differences with regard to the data collection and analysis stage.

Fig. 4.8. Students' translation behaviour represented by the data collection and analysis stage, target text creation and editing stage. The data are collected during training, academic year 2019/2020, students are grouped by the level of competence.

During the target text creation stage, the first group of students decreased the time to produce translation by 2%. The students of the second and third groups decreased their target text creation time by 1%. With regard to the quality of the translations, the following results were demonstrated: one student gained the mark "6", four students received the mark "7", and three students – "8". According to the results, the students' performance became higher.

Analysis of Students' Performance at the End of Training

With regard to the amount of time dedicated to the analysis of the text (Appendix 6), the students, who initially spent 5% of the total time to the analysis, increased their time to 11% and improved the quality of their translation product expressed in a lower number of errors and respectively in a higher mark (there were no more students who gained "6"). The results of the second group of students slightly changed resulting in a lower number of errors and higher marks, while the students of the third group increased their time devoted to the analysis accounting for 16% and decreased the editing time to 8% of the total time.
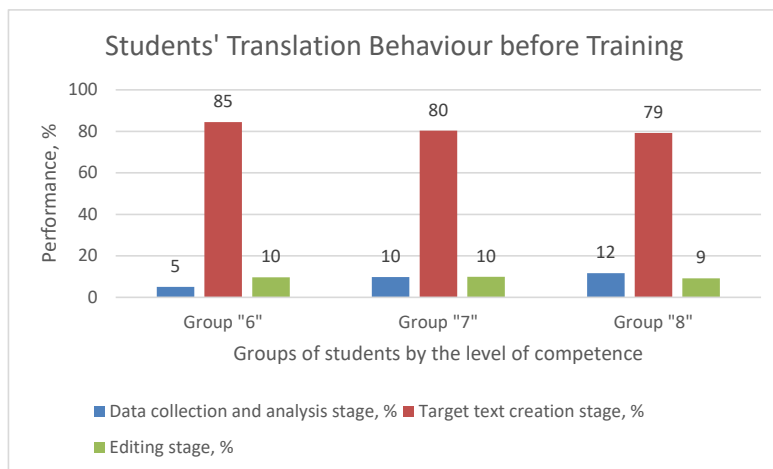

Fig. 4.9. Students' translation behaviour represented by the data collection and analysis stage, target text creation and editing stage. The data are collected at the end of the training, academic year 2019/2020, students are grouped by the level of competence.

During the target text creation stage, the first group of students decreased the total time to produce translation by 7%. The students of the second and third groups decreased the amount of time devoted to the target text creation by 3%.

With regard to the quality of the translations, the following results were demonstrated: there were no students who gained the mark "6", three students gained the mark "7", three students obtained the mark "8" and two students – "9".
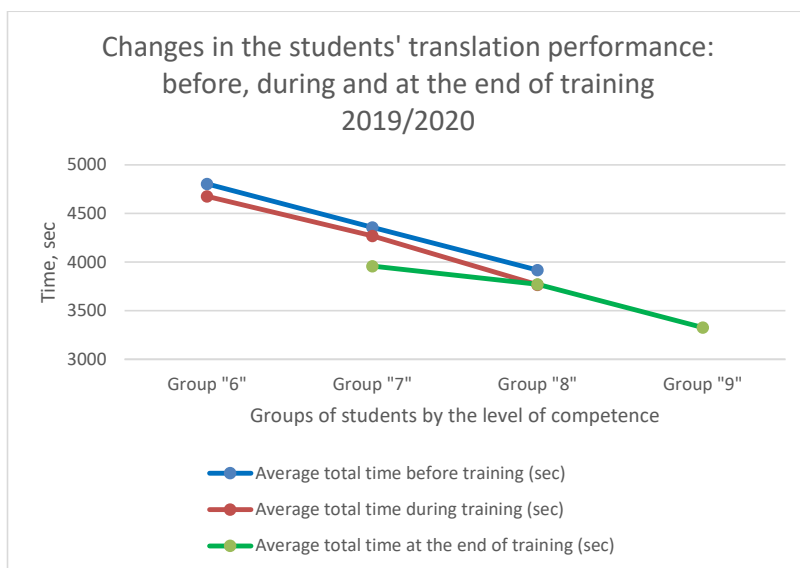
Fig. 4.10. Changes in the students' translation performance: before, during and at the end of training, academic year 2019/2020.

The total time spent to perform the translation task after the training decreased (see Fig. 4.10).

4.2.2.2. Group of Students in Academic Year 2022/2023

Analysis of Students' Performance before Training

The quality of the text students created before the training was assessed using the error analysis. As the translation task contained 10 translation difficulties pre-identified by the author of the research, the translation of the challenging items was evaluated using the scale 0–3, where 0 refers to no error, 1 – minor error, 2 – major error and 3 – critical error (see Table 4.3). The weight of errors varied from 3 to 15. According to the error conversion rate, the student's weight of errors was converted to the mark (Appendix 14).

As discussed previously, one of the variables measured in the research is the duration of the data collection and analysis stage, target text creation and editing stage. The students were grouped by the mark obtained and the average duration of each stage was calculated (see Appendix 10). Figure 4.11 displays the students' results demonstrated in the translation of Task 1, which are represented as the ratio of each stage to the total time devoted to the translation task.
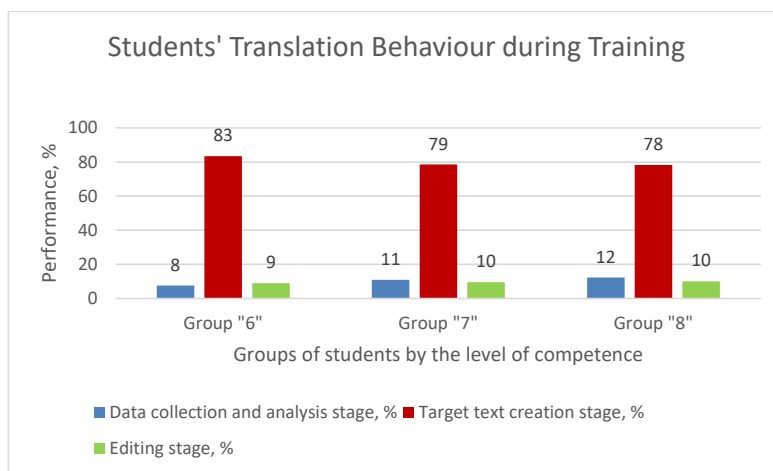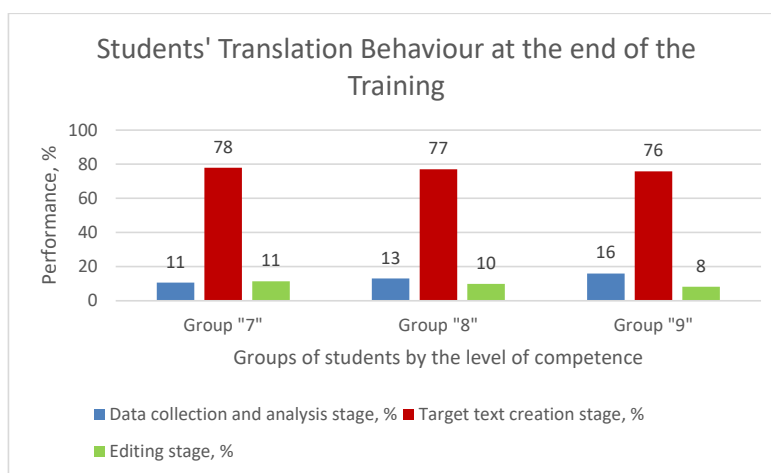
Fig. 4.11. Students' translation behaviour represented by the data collection and analysis stage, target text creation and editing stage. The data are collected before training, academic year 2022/2023 autumn, students are grouped by the level of competence.

With regard to the amount of time dedicated to the analysis of the text, it is possible to distinguish three groups of students: (1) those who spent between 4% and 6% of the total time to the analysis; (2) those who dedicated an average of 10% of the total time and (3) those who spent between 10% and 19% of the total time. The first group was represented by 7 (37%) students who earned for the translation the mark between 5 and 6. The second group was represented by 5 (26%) students who scored 7, while the third group accounted for 7 (37%) students who obtained the mark between 8 and 9.

The obtained results demonstrate that there were students who approached the translation of the text in a straightforward manner, without performing its analysis. These students primarily used a word-for-word translation strategy, which resulted in such a translation behaviour, when the students provided draft translation of a phrase or a larger text fragment and then changed it having realised the meaning implied in the text. This translation behaviour resulted in larger amount of time needed by students to translate the text as they changed the translation all the time.

During the target text creation stage, the first group of students spent 85%–91% of the total time to produce translation. The second group of students spent 79% and the third group – 74%–79%. The results reveal that the students who did not perform a careful analysis devoted much time to create the target text.

The editing stage reveals that the first group of students spent 5%–9%, the second group of students dedicated 11% to editing and the third group – 7%–8%. Some students spent more time to editing their translations that might be related to insufficient time devoted to data collection and analysis. The students needed to reorganise their translation because they did not take enough time to evaluate the text at the macro level. The second group of students devoted approximately the same amount of time to the analysis stage and the editing stage.

The results determined the ratio between data collection and editing. In practice, there were students who dedicated insufficient time to editing and students who dedicated much time to it. The training aimed at balancing this ratio by teaching students an efficient translation procedure and by repeating it in the process of training.

Analysis of Students' Performance during Training
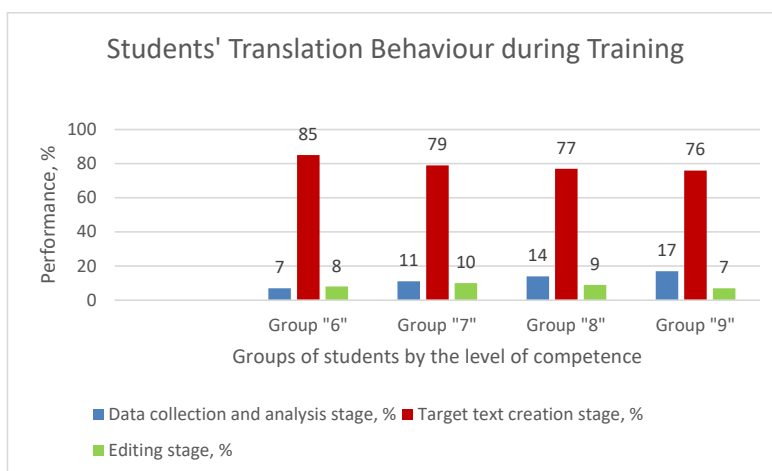
Fig. 4.12. Students' translation behaviour represented by the data collection and analysis stage, target text creation and editing stage. The data are collected during training, academic year 2022/2023 autumn, students are grouped by the level of competence.

With regard to the amount of time dedicated to the analysis of the text (Appendix 11), the students, who initially spent between 4% and 6% of the total time to the analysis, slightly increased their time to 7% and improved the quality of their translation product expressed in a lower number of errors and respectively in a higher mark (there were no more students who gained "5"). The results of the second group of students slightly changed resulting in a lower number of errors, while the students of the third group demonstrated a trend to balance their time devoted to the analysis between 14% and 17%.

During the target text creation stage, the first group of students decreased the total time to produce translation by 5%. No changes in the amount of time devoted to target text creation were observed by the students of the second group who earned the mark "7". The third group that gained the mark "8" and "9" had an average target text creation time of 76%–77%.

With regard to the quality of the translations, the following results were demonstrated: six students earned the mark "6", five students gained "7", six students obtained the mark "8" and two students – "9".

Analysis of Students' Performance at the End of Training

With regard to the amount of time dedicated to the analysis of the text (Appendix 12), the students, who initially spent between 4% and 6% of the total time to the analysis, increased their time to 10% and improved the quality of their translation product expressed in a lower number of errors and respectively in a higher mark (there were no more students who gained "5"). The results of the second group of students slightly changed resulting in a lower number of errors, while the students of the third group continued balancing their time devoted to the analysis accounting for 15%–17% and editing that made up 8% – 9% of the total time.
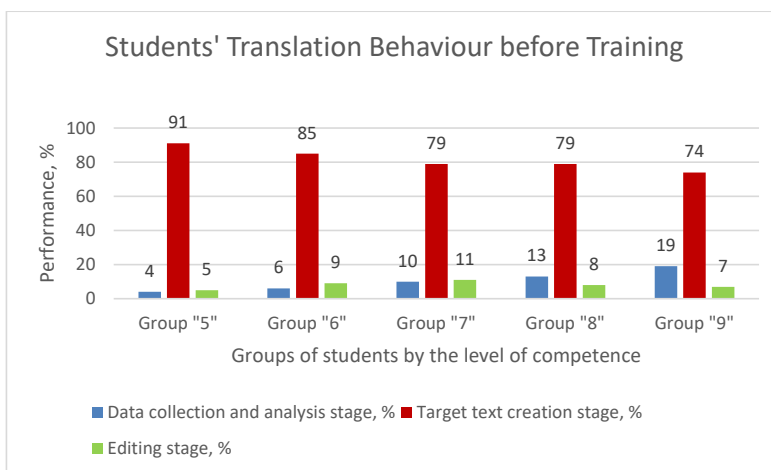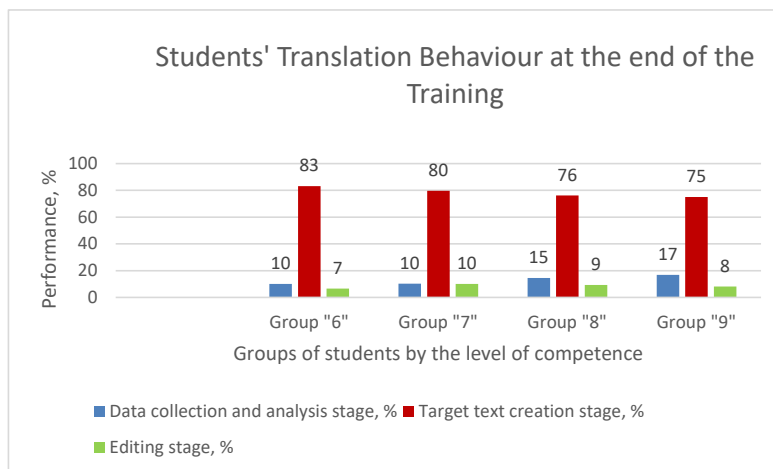

Fig. 4.13. Students' translation behaviour represented by the data collection and analysis stage, target text creation and editing stage. The data are collected at the end of training, academic year 2022/2023 autumn, students are grouped by the level of competence.

Evaluating the progression of students' data collection and analysis / editing ratio before training and after training, it can be observed that there is an increase in the number of students

attempting to devote sufficient time to the data collection and analysis stage. However, it should be noted that an immediate change in the translation behaviour cannot be expected and the results are also dependent on the increasing level of difficulty of each task. Still, it can be observed that the training procedure had an impact on their approach to translation tasks and their performance results.

During the target text creation stage, the first group of students decreased the total time to produce translation by 7%. The students of the second group who earned the mark "7" increased the amount of time devoted to the target text creation by 1%. The third group that gained the mark "8" and "9" decreased the duration of target text creation stage by 1%.

With regard to the quality of the translations, the following results were demonstrated: 2 students remained who earned the mark "6", seven students gained "7", eight students obtained the mark "8" and two students – "9". After the training, there were no students who gained the mark "5", the number of students who earned "7" and "8" increased twice (from 10 students to 15 students).

The total time spent to perform the translation task after the training decreased (see Fig. 4.14, Appendix 13).
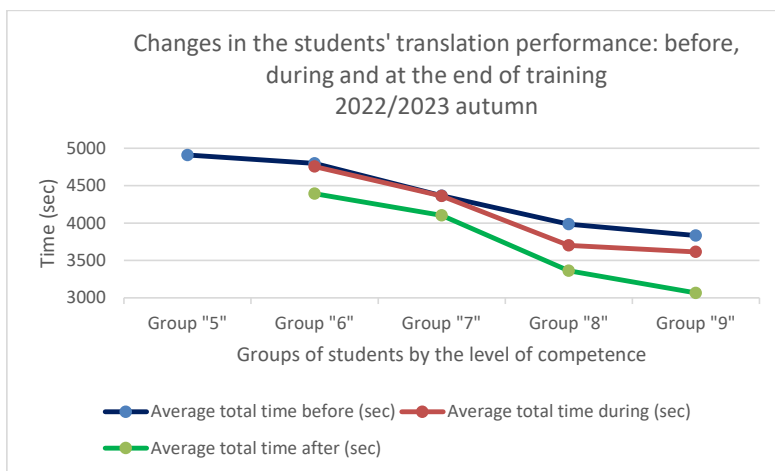
Fig. 4.14. Changes in the students' translation performance: before, during and at the end of training, academic year 2022/2023

With regard to the qualitative changes, after the training students recognised the need to check the credibility of online resources. Students also started to use machine translation tools

as a source of inspiration for proposing creative solutions to translation challenges. In other words, the students demonstrated a tendency to use translation tools and resources more efficiently.

The training also aimed at developing students' information processing skills, recognising that the interpretation of the specialised text should be performed taking into account not only pragmatic aspects, but also the most complicated cognitive aspects. The cognitive approach also facilitates students in conscious application of appropriate translation strategies and methods. It provides a framework for masterful acquisition and practice of such translator's competences as linguistic and cultural competence, transdisciplinary knowledge, as well as analytical and critical thinking skills.

4.2.2.3. Analysis of Performance Results of Both Groups of Students

The results of both groups of students (comprising a total of 27 students) are analysed further to demonstrate trends in students' translation behaviour.

Data collection and analysis stage. The students were grouped by the mark gained for the translation tasks fulfilled and the mean value of the data collection and analysis stage (in seconds). According to the results of students' translation behaviour before training, not all of them had a full understanding of the efficient translation process, because students approached the translation process differently.
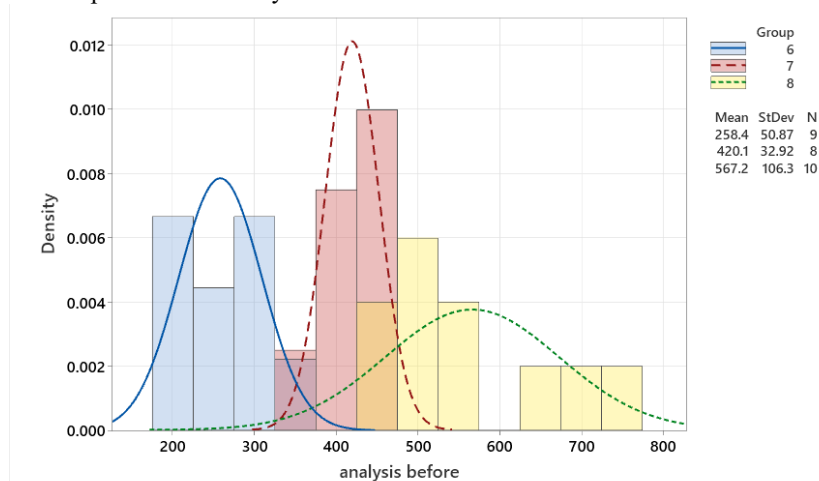
Fig. 4.15. The data collection and analysis stage before training.

Two contrary attitudes were observed before the training, as there were students who spent much time to perform the analysis of the source text (up to 20 % of the total time), and,

on the other end, there were students who devoted insufficient attention to the analysis stage (less than 5 % of the total time). The students with initially low level of competence performed the analysis stage quickly as they did not recognise the importance of this stage for the whole translation process (students' efficiency) and the quality of the translation product. The students with the competence level above average took an excessive amount of time to perform the analysis, which could be explained by the fact that the development of competence and application of knowledge in practice takes time.

At the end of the training, the students' performance demonstrates a smooth trend towards the analysis ratio comprising 10–15 % of the total time devoted to complete the translation task (see Fig. 4.16). The finding is in line with the Deming's Theory that implies that planning/analysis is a crucial component in the quality assurance system. Having recognised the importance and benefits of the analysis stage, students, who initially devoted insufficient time to it, changed their approach to translation, by performing the systematic analysis of the source text. According to the data, as the analysis time increases, the total time to perform a translation task decreases. The analysis process is determined by the analysis efficiency (skills) and the analysis time.
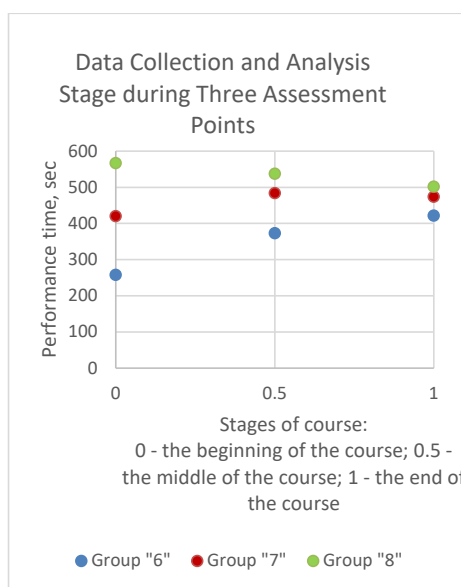
Fig. 4.16. Changes in the data collection and analysis stage during three assessment points.
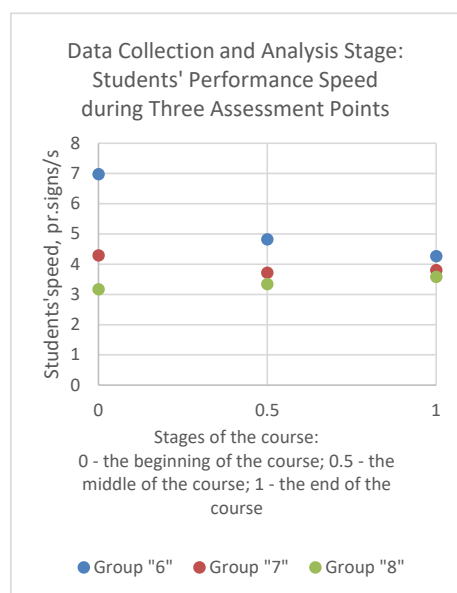
Fig. 4.17. Students' performance speed at the data collection and analysis stage during three assessment points.

The results obtained for the data collection and analysis stage (Fig. 4.16) have been used to demonstrate the trend in the students' speed of conducting the analysis of the source text (see Fig. 4.17).

The research results are in line with the Dunning–Kruger effect. According to the Dunning–Kruger model (1999), people who are incompetent in a given area do not recognise their incompetence, i.e., they lack skills, and they are unaware of their incompetence. As people learn more about the topic, they begin to recognise their own lack of knowledge and ability. Then as people gain more information and training, their competence levels begin to improve. It can be stated that as students learn more, they are better able to recognise their errors. The Dunning-Kruger model brings in a time dimension, i.e., knowledge evolves over time.
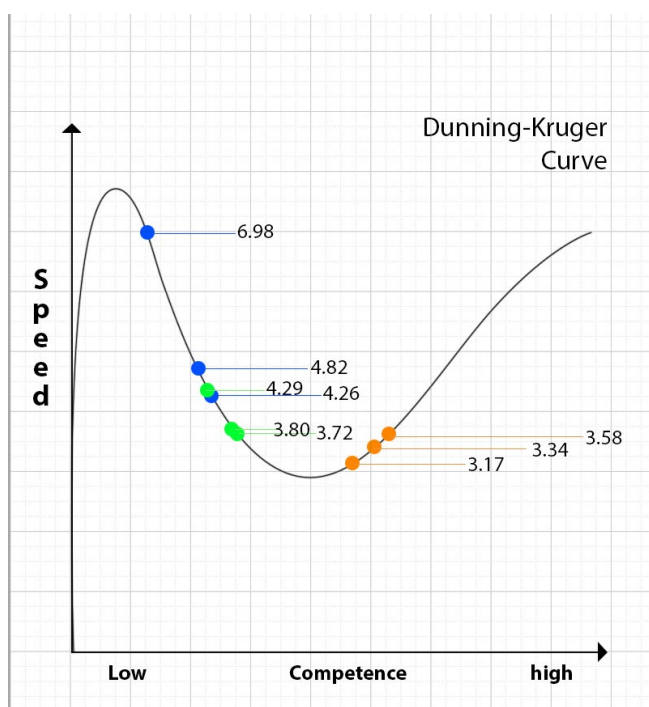
Fig. 4.18. The changes in the performance of three groups of students depending on their level of competence during training. *Blue points represent the students with the competence level below average, green points represent the students with the average level of competence, and orange points represent the students with the competence level above average.*

Figure 4.18 demonstrates changes in the performance of three groups of students depending on their level of competence during training. The results of the students' performance are plotted on the Dunning–Kruger curve. The students with the competence level

below average (blue triangles) perform the analysis stage fast (6.98 pr. signs per second). During training, their speed decreases (4.26 pr. signs per second), while competence increases. On the contrary, the students with the competence level above average (orange triangles) perform the analysis stage slowly (3.17 pr. signs per second). In the process of training, they strengthen their competence and performance, which leads to a gradual increase in speed (3.58 pr. signs per second).

Applying the Dunning–Kruger model in the teaching process makes students aware of their unknown areas and provides the opportunity to change their learning style and practice. Low performers usually prefer ready-to-use resources and guidelines, they do not properly receive criticism, overestimate their skills, fail to recognise the expertise of other people and do not recognise their own mistakes and lack of skills. Therefore, for the students with the level of competence below average, it requires reflecting on their actions and experiences to realise that their own self-assessments and, as a result, their actions are likely incorrect. For example, if decisions to solve certain learning tasks are made based solely on their own personal knowledge and skills, there is a high probability of making mistakes and misinterpreting information.

The students with the average level of competence spend much time to make informed and reasonable decisions, they constantly check if something is supported by evidence. To increase their motivation, the learning process should be meaningful and relevant. Instructors should remember that allowing for self-doubt is an important step in the learning curve that results in improved performance. Overconfidence does not motivate the student to improve; there should be periods of doubt and low self-confidence in order to develop skills and improve performance with time and perseverance.

The students with the level of competence above average perform tasks easily and do not realise that it is challenging to others. They often underestimate their level of skills relative to their group mates. Training should help them to become more aware of their own and other students' skill levels. It would help them in the group activities (teamwork) to communicate more clearly with group mates who are less proficient than themselves.

Recognising and understanding the Dunning–Kruger curve help students to take responsibility for their professional development and sense of self-confidence. It can encourage students to recognise their weaknesses, skill gaps and beware of the inverse correlation of self-confidence and competence. For overconfident students with a level of competence below average, it is necessary to provide facts and feedback from multiple sources, as well as to set clear expectations for measures of competence (learning outcomes) and formulate potential consequences if the requirements are not fulfilled.

4.3.   Interpretation of the Results

As for the analysis of the data gained from the students' self-perception questionnaire, it has served as the framework to collect information about the students' translation behaviour and their awareness of the translation process stages. However, it should be noted that the results of translation task 1 demonstrated a discrepancy between students' perceptions of their abilities in the main stages of the translation process and their performance in real life. It can be concluded that not all students are able to appropriately assess their skills and competences. Therefore, student activity in completing translation tasks can be used to predict the progress of other groups of students in the same course.

By comparing the results of translation task 1 and translation task 3, it can be noted that the ability of students to translate has changed from rendering the direct meaning of short translation units to providing a sense-for-sense translation taking into account the macro level of the text. The training made students resolve the translation issues by collecting additional information, analysing the context, consulting reliable sources, etc.

The obtained data demonstrate improvement (and in some cases stability) for the parameters related to the weight of errors and the mark gained. Considering that the complexity level of translation tasks was higher, stability in the mark earned could be considered a positive indicator, since students were able to deal with the new challenges.

Applying the Dunning–Kruger model in the translator training allows locating the students on the performance-competence curve, which demonstrates that students at the lower end of the competence spectrum have lesser capacity to recognise the level of their skills. The model describes students' performance and provides explicitly structured feedback on their prospective scenario of development. Recognising and understanding their position on the Dunning–Kruger curve help students to take responsibility for their professional development and sense of self-confidence. It can encourage students to recognise their weaknesses, skill gaps and beware of the inverse correlation of self-confidence (performance) and competence. The Dunning–Kruger effect has major implications on students' decision-making process and actions taken.

According to the results obtained, the application of the developed rhetorical model for specialised translation teaching resulted in the understanding of students' learning process and progress in the course.

The results covered:

- linguistic and cultural competences as the students started to consciously, responsibly and creatively approach culture-specific items by proposing appropriate functional analogues in their translations taking into account the target culture norms and conventions;
- technological competence as the students started to effectively use search engines, corpus-based tools, text analysis tools, computer-assisted and machine translation tools;
- translation (strategic, methodological and thematic) competence as the students demonstrated progress in performing the analysis of the source text, which resulted in the choice of appropriate translation strategies and resources needed for target text creation; they demonstrated their ability to justify their translation solutions, applying the appropriate theoretical approaches; they also started to apply quality control checklists in the editing process of their translations;
- personal and interpersonal competence by rationally planning and managing time, complying with deadlines, instructions and specifications, collaboratively working with group mates;
- service provision competence by demonstrating compliance with professional ethical codes and standards (sense of responsibility, confidentiality), and applying the quality management and quality assurance procedures to meet the pre-determined quality standards.

The research results are the contribution to existing teaching and learning practices through the adoption of the rhetorical model to the translation process of authentic specialised texts.

The rhetorical model of specialised translation teaching can be used to plan and design learning activities, as well as guide the acquisition of translation sub-competences. For the rhetorical model to work efficiently in specialised translation teaching, it is necessary to observe several requirements. First of all, specific theoretical aspects should be taken into account before designing the tasks based on the use of authentic specialised texts. As demonstrated in Section 3.2, contemporary specialised texts have experienced rapid transformation with respect to new modes of expression, genre hybridity, foregrounding, intertextuality and multimodality. The intertextual devices express implicit meanings that are often hidden in special words and images. Therefore, the tasks designed for the students should cover the issues of hidden meaning interpretation, cross-cultural and intertextual awareness raising, analysis of visual

information, as well as the study of principles of linguistic economy achieved through the use of abbreviations, allusions, metaphors, etc. The students should develop their information processing skills, recognising that the interpretation of the specialised text should be performed taking into account not only pragmatic aspects, but also the most complicated cognitive aspects. Translation is the continuous process of making rhetorical choices in linguistic forms and communicative strategies. With regard to the development of translation sub-competences, specialised texts were accurately selected in terms of translation challenges, as well as tasks were designed based on the principle of increasing difficulty.

Research Conclusions

The conclusions have been made with regard to the developed rhetorical model of specialised translation teaching and the performance data obtained during the students' translation process.

1.   The developed rhetorical model of specialised translation teaching describes the translation process that is based on the critical analysis of the source text and the creation of the target text according to the accepted linguistic and textual norms of the target culture. The rhetorical model offers six stages of action from the identification of the source text features to the creation of the target text: Identifying – Understanding – Producing – Comparing – Evaluating – Harmonising. The identification stage focuses on recognising the key concepts, determining the rhetorical situation. The understanding stage involves the detailed analysis of the macro and micro structure of the source text. The production stage involves creating the target text using the appropriate computer-assisted translation tools and digital resources. The comparison stage deals with careful examination of each translated sentence in terms of correspondence to the aim, structure, and style of the source text. The evaluation stage involves assessing the quality of translation with regard to such categories as terminology alignment, accuracy, adherence to linguistic conventions, style and locale conventions. The harmonising stage involves the improvement of translation based on the feedback provided either by a group mate(s) or an instructor.

2.   Practical activities have been proposed in the Thesis to develop students' ability to meaning creation and comprehension through the Conceptual Blending Theory and Cognitive Metaphor Theory. With the tasks provided, it has been demonstrated how the interpretation of specialised texts should be based on the interdisciplinary analysis and the application of background knowledge, including information about arts, sciences, history and philosophy. The set of exercises presented in the Thesis has been designed to develop students' problem-solving skills in different translation situations. The development of translation competence involves information literacy, analytical, critical and creative thinking skills, responsible decision-making, collaboration and self-organisation.

3.   Translation is one of the types of activities "in progress" and, as a result, the acquisition of translation competence is an open-ended and life-long process. The author of the Thesis assumes that the exchange of experience and good practices is influential in the development of the translation competence.

4.   The interpretation of students' translation teaching process results has been based on the Dunning–Kruger model. The application of the Dunning–Kruger model allows the instructor to

evaluate the learning process of the students with different levels of competence and provide a personalised learning support.

5.   The students' performance data are obtained directly from the data of learning process, rather than the survey data used by Dunning and Kruger in their model development. Compared to the students' self-perception questionnaire, the students' performance data provide more accurate results as they are less affected by the students' subjective attitude.

6.   Determining the students' location on the Dunning–Kruger model enables instructors to apply relevant teaching approaches in order to encourage students to improve their skills and abilities. The downward and upward trends of the performance-competence curve illustrate the student's development dynamics allowing the instructor to forecast a minimum and maximum increase in student's performance upon completion of the study course.

7.   Based on the performance and competence level, students are grouped into low performers, average performers and high performers.

8.   Low performers who possess a level of competence below average are highly confident in their skills and, therefore, should be encouraged to perform an activity more fully instead of relying on their experience. It is necessary to provide evidence, factual information and feedback from multiple sources, as well as to determine clear measurable results (learning outcomes) and explain the consequences if the set requirements are not fulfilled. Without feedback about what is regarded as an effective performance, students with a competence level below average overestimate their own skills and do not progress.

9.   Average performers are characterised by an inquiring learning pattern and doubting behaviour, i.e., they constantly check if the chosen translation variants, terms and expressions are supported by evidence. To develop their skills takes time as they need to practise in order to gain experience in different situations, thus receiving a possible scenario for action in similar cases. Prior knowledge is important to be able to find new perspectives on challenges and evaluate and propose effective and relevant solutions.

10. High performers usually perform tasks easily and do not realise that they are challenging to others. Training should focus on making them more aware of their own and other students' skill levels. It would help them in the collaborative activities to communicate more clearly with group mates who possess a lower competence level.

11. The author forecasts that specialised translation training will have its place in the future since machine translation will not be able to resolve all the translation issues in specialised translation, such as conceptual differences, intercultural differences or interpretative issues.

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Appendices

Appendix 1: Self-perception Questionnaire

Dear students,

Your participation in the survey is voluntary. The survey is intended to be anonymous and all efforts have been made to ensure anonymity. Please complete the questionnaire on your translation process.

1 b) For each translation stage, tick the option(s) you think matches your skills best:

Pre-translation stage: Data collection and analysis of the source text:

- ☐ I can identify necessary background information (the audience, text type, end-use of thetarget text, etc.).
- ☐ I can identify key concepts (the main idea of the source text; the keywords of the sourcetext; the relevant and even irrelevant information).
- ☐ I can collect available information on the main concepts.
- ☐ I can identify rhetorical appeals.
- ☐ I can perform the microstructure analysis of the source text.
- ☐ I know how to use digital tools (e.g., WordCloud, TextAnalyst, MALLET, InfraNodus) togather and process the information of the source text.

2 b) Translation stage:

- ☐ I can select the most suitable translation strategies, lexis, terminology, syntax, style andreformulate texts where necessary.
- ☐ I can select translation strategies, lexis, terminology, syntax and style and justify their choice.
- ☐ I can easily reformulate a wide range of texts and produce target texts with a different purpose from their source texts.
- ☐ I know how to use computer-assisted / machine translation tools, state-of-the-art software.

3 c) Proofreading and Editing stage:

- ☐ I know editing methods and practices.
- ☐ I know established reference manuals and guidelines.
- ☐ I can determine whether the content of the text suits the target audience.
- ☐ I can correct errors related to terminology consistency and accuracy.
- ☐ I can correct linguistic and style errors.
- ☐ I can organise and structure the text.
- ☐ I can ensure consistency of style and information within a text.
- ☐ I can work with visual information.

4 d) Reflection stage:

☐ I request constructive feedback on my work.
☐ I accept criticism with the intent to learn and improve my skills.
☐ Never reflect on the translations made.

5. Rank the following translation issues that you find less difficult (1) to most difficult (5):

	1	2	3	4	5
Terminology alignment	○	○	○	○	○
Accuracy	○	○	○	○	○
Linguistic conventions	○	○	○	○	○
Style	○	○	○	○	○
Locale conventions	○	○	○	○	○

6. Which translation tools do you regularly use and why?

7. What do you use machine translation for?

☐ Draft translation
☐ Gist
☐ Other purposes

8. How do you improve your professional skills?

☐ I keep up with changes in the field(s) of specialisation.
☐ I read in my source and target languages to keep up my vocabulary.
☐ I develop glossaries and share them with my group mates.
☐ Other.

Appendix 2: Translation Tasks

Translation Task 1

"Media Amnesia: Rewriting the Economic Crisis" by Laura Basu (Pluto Press, 2018), pp. 32–33

1,794 printed signs

(Translation challenges are highlighted in yellow.)

Forgetting the banks

The crisis could not have been rewritten, however, without a considerable amount of full-blown amnesia. Overall, fiscal irresponsibility has been the dominant explanation for the UK deficit. In coverage focusing on the deficit, this explanation accounted for 33.3 per cent of explanations mentioned, whereas the second most common explanation, the financial crisis, accounted for 20.2 per cent of the explanations mentioned. Non-specific blaming of the Labour Party made up a further 11.6 per cent, and was the third most common explanation for the deficit. As shown in Table 2.1, the fiscal irresponsibility explanation was strongly endorsed in the Telegraph, the Sun and even in the Guardian. Mirror journalists mainly chose to ignore this position, while the BBC mostly reported it neutrally – simply reporting Tory claims without endorsing or rejecting them. It should be noted that, though fiscal irresponsibility was the main reason given for the deficit, direct blaming of this kind was not actually that frequent. In 52.4 per cent of the sampled news items with a primary focus on the deficit, no explanation was given. The downturn accounted for 10.9 per cent of the explanations for the deficit – the fact that the recession had led to falling tax revenues. But the structural causes of the financial crisis in turn – those explored in the previous chapter – are hardly mentioned. The misconduct of the financial sector made up 10.9 per cent of the explanations for the deficit. The longer-term context of 'free market' capitalism since the 1980s only comprised 3.1 per cent of the explanations given for the deficit. As the crisis evolved and attention shifted from the banking meltdown to the deficit, the timeline of the crisis was being erased and rewritten.

Translation Task 2

"After Access: Inclusion, Development and a More Mobile Internet" by Jonathan Donner (MIT, 2015), p. 24

<div align="right">1,740 printed signs</div>

(Translation challenges are highlighted in yellow.)

Mobile Overtaking Fixed, Again

Whether 2002 was a long time ago, technologically speaking, is largely a matter of perspective; some may have difficulty recalling a digital landscape before Facebook, YouTube, and the iPhone. Regardless, the world reached an important telecommunications milestone that year. For the first time, there were more connections to the global telephone network from mobile devices than from fixed (landline) telephones—1.1 billion mobile connections in all. In the twelve years since that point, mobile network operators (MNOs) around the world added five billion more mobile-cellular connections, particularly in the Global South, while fixed subscriptions stayed virtually flat at 1.1 billion. Mobile telephony did not just overtake fixed telephony. Mobile ran fixed off the road, took its wallet and keys, and sped off into the sunset with 6+ billion connections. Now, the telephony race has a sequel. Mobile Internet is overtaking fixed Internet. And, as was the case with voice telephony, the Global South has much to gain from this shift to a more mobile Internet. This chapter begins by illustrating how the transition depends on what we count, acknowledging that whatever number one might pick is sure to be eclipsed. The second half describes how a broad array of stakeholders is still striving to use mobile technologies to make the Internet more affordable and accessible to those still without a connection.

If we wanted to identify the moment when mobile Internet overtook fixed, which metrics would we use? Even more than was the case with telephone lines, there is increasing divergence among connections, devices, users, and activities involved in connecting to the Internet via mobile technologies.

Translation Task 3

"A Mind at Play: How Claude Shannon Invented the Information Age" by Jimmy Soni, Rob Goodman (2017), pp. 15

<div align="right">1,797 printed signs</div>

(Translation challenges are highlighted in yellow.)

The Room-Sized Brain

If you were searching for the origins of modern computing, you could do worse than to start here: on Walnut Hill, just north and west of Boston, in 1912, where an overdressed lawnmower man was trudging up a grassy incline behind his machine. He took a moment to pose for a grainy photo, hands on the tiller, eyes on his work, face turned from us; the white of the grass, the black of his two-piece suit, the black of the machine. You'd deduce in a second that its purpose is something stranger than lawn care: the tall grass is untouched, and where there ought to be blades there is a blank box, riding slung between two bicycle wheels.

It was the failed first invention of a college senior, and though it ran just as promised, it bored nearly everyone beyond its twenty-two-year-old creator. Inside the box hung a pendulum, and a disc powered by the back bicycle wheel. Resting on the disc were two rollers: one measured vertical distance and wielded a pen, one measured horizontal distance and turned the drum of paper beneath. It was a geography machine, a device aimed to put land surveying teams out of business. Using the old method, three men could cover three miles of ground per day, and at day's end, they'd have tables of data to convert into a cross-section picture.

It earned a patent, and simultaneous bachelor's and master's degrees for its creator, but little else. He made the corporate rounds and failed to sell a single one, or even the license for the patent—his cold letters unanswered, his pitch meetings over in minutes. And even if he could have said, "Look, in twenty years the guts of this lawnmower will run the most powerful thinking machine that human hands have ever built"—it would have sounded close to gibberish. But it would also have been true.

Appendix 3: Rhetorical Analysis Scenario of Authentic Specialised Texts

Sample Text 1

"The Cloud at Your Service" by Jothy Rosenberg and Arthur Mateos (Greenwich, USA, 2011), pp. 162–163

<div align="right">1,752 printed signs</div>

Load Testing

Probably the best example of testing in the cloud is load testing. *Load testing* is the act of simulating hundreds, thousands, or even millions of users hitting your site. By doing this, you can find out if your website can handle the expected load that you may get on Cyber Monday or after airing a Super Bowl commercial.

The cloud is great for load testing because whereas all QA tasks tend to be spiky in nature, nothing is spikier than load testing. You may go weeks without running a load test; and then, as you get close to a release, you may suddenly need dozens or hundreds of machines to generate enough load to meet your testing goals.

Traditional Load Testing

The common approach to load testing prior to the cloud involved running commercial or open-source software on your own hardware. Performance testers used tools such as Apache JMeter and Mercury LoadRunner to create a test script that issued HTTP requests similar to the traffic a real user caused by browsing the site.

But when it comes time to run a load test, testers need to find enough hardware to generate the required load. Because load testing doesn't happen all the time, it's hard for businesses to justify the purchase of dedicated hardware for this task. As a general rule of thumb, a single web server can handle approximately 250 concurrent users, whereas a single midsized server can generate approximately 1,000 concurrent users for load.

Because this physical hardware is difficult to procure, testers tend to try to push more simulated users on each load generator. The risk of doing this is that if you overload the load generator, your results can be skewed or incorrect because the observer (the load generator) suffers from its own performance problems.

Analysis Cycle Underlying Rhetoric and Digital Rhetoric Theories

Steps

1. Define the type and genre of the source text and substantiate your decision. Specify the main features of the source text. Determine new and given information. Determine the addressee.

2. What type of lexical units are predominant in the source text? What field do most of the terms belong to? Identify keywords, use *WordCloud* software to verify your findings.

3. Are there any lexical stylistic devices? Identify metaphor-based terms.

4. Identify culture-specific items and find their interpretation.

5. Align the following terms into the target language: *load testing, open-source software, performance tester, test script, browsing the site, concurrent user, load generator*.

6. What is the contextual meaning of words *traffic* and *performance* in the source text? What is the primary meaning of *traffic* and *performance*?

7. What is your approach to translating the figurative expression "nothing is spikier than" in sentence (4)?

8. Identify the types of transformations related to the translation of the first sentence.

9. Translate sentences (2) and (3) employing the method of lexical addition. Give some arguments for or against its use.

10. Compare your translation with the translations by your group mates, choose the one that meets the requirements, and substantiate your decision.

Sample Text 2

"The Cloud at Your Service" by Jothy Rosenberg and Arthur Mateos (Greenwich, USA, 2011), p. 167

<div align="right">1,517 printed signs</div>

Manual testing

Until now, we've only discussed how the elasticity and parallelization of technical infrastructure can improve the ways you build software. But you shouldn't focus only on nonorganic resources when building software. People are finite resources as well, and crowd-sourcing networks backed by cloud APIs are a powerful way to augment your QA process.

Every software project has some sort of QA phase. Unfortunately, prior to the QA handoff, testers tend to be underutilized. Even worse, after the handoff, they become over-utilized, resulting in increased stress and potential for missing critical bugs.

Although automated tests can help even out the workload, the reality is that manual testing will never go away. After all, where do those automated tests originate? From a QA engineer running a first manual test.

As such, it's important to think about ways you can take advantage of new services that let you get access to *elastic people*. No, not the Mr. Fantastic kind of elasticity, but rather the kind of people who can be counted on for short, burstable periods of time.

Thanks to the reach of the internet and some innovative new services, you can tap into people power with relative ease. Amazon provides a service called Mechanical Turk (https://www.mturk.com/), shown in Figure 7.10. Amazon calls it "artificial artificial intelligence."

The service has tens of thousands of human "workers" (also known as *Turkers*) who are ready to do arbitrary tasks, written in plain English, for small bounties.

Analysis Cycle Underlying Rhetoric and Digital Rhetoric Theories

Steps

1. Define the type and genre of the source text and substantiate your decision. Specify the main features of the source text. Determine new and given information. Determine the addressee.

2. What type of lexical units are predominant in the source text? What field do most of the terms belong to? Identify keywords, use *WordCloud* software to verify your findings.

3. Are there any lexical stylistic devices?

4. What means of compressed information transfer are present in the text? What do the abbreviations *API* and *QA* stand for? How should they be translated? Is the abbreviated form available in the target language?

5. Why is the phrase *elastic people* written in italics? How can the sentence be paraphrased to make the meaning of "elastic people" in the sentence more explicit?

6. How does the presence of the lexical units identified in the source text affect the strategy of its translation?

7. What is the localised translation of character *Mr. Fantastic* in the target language?

8. What translation methods can be used to convey the meaning of lexical innovation *Turker* in the target language?

9. Translate the source text. Name all types of transformations used in the process of translation.

Sample Text 3

Edgar Allan Poe wrote sixty-five stories. This one, "The Gold-Bug," is the only one to end with a lecture on cryptanalysis. It is Claude Shannon's favorite.

Here is where Gaylord, Michigan, ends. The roads turn dirt and give out in potato fields. Main Street is only blocks behind. Ahead are the fields and feedlots, the Michigan apple orchards, the woods of maple, beech, birch, the lumber factory digesting the woods into planks and blocks. Barbed wire runs along the roads and between the pastures, and Claude walks the fences—one half-mile stretch of fence especially.

Claude's stretch is electric. He charged it himself: he hooked up dry-cell batteries at each end, and spliced spare wire into any gaps to run the current unbroken. Insulation was anything at hand: leather straps, glass bottlenecks, corncobs, inner-tube pieces. Keypads at each end—one at his house on North Center Street, the other at his friend's house half a mile away—made it a private barbed-wire telegraph. Even insulated, it is apt to be silenced for months in the ice and snow that accumulate on it, at the knuckle of Michigan's middle finger. But when the fence thaws and Claude patches the wire, and the current runs again from house to house, he can speak again at lightspeed and, best of all, in code.

In the 1920s, when Claude was a boy, some three million farmers talked through networks like these, wherever the phone company found it unprofitable to build. It was America's folk grid. Better networks than Claude's carried voices along the fences, and kitchens and general stores doubled as switchboards. But the most interesting stretch of fence in Gaylord was the one that carried Claude Shannon's information.

Analysis Cycle Underlying Rhetoric and Digital Rhetoric Theories

Steps

1. Make a list of terms related to wired communication you already know. Organise them into a mind map.
2. Use VOYANT digital analysis tool to extract statistical information on the source text.
3. Identify the rhetorical appeals (logos, ethos, pathos).
4. Identify rhetorical strategies, as well as determine their role in the source text.
5. Identify intertextual references in the text.
6. Analyse potential translation challenges. Suggest the most appropriate translation strategy.
7. Will the geographical names if preserved in the translation convey the implied meaning to the target reader or should they be made more explicit in the target text?
8. Translate the source text.

Appendix 4: Distribution of Students by the Mark and Duration of Each Stage before Training (academic year 2019/2020)

Mark before	Duration of data collection and analysis stage (sec)	Average duration of data collection and analysis stage (sec)	Duration of target text creation stage (sec)	Average duration of target text creation stage (sec)	Duration of editing stage (sec)	Average duration of editing stage (sec)
6	277		4200		490	
6	280	279	3920	4060	440	465
7	380		3700		520	
7	420		3426		362	
7	458	419	3206	3444	386	423
8	652		2832		264	
8	448		3648		472	
8	563	506	3208	3428	316	394

Mark before	Average data collection time (sec)	Data collection and analysis stage, %	Average target text creation time (sec)	Target text creation stage, %	Average editing time (sec)	Editing stage, %	Total
6	279	5	4060	85	465	10	4804
7	419	10	3444	80	423	10	4286
8	506	12	3428	79	394	9	4328

Appendix 5: Distribution of Students by the Mark and Duration of Each Stage during Training (academic year 2019/2020)

Mark during	Duration of data collection and analysis stage (sec)	Average duration of data collection and analysis stage (sec)	Duration of target text creation stage (sec)	Average duration of target text creation stage (sec)	Duration of editing stage (sec)	Average duration of editing stage (sec)
6	356	356	3900	3900	420	420
7	480		3522		526	
7	390		3607		418	
7	465		3106		368	
7	617	488	2640	3219	256	392
8	472		3150		364	
8	469		3279		456	
8	536	492	2962	3130	304	375

Average data collection time (sec)	Data collection and analysis stage, %	Average target text creation time (sec)	Target text creation stage, %	Average editing time (sec)	Editing stage, %	Total
356	8	3900	83	420	9	4676
488	11	3219	79	392	10	4099
492	12	3130	78	375	10	3997

Appendix 6: Distribution of Students by the Mark and Duration of Each Stage after Training (academic year 2019/2020)

Mark after	Duration of data collection and analysis stage (sec)	Average duration of data collection and analysis stage (sec)	Duration of target text creation stage (sec)	Average duration of target text creation stage (sec)	Duration of editing stage (sec)	Average duration of editing stage (sec)
7	402		3200		418	
7	450		2900		506	
7	410	421	3180	3093	410	445
8	493		2880		345	
8	496		2886		352	
8	485	491	2960	2909	423	373
9	584		2608		248	
9	482	533	2436	2522	295	272

Mark after	Average data collection time (sec)	Data collection and analysis stage, %	Average target text creation time (sec)	Target text creation stage, %	Average editing time (sec)	Editing stage, %	Total
7	421	11	3093	78	455	11	3969
8	491	13	2909	77	373	10	3773
9	533	16	2522	76	272	8	3327

Appendix 7: Distribution of Students by the Mark and the Total Time Spent (academic year 2019/2020)

Before training			During training			After training		
Mark	Total time (sec)	Average time (sec)	Mark	Total time (sec)	Average time (sec)	Mark	Total time (sec)	Average time (sec)
6	4967		6	4676	4676	7	4020	
6	4640	4804	7	4415		7	4000	
7	4600		7	4518		7	3856	3959
7	4208		7	3939	4269	8	3718	
7	4050		8	3986		8	3734	
7	4568	4357	7	4204		8	3868	3773
8	3748		8	3513		9	3440	
8	4087	3918	8	3802	3767	9	3213	3327

Appendix 8: Students' Results of Translation Tasks (academic year 2019/2020)

	Before training		During training		After training	
Student	Weight of errors	Mark	Weight of errors	Mark	Weight of errors	Mark
Student 1	12	6	10	6	8	7
Student 2	9	7	9	7	8	7
Student 3	10	6	8	7	7	7
Student 4	7	7	6	7	5	8
Student 5	7	7	5	8	4	8
Student 6	5	8	4	8	3	9
Student 7	7	7	7	7	5	8
Student 8	4	8	4	8	3	9

Appendix 9: Data of the Performance of the Second Group of the Students (academic year 2022/2023, autumn semester)

Student	Duration of data collection and analysis stage (sec)			Duration of target text creation stage (sec)			Duration of editing stage (sec)		
	before	during	after	before	during	after	before	durin g	After
1	250	326	392	4115	3975	3251	503	433	507
2	397	494	446	3765	3504	2892	596	516	516
3	315	387	405	3878	3763	3083	432	399	390
4	505	549	512	2952	2318	1932	346	260	254
5	452	466	476	3146	3036	2566	378	336	347
6	762	626	517	2932	2932	2296	265	259	250
7	446	478	465	3391	3166	2778	494	452	374
8	516	534	470	3067	2963	2367	312	347	340
9	212	346	398	4278	4105	3732	446	442	438
10	208	398	412	4154	3912	3486	486	458	374
11	434	474	506	3245	3143	2915	392	314	318
12	496	517	502	3151	2895	2438	354	326	311
13	711	622	516	2737	2536	2304	258	252	249
14	551	568	517	3364	3026	2956	276	270	257
15	204	372	446	4599	4248	3738	202	297	265
16	231	349	516	4338	4115	3822	246	269	262
17	349	347	377	3968	3968	3492	391	391	316
18	468	495	466	3259	2977	2525	313	336	320
19	374	472	472	3807	3509	2676	507	517	403

Appendix 10: Distribution of Students by the Mark and Duration of Each Stage before Training (academic year 2022/2023, autumn semester)

Mark	Duration of data collection and analysis stage (sec)	Average duration of data collection and analysis stage (sec)	Duration of target text creation stage (sec)	Average duration of target text creation stage (sec)	Duration of editing stage (sec)	Average duration of editing stage (sec)
5	204		4599		202	
5	231	218	4338	4469	246	224
6	208		4154		486	
6	212		4278		446	
6	250		4115		503	
6	315		3878		432	
6	349	267	3968	4079	391	452
7	374		3807		507	
7	397		3765		596	
7	434		3245		392	
7	446		3391		494	
7	452	421	3146	3471	378	473
8	468		3259		313	
8	496		3151		354	
8	505		2952		346	
8	516		3067		312	
8	551	507	3364	3159	276	320
9	711		2737		258	
9	762	737	2932	2835	265	262

Mark before	Average duration of data collection and analysis stage (sec)	Data collection and analysis stage, %	Average duration of target text creation stage (sec)	Target text creation stage, %	Average duration of editing stage (sec)	Editing stage, %	Total
5	218	4	4469	91	224	5	4911
6	267	6	4079	85	452	9	4798
7	421	10	3471	79	473	11	4365
8	507	13	3159	79	320	8	3986
9	737	19	2835	74	262	7	3834

Appendix 11: Distribution of Students by the Mark and Duration of Each Stage during Training (academic year 2022/2023, autumn semester)

Mark during	Duration of data collection and analysis stage (sec)	Average duration of data collection and analysis stage (sec)	Duration of target text creation stage (sec)	Average duration of target text creation stage (sec)	Duration of editing stage (sec)	Average duration of editing stage (sec)
6	326		3975		433	
6	387		3763		399	
6	346		4105		442	
6	372		4248		297	
6	349		4115		269	
6	347	355	3968	4029	391	372
7	494		3504		516	
7	478		3166		452	
7	398		3912		458	
7	474		3143		314	
7	472	463	3509	3447	517	451
8	549		2318		260	
8	466		3036		336	
8	534		2963		347	
8	517		2895		326	
8	568		3026		270	
8	495	522	2977	2869	336	313
9	626		2932		259	
9	622	624	2536	2734	252	256

Mark during	Average duration of data collection and analysis stage (sec)	Data collection and analysis stage, %	Average duration of target text creation stage (sec)	Target text creation stage, %	Average duration of editing stage (sec)	Editing stage, %	Total
6	355	7	4029	85	372	8	4756
7	463	11	3447	79	451	10	4361
8	522	14	2869	77	313	9	3704
9	624	17	2734	76	256	7	3614

Appendix 12: Distribution of Students by the Mark and Duration of Each Stage after Training (academic year 2022/2023, autumn semester)

Mark after	Duration of data collection and analysis stage (sec)	Average duration of data collection and analysis stage (sec)	Duration of target text creation stage (sec)	Average duration of target text creation stage (sec)	Duration of editing stage (sec)	Average duration of editing stage (sec)
6	516		3822		262	
6	377	447	3492	3657	316	289
7	392		3251		507	
7	446		2892		516	
7	405		3083		390	
7	398		3732		438	
7	412		3486		374	
7	446		3738		265	
7	472	424	2676	3265	403	413
8	512		1932		254	
8	476		2566		347	
8	465		2778		374	
8	470		2367		340	
8	506		2915		318	
8	502		2438		311	
8	517		2956		257	
8	466	489	2525	2560	320	315
9	517		2296		250	
9	516	517	2304	2300	249	250

Mark after	Average duration of data collection and analysis stage (sec)	Data collection and analysis stage, %	Average duration of target text creation stage (sec)	Target text creation stage, %	Average duration of editing stage (sec)	Editing stage, %	Total
6	447	10	3657	83	289	7	4393
7	424	10	3265	80	413	10	4102
8	489	15	2560	76	315	9	3364
9	517	17	2300	75	250	8	3067

Appendix 13: Distribution of Students by the Mark and the Total Time Spent (academic year 2022/2023, autumn semester)

Before training			During training			After training		
Mark	Total time (sec)	Average time (sec)	Mark	Total time (sec)	Average time (sec)	Mark	Total time (sec)	Average time (sec)
5	5005		6	4734		6	4600	
5	4815	4910	6	4549		6	4185	4393
6	4868		6	4893		7	4150	
6	4625		6	4917		7	3854	
6	4936		6	4733		7	3878	
6	4848		6	4706	4755	7	4568	
6	4708	4797	7	4514		7	4272	
7	4758		7	4096		7	4449	
7	3976		7	4768		7	3551	4103
7	4331		7	3931		8	2698	
7	4071		7	4498	4361	8	3389	
7	4688	4365	8	3127		8	3617	
8	3803		8	3838		8	3177	
8	3895		8	3844		8	3739	
8	4001		8	3738		8	3251	
8	4191		8	3864		8	3730	
8	4040	3986	8	3808	3703	8	3311	3364
9	3959		9	3817		9	3063	
9	3706	3833	9	3410	3614	9	3069	3066

Appendix 14: Results of Translation Tasks (academic year 2022/2023, autumn semester)

	Before training		During training		After training	
Student	Weight of errors	Mark	Weight of errors	Mark	Weight of errors	Mark
Student 1	11	6	10	6	8	7
Student 2	9	7	9	7	7	7
Student 3	10	6	10	6	8	7
Student 4	6	8	5	8	4	8
Student 5	7	7	6	8	4	8
Student 6	3	9	3	9	3	9
Student 7	8	7	7	7	6	8
Student 8	4	8	3	8	3	8
Student 9	12	6	10	6	9	7
Student 10	11	6	9	7	8	7
Student 11	9	7	8	7	6	8
Student 12	5	8	5	8	4	8
Student 13	3	9	3	9	2	9
Student 14	5	8	4	8	4	8
Student 15	14	5	10	6	9	7
Student 16	15	5	11	6	10	6
Student 17	12	6	12	6	11	6
Student 18	6	8	5	8	4	8
Student 19	9	7	8	7	7	7

Oksana Ivanova was born in 1981 in Gulbene. Oksana obtained professional higher education and qualification as a Technical Translator-Desk Officer at Riga Technical University in 2005. She completed RTU professional Master study programme "Technical Translation", obtaining a professional Master's degree in Technical Translation (2009). Oksana started her career at RTU in 2006 as an LSP (languages for specific purposes) lecturer and coordinator of the professional Bachelor study programme "Technical Translation". Since 2012, she has been a member of the Steering Committee of the International Scientific Conference "Meaning in Translation: Illusion of Precision". Over the past three years, she has been actively involved in scientific research activities, participating in such projects as "Language Technology Initiative", "Development of Efficient Governance of Riga Technical University", and "Support for RTU International Cooperation Projects in Research and Innovation". Her research interests include applied linguistics, specialised text translation, computer-assisted translation tools, language technologies, sustainability in higher education, and the design of e-learning environment.