

The translator as a text producer

The effects of writing training
on transediting and translation performance

Iris Schrijver

Proefschrift voorgelegd tot het behalen van de graad van doctor in de
vertaalwetenschap aan de Universiteit Antwerpen

Promotoren

Prof. dr. Leona Van Vaerenbergh

Universiteit Antwerpen

Prof. dr. Luuk Van Waes

Universiteit Antwerpen

Faculteit Letteren en Wijsbegeerte

Toegepaste Taalkunde/Vertalers & Tolken

Antwerpen, 2014



Graphics by Iris Schrijver, Mariëlle Leijten & Henk Jan Imhoff

ISBN 9789090283999

NUR 616

Copyright © 2014: Iris Schrijver. All rights reserved

The translator as a text producer

The effects of writing training
on transediting and translation performance

Vertaling als tekstproductie

Het effect van schrijftraining
op transediting, het vertaalproduct en het vertaalproces

Iris Schrijver

Proefschrift voorgelegd tot het behalen van de graad van doctor in de
vertaalwetenschap aan de Universiteit Antwerpen

promotoren: Prof. dr. Leona Van Vaerenbergh
Prof. dr. Luuk Van Waes

Acknowledgements

The 99%-perspiration/1%-inspiration formula has often been linked to completing doctoral dissertations. Although I do not fully agree with the percentages used in this formula, I cannot deny that completing a doctoral dissertation is indeed a long and winding road that takes much commitment and perseverance. Remaining dedicated and motivated is less hard when you are surrounded by family, friends and colleagues, who not only want to see you succeed but also encourage and guide you along the way. To acknowledge how important their support has been to me, I would like to take this opportunity to thank *everyone* who has been involved in completing this dissertation. While running the risk of leaving someone out, I would like to extend a special thank you to a number of people.

First and foremost, I would like to thank my supervisors, Leona Van Vaerenbergh and Luuk Van Waes, for their invaluable guidance and advice. Despite – or precisely thanks to – their different fields of expertise, they complemented each other wonderfully. Leona’s eye for detail is uncanny, and her critical view of translation theory, terminology use (across disciplines) and methodology were particularly helpful. Luuk’s expertise in writing, keystroke logging and experimental research has been extremely valuable to bridge the gap between the fields of translation and writing in this dissertation. In his overly busy schedule, he always found the time to sit down with a cup of tea (or coffee) and to provide me with detailed feedback, insightful advice and words of encouragement, both on an academic and a personal level.

I am also greatly indebted to Mariëlle Leijten. Although she did not wear the official hat of ‘supervisor’, she has been equally instrumental in the successful completion of this project. I cannot thank her enough for

inviting me to work in her office, for critically reviewing my articles and research ideas, for initiating master's theses directly related to and designed in function of my research, for lifting up my spirits with fun and comforting coffee breaks, as well as for her friendship.

There are also other people who have been directly involved in completing this dissertation. Carmen Heine has been one of the greatest supporters of my research. She has made it possible for me to enjoy a number of research stays at Aarhus University and has provided me with academic as well as personal nourishment. Our lively discussions about the intricacies of translation and writing inspire me greatly and I treasure our friendship. I would also like to thank Klaus Schubert, who was the external member of the supervisory committee during the years that I worked on this dissertation. His advice on the methodological framework in the early stages of the research project was extremely helpful. A special thank you is due to Joyce Karreman, assistant professor at the University of Twente. Having met me only twice before, she was so kind to travel all the way from Enschede (Netherlands) to Antwerp to give writing training to translation students as part of the experimental design. I would also like to thank Charlotte Klima, who evaluated the translations produced during the experiments that were carried out for this dissertation. Her professional perspective on the research topic as well as her friendship have been a tremendous help. A heartfelt thank you is also in order for Luk Verlonje, who corrected the students' writing tests for this research project while enjoying the first days of his well-deserved retirement. Moreover, I would like to express my gratitude to the translation students of Artesis University College Antwerp as well as to the professional translators who participated in the experiments. Experimental research is not possible without the involvement of motivated participants. A word of thanks must also be directed to my colleagues at the Department of Applied Linguistics/Translators & Interpreters at the University of Antwerp (formerly known as Artesis University College Antwerp). I am grateful to Frank Peeters and Anne Verhaert, who secured the financial support that temporarily relieved me from part of my teaching activities to complete this dissertation. For their unwavering academic and personal support, I also would like to thank the following colleagues in particular: my colleagues from the Spanish department Christiane Stallaert, Anne Verhaert and Sabela Moreno Pereiro, as well as Aline Remael, Isabelle Robert and Line Magnus. I am especially grateful to Jimmy Ureel, whom I have known for more than a decade, first as one of my lecturers, now as

a colleague, friend and fellow APA maniac. His feedback on the contents and language of some of the articles of this dissertation was invaluable, and I am grateful for his support and his willingness to listen to my rants, albeit over some delicious sushi.

This dissertation would never have been written without the unconditional love and support from my friends and family. I would like to extend a special thank you to Jan Willem and Gerdien van Mourik, Majorie van Zanten, Isabel van der Heiden, Jesús Varela López and Germán Hurtado Martín for their encouragement (sometimes from afar) during these past years. I would also like to thank my partner's family since they were always interested in my academic progress and my personal well-being, providing welcome distraction by pouring the occasional or frequent (everything is relative in life, after all) glass of white wine. A heartfelt thank you must also be directed at my gran, who may not have understood completely what I was working on these past few years, but has been one of my keenest supporters nonetheless. I am also profoundly grateful to my parents, *pap* and *mam*. They have not only taught me the importance of perseverance and commitment, but have also instilled in me the love for education and learning, all features I have been able to use for and integrate into this dissertation. My parents' love and support have also been invaluable for keeping the balance between my professional and personal life in check – a considerable risk for every PhD student, but especially when you are a *Schrijver* writing a dissertation about translators carrying out activities typical of writers.

Last but not least, I would like to thank my partner, my love, Henk Jan. He has walked this long and winding road alongside me, providing continuous support in every way possible. Pieces of him are sprinkled throughout this dissertation. I adore, value and treasure him more than I could ever put into words.

Iris Schrijver
Antwerp, 1 July 2014

Table of Contents

Acknowledgements	V
Introduction	1
1 The translator as a writer: Text-productive competence as a component of translation competence	11
1. Introduction	12
2. Writing competence in translation-competence models	14
2.1 Linguistic subcompetence	16
2.2 Extralinguistic subcompetence	17
2.3 Instrumental subcompetence	18
2.4 Knowledge about translation subcompetence	18
2.5 Strategic subcompetence	19
2.6 Psycho-physiological aspects	21
2.7 Text-productive competence in the translation-competence models	21
3. Writing competence as described in Writing Research	25
3.1 Writing: Transcription and text generation	28
3.2 Planning	29
3.3 Translating	31
3.4 Reviewing	33
3.5 Monitoring	34
3.6 Long-term memory and working memory	35
3.7 Motivation/affect	36
4. Discussion	37
5. Conclusion	43
2 An exploratory study of transediting in students' translation process	45
1. Introduction	46
2. Transediting: Literature review	46

3.	Research questions	54
4.	Method	54
	4.1 Participants	54
	4.2 Materials	55
	4.3 Procedure	56
	4.4 Data collection	57
	4.5 Data analysis	58
5.	Results and discussion	62
	5.1 Transediting strategies used by the participants	62
	5.2 Use of transediting in different phases of the translation process	65
	5.3 Difference in use of transediting among participants with different knowledge	72
	5.4 Methodological considerations	73
6.	Conclusion	78

3 The effect of writing training on the translation product of translation students 83

1.	Introduction	84
2.	Research questions	87
3.	Method	88
	3.1 Participants	89
	3.2 Materials	90
	3.3 Design	93
	3.4 Procedure	94
	3.5 Data analysis	101
4.	Results	103
	4.1 Effect of writing training on the transediting of selected rich points	103
	4.2 Additional effects of writing training on the formulation and structure of the TT	106
	4.3 Effect of writing training on the translation quality	115
5.	Discussion and conclusions	119

4 The effect of writing training on transediting in translation, analysed from a combined product-process perspective 137

1.	Introduction	138
2.	Research questions	140
3.	Method	141
	3.1 Participants	141
	3.2 Design and procedure	141
	3.3 Materials	143
	3.4 Data collection	145
	3.5 Data analysis	146

4.	Results	150
4.1	Product data	150
4.2	Process data	155
5.	Discussion	168
5.1	General discussion	168
5.2	Discussion inspired by cognitive and constructivist perspectives on knowledge and learning	174
6.	Conclusion and suggestions for further research	180
5	The effect of writing training on the translation performance of professional translators: A case study	183
1.	Introduction	184
2.	Research questions	188
3.	Method	188
3.1	Participants	189
3.2	Materials	190
3.3	Design and procedure	194
3.4	Data analysis	198
4.	Results	201
4.1	General comparison of professionals and students	202
4.2	Type of writing training elements applied by the professionals	203
4.3	Case study	210
5.	Discussion	228
6.	Conclusion	236
6	Conclusion	249
1.	Summary of the general findings	249
2.	Strengths and weaknesses of the present research	253
3.	Implications of the general findings for translation pedagogy	256
4.	Suggestions for further research	257
	Summary	261
	References	273
	Samenvatting	291
	Curriculum Vitae	303

Introduction

I have never satisfactorily worked out exactly when there began to be an hegemonic distinction made between writing and translating. All I know is that such a distinction exists and seems to have been in operation for some time now, which has led to translation being seen as the poor relation of writing, often referred to as 'original' or 'creative' writing, and widely perceived as superior. – Bassnett, 2006, p. 173.

All translation problems finally resolve themselves into problems of how to write well in the target language. – Newmark, 1988, p. 17.

Translation is “a simple process of linguistic transfer, whereby what is *written* in one language (known as the source in translation studies terminology) can be transferred nonproblematically into another language (known as the target)” (Bassnett, 2014, p. 2, our emphasis). This layman’s view may be rather simplistic, but it perfectly illustrates why translating and writing are generally understood to be distinct or even opposite activities. First, translation is generally considered to be inherently interlingual, whereas writing is not. Second, translation departs from existing verbal signs and is characterised by a “relevant similarity” to those signs (Chesterman, 1997, p. 62), whereas an explicit and inherent link to a specific pre-existing text is not necessarily present in writing. This second distinction may underlie the notion that writing is superior to translation, since it suggests that translation is “derivative in a way original writing is not” (Boase-Beier & Holman, 1999, p. 2). Another assumption related to the perceived supremacy of writing is that translation is more bound by constraints, and therefore less creative. Although Boase-Beier and Holman argue against the latter part of this claim, they concede that translators might—in a purely

additive sense—be subject to more constraints than writers: they must not only take into consideration all the constraints that helped shape the source text, but also “carry the added burden of constraint imposed by the new target language, culture and audience, and by the need to balance freedom with faithfulness and one’s own knowledge, background and beliefs with those of the author” (1999, p. 13). Moreover, translators have to take into account “the constraints caused by cultural, linguistic or pragmatic mismatches between SL and TL” (Boase-Beier & Holman, 1999, p. 13).¹

At a higher level of abstraction, the opposition between translation and writing disappears, as their semiotic nature makes it difficult to distinguish them from one another. Following this line of thought, literary critics and translation scholars have questioned the supposed supremacy of writing by claiming that the authoritative original (produced by acts of writing) does not exist, because “all texts assimilate, borrow, imitate and rewrite other material” (Boase-Beier & Holman, 1999, p. 2). Moreover, writing as a mental act of searching for meaning can be considered a translational activity, for internal and external realities are transformed into conceptual knowledge, which is subsequently transformed into words. Chesterman (1997, p. 13) integrates this view in what he calls the ‘all-writing-is-translating supermeme’. In other words, writing is translating is writing is translating... Loffredo and Perteghella voice this interdependence as follows: “Writing and translating are [...] intricately dependent on each other: the two are bound together by a paradoxical and unavoidable contract in which both are debtors and both will always remain insolvent” (2006, pp. 3–4).

In recent years, a number of scholars have tried to find the golden mean in this scholarly discussion by advocating to examine translation and writing as approximate phenomena, both from an internal and external process perspective. Dam-Jensen and Heine (2013) argue that translating and writing (as well as adaptation) share a number of basic characteristics and can therefore be considered parts of the superordinate category of text production. They define text production as an intricate process in which “a set of acts are realized by one or more persons with the aim of producing a coherent written text for a target audience” and which “implies an interaction between the mental state of the text producer and the situation in which it evolves” (2013, p. 91). Given the overall difference in how translation and writing relate to pre-existing texts as well as how this relation influences the nature of their respective processes, they are

1 SL=Source language; TL=Target language.

considered (partly) different forms of text production (2013, p. 92). If one conceives translation and writing as approximate phenomena, as parts of the same continuum, this will not only allow for a more comprehensive understanding of text production, but it may also deepen the study of the translation and writing themselves (Schrijver, Dam-Jensen & Heine, forthcoming). Schubert previously voiced a similar idea, by proposing a discipline he tentatively calls Technical Communication Studies, “which accounts for technical communication at large, including the production, the translation and the organisation of documents and document components” (2009, p. 17), and thus encompassing—among others—technical writing and technical translation.

The present dissertation contributes to the scholarly discussion described above, since we will study an issue that lays at the interface of translation and writing: the influence of writing training on translation performance in general (i.e., translation product and process) and transediting in particular. To avoid conceptual and terminological confusion, we will first discuss a number of key concepts. In this dissertation, we adhere to the functionalist definition of translation, proposed by Nord: “Translation is the production of a functional TT maintaining a relationship with a given ST that is specified according to the intended or demanded function of the TT (translation *skopos*)” (1997, p. 32).² Although we consider translation and writing both to be types of text production, we need to introduce the following simplifications to delimit the object of study: (1) translation is an interlingual activity, whereas writing is a monolingual activity; (2) the starting point of the text production in translation is one specific source text, whereas this is not the case in writing. Despite this second simplification, the functionalist definition of translation allows for a broad spectrum of possible translations, in which the ST-TT relationship can vary from strict to nearly absent dependent on the function of the translation in the target culture. At the extreme end of this spectrum, the translator engages in text production that is minimally bound to the ST. As such, it will resemble writing, since it is pre-eminently driven by norms and conventions in the target language as well as needs and expectations of the target readers. The array of this type of text-productive instances in translation constitutes one of the two focal points in this dissertation, which is examined by means of the umbrella concept of transediting. Transediting covers acts of ST rewriting and/or ST re-ordering that entail “the conscious or automatized cognitive route

2 TT=Target text; ST=Source text.

to solve a problem caused by either poor ST quality or differing function, audience, conventions and/or valid text norms in the target culture” (Schrijver, Van Vaerenbergh & Van Waes, 2012, p. 6). The second focal point of this dissertation concerns the competences that translators need to successfully carry out text production in translation processes, and more specifically in those instances when the relationship with the ST cannot be strictly maintained due to the translation brief and when transediting is required. These key concepts and focal points bring us to the object of study in this dissertation. If we consider translation and writing to be types of text production, this begs the question: can training in one type of text production foster performance in the other? And more specifically, if transediting resembles writing, what effect does writing training have on transediting in the translation process?

Methodological overview

In this dissertation, we address the following general research question: What effect does writing training have on transediting and translation performance (i.e., translation product and process)?

To address this question, we have carried out three research projects, characterised by different designs. The first research project describes the use of transediting by MA-level translation students. This study does not directly address the general research question, but is designed as a pilot study to explore (1) the concept of transediting as a means to study the text-productive aspect of translation, and (2) data-collection methods to study transediting. In contrast, the second and third research projects are directly aimed at answering the general research question. The second project is a controlled, quasi-experimental study, which examines both quantitatively and qualitatively the effects of writing training on the translation performance of third-year BA-level translation students, and more specifically on their use of transediting. The third research project is an exploratory follow-up study to examine the same topic among professional translators.

As said, the second and third research projects directly address the general research question. The purpose of these two projects is to examine how translators transfer information acquired in writing training to their translation process and how this transfer influences transediting and their translation product and process. The experimental design of these projects differs slightly, as visualized in Figure 1. In the second project, seventeen BA-level translation students participate, divided over an experimental

group ($n=9$) and a control group ($n=8$). In the third research project, no control group is included, and all five participants, who are professional translators, receive writing training. The collected data concern four translation tasks divided over a pretest, an immediate posttest (consisting of two tasks) and a delayed posttest in the second research project. In the third research project, the participants complete two translation tasks, one in the pretest and one in the posttest.

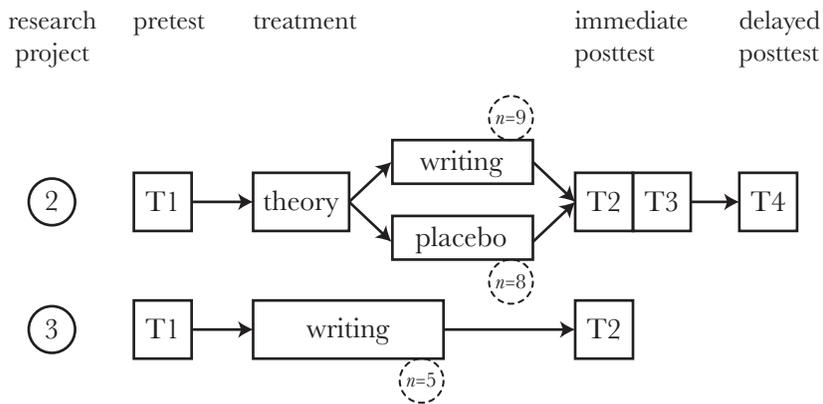


Figure 1. Overview of the designs of the second and third research project.

These projects allow us to explore the effect of writing training on the translation performance of translators with different translation competence and experience (i.e., experimental groups of translation students and of professional translators) on the one hand, and of translators of similar translation competence (i.e., experimental group vs. control group of translation students) on the other hand.

Transediting is a recurring topic in this dissertation, but it is studied from different angles and with different methods in the three research projects. Common to all projects is that transediting will be analysed in translation tasks that are initiated by briefs of the same nature. In these translation briefs, the translators are instructed to produce a TT that corresponds to the valid conventions and norms in the target culture (TC). This allows translators to deviate from the ST and carry out transediting if and when necessary. Moreover, to ensure that the translation processes under scrutiny indeed allow us to effectively study transediting, we use STs that make the use of transediting more probable. What differs among the three research projects is the text genre used. In the first project, the

ST is an American patient information leaflet, which has to be translated into Dutch according to the valid European Medicines Agency's (EMA) directive and guidelines (European Commission Enterprise and Industry Directorate-General, 2008 & 2009). Although the translation brief does not imply a change in function, medium or type of reader audience, transediting is required since the conventions and norms of Dutch patients' information leaflets do not fully correspond with the content and form of the American ST. In the second and third research project, we opt for another text genre: user manuals. In these projects, the need for transediting also originates primarily from differences between norms and conventions between the SL and TL (i.e., Spanish and Dutch respectively). However, an additional factor was present to study transediting in this text genre: poor ST quality.

Another commonality is that transediting will be studied from both a product and process perspective by a mixed use of research methods. Textual analyses of the final TTs constitute the basis for the study of the product aspect of transediting in all three projects. However, the focus of this textual analysis differs: in the first research project, we examine *what* is being transedited, whereas in the last two projects we check *whether* the translators have transedited. In other words, we take on a more qualitative approach in the first project, describing what traces of transediting are found in the final TTs. In the second and third project, the textual analysis zooms in on a number of so-called rich points in the ST that we have selected a priori, as they will require transediting in view of the provided translation brief. Consequently, the study of transediting is more quantitative in nature in the last two projects to allow for a more systematic comparison between translators and conditions. In addition to the product analyses, we will examine transediting from a process point of view to gain an understanding of when, how and why transediting is carried out. The methods used for the collection and analysis of process data differ slightly among the three research projects. Figure 2 contains a classification of process methods proposed by Krings (2005) and translated by Dam-Jensen and Heine (2009), in which we have indicated by numbers which methods will be used in the first, second and third project respectively. Common to all three projects is the use of computer keystroke logging (computer protocols), which yields a detailed quantitative account of how the TT is produced, allowing for analysis of the final version as well as all the in-between stages (product analysis). Different is the choice of methods that we employ to get insight into the problem-solving and

decision-making processes related to transediting. Verbal-report data are the primary source for this purpose: these are provided by think-aloud in the first research project, whereas stimulated retrospective interviews and questionnaires are the methods used in the second and third project. This shift in qualitative research methods from the first research project to the last two is primarily motivated by intrusiveness and lack of specificity in cognitive and metacognitive information, as experienced with think-aloud in the first research project. The findings of the first project also inspire the use of screen capturing (included in the category of computer protocols in Figure 2) as a complementary on-line data collection method in the second research project, and of eyetracking in the pretest of the third research project.

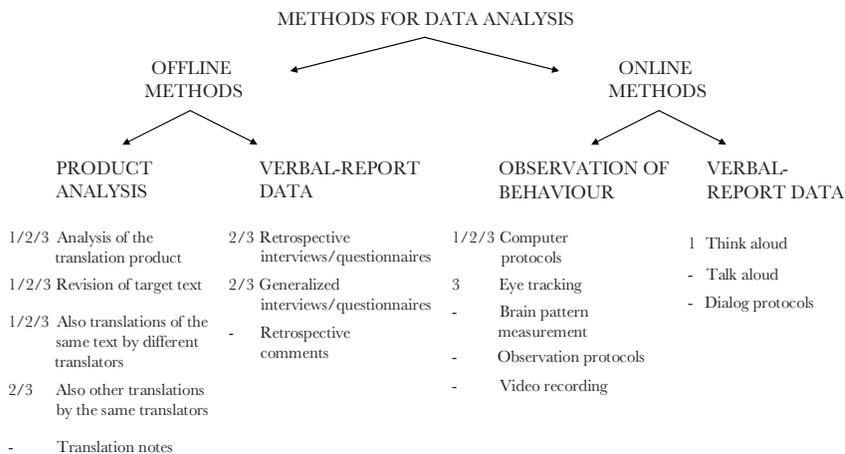


Figure 2. Overview of the process methods used in the three research projects (Classification from Dam-Jensen & Heine, 2009, p. 3).

Preview of the practical organisation of this dissertation

This dissertation contains six chapters, some of which are based on research articles that have been published or are currently in preparation.³ This characteristic implies some repetition of information, but also ensures that the chapters are readable in isolation.

Chapter 1 aims to describe what translation scholars and practitioners mean when they state that “a translator should be able to write”. In this chapter, we review the existing literature on translation competence and compare it with insights from the neighbouring discipline

³ When a chapter is based on a research article, this is mentioned on the first page of the respective chapter with the corresponding bibliographical reference to the research article.

of Writing Research to pinpoint commonalities and differences between translation and writing competence. Moreover, we aim to identify those components of translation competence that can be described as specific or related to text-production. The literature review presented in Chapter 1 places the dissertation within a broader theoretical framework. Furthermore, the identification of the text-productive components of translation competence clarifies the methodological choices that were made when designing the treatment in the second and third research projects.

Chapter 2 addresses the first research project, which explores the use of transediting by MA-level translation students in the translation of an American patient information leaflet (PIL) for a Dutch-speaking audience in accordance with the valid European Medicines Agency's (EMA) directive and guidelines. This first research project has a three-fold aim: (1) to theoretically explore the concept of transediting; (2) to empirically explore how transediting manifests itself in the translation processes of translation students; (3) to verify whether think aloud and computer keystroke logging are the most suitable methods to shed light on the use of transediting. The findings of this pilot study have informed the design of the research projects that are addressed in the following chapters.

Chapters 3 and 4 report on the second research project, which studies the effect of writing training on the translation performance of seventeen undergraduate translation students, and more specifically on their use of transediting. In Chapter 3, we examine the collected data from a product perspective. We test the following two hypotheses in relation to the effect of writing training on the translation products: (1) writing training in the target language (TL) leads to an increased focus on and compliance with TL genre norms and conventions, which result in more transediting visible in the translation product; (2) writing training in the TL leads to a better quality of the translation product. To test these hypotheses, we examine the transediting observable in the rich points and the formulation and structure of the TT as a whole, as well as the holistic and analytic quality of the translation products. In Chapter 4, we re-analyse the collected data on transediting from a process perspective. The purpose of this chapter is twofold. First, we want to get insight into when, how and why the transediting of rich points takes place in the translation process. Second, we aim to find plausible explanations for the findings reported in Chapter 3, by combining the qualitative and quantitative process data with the product data.

Chapter 5 reports the findings of the third research project, which continues the research line that has been proposed and described in Chapter 3 and 4. This exploratory follow-up study aims to shed light on the extent in which translators with a higher level of competence incorporate writing training information in their translation process. We present a case study to describe how extensive incorporation of writing training information influences the translation product and process of a professional translator. Furthermore, we contrast the findings of this follow-up study with the results reported in Chapter 3 and 4 to explore which factors seem to influence the transfer of writing training to the translation task of both professional translators and translation students.

Chapter 6 contains the conclusion, in which we summarize and discuss the main findings of this dissertation. Moreover, we analyze the strengths and weaknesses of the described research projects and discuss possibilities for future research.

We conclude this dissertation with an English and Dutch summary of all chapters.

1

The translator as a writer: Text-productive competence as a component of translation competence

Abstract

Translators are generally understood to be able to write texts. However, what this text-productive competence exactly entails and how it differs from writing competence has hardly been examined to date. This chapter reviews the literature on competence in Translation Studies and Writing Research, and pinpoints similarities and differences in the descriptions of translation competence and writing competence. On the basis of this comparison, several hypotheses about text-productive competence within translation competence are formulated.

1. Introduction

‘Translators must be able to write well’ is a statement that many translation teachers, scholars and practitioners alike agree with. Gile expresses this point of view as follows: “Technical translators are required to be able to write *publishable* texts, that is, to have professional writing skills besides being able to perform the transition from one language to the other. As for literary translators, their writing skills must indeed be similar to those of literary writers” (2009, p. 9). The importance of writing competence for translators can be explained from different perspectives.¹ First, they are crucial in light of the readers’ perception of the translation product, because, in many cases, “translation is to read like a composition originally written in the target-language” (Sykes 1983, p. 42, quoted in Gile 2009, p. 40). Second, writing competence plays a vital role during the translation process, as the following quote by Newmark points out: “All translation problems finally resolve themselves into problems of how to write well in the target language” (1988, p. 17). Third, the growing convergence of the two professions of writing and translation, especially in the domain of technical communication (Minacori & Veisblat, 2010; Gneccchi et al., 2008; Byrne, 2010), requires a translator to be able to perform tasks that go beyond translation and move into the area of writing.

The importance of writing competence for translators is related to the text-productive nature of translation. As Dam-Jensen and Heine (2013) argue, writing and translation are both processes aimed at producing a coherent written text for a target audience, and can therefore be conceptualized as forms of text production, a superordinate category of which adaptation is also a member. If we conceptualize translation and writing as forms of text production, it is likely that the writing competence necessary for translation will be used for that aspect of translation that is most similar to writing: the production of a written text.² The text-

1 We will use the term competence to refer to the combination of knowledge, skills, abilities and attitudes necessary to perform (writing or translation) effectively and readily. With regard to the concept of *knowledge*, we adhere to the definition and classification of Anderson (1983), encompassing declarative and procedural knowledge. The terms *skills* and *abilities* are used in the following meaning: the former are learned, goal-oriented and specific to a given task, whereas the latter are considered to be innate, not easily modifiable by practice or experience and an underlying trait which determines the potential for performing a given task. *Attitudes* are dispositional and psychological qualities, such as persistence, risk-taking, organizational ability, self-confidence, self-awareness, etc.

2 In this chapter, we will not distinguish between different writing contexts, such as L1 and L2 writing, multilingual writing, technical writing, single-source writing etc. In our view, a generalist approach is more suitable in this first stage to explain and represent writing competence and the components that lie at the heart of it.

production concerns primarily the last stage in the following simplistic modeling of the translating activity: comprehension of ST – deverbalisation – re-expression in the target language (TL). The phase of re-expression in the TL or text-production can be roughly subdivided in two parts: (1) the cognitive process of re-expression of the deverbalised source text (ST) into the TL, and (2) the physical drafting of the target text (TT). The re-expression process will largely depend on the ST-TT relationship as required by the function of the translation in the target culture (TC). When the *skopos* requires a strict ST-TT relationship, the text-productive dimension of translation is highly ST-oriented. Translators themselves may perceive and/or experience this activity more as text reproduction than as text production. The text-productive aspect of translation becomes more evident in those cases where the ST-TT relationship is less strict. This may occur when no one-on-one formal correspondence between the SL and TL is feasible (e.g., due to different conventions in the TL), or when the function and/or the type of target audience of the TT differ completely from those of the ST. Poor ST quality may also be a reason for less ST-oriented text production in the translation process, since it forces translators to make textual manipulations in order to avoid a garbage in-garbage out situation.

In light of the text-productive nature of translation, it seems to make sense that translators need writing competence. However, it remains unclear what this exactly entails. Other questions surface as well: is this competence identical to the one that writers must have? Is it used in the same way as writers use them? In this chapter, we aim to get a better grasp of what it means when we say that ‘a translator should be able to write’. We will review the existing literature on writing competence in Translation Studies and Writing Research to get a better understanding about the concept under scrutiny.³ First, we will describe the theoretical reflection on the various components of translation competence and how writing competence fits into these frameworks. Subsequently, we will review the literature on writing competence from the discipline of Writing Research

3 The relationship between concepts and terms is by no means univocal in the literature on competence in Translation Studies and Writing Research. Terms such as ability, skill and competence refer to different concepts, but they are often used as synonyms. Moreover, definitions are often absent or cursory, which makes it difficult to compare theoretical ideas and empirical results in the two disciplines. If we compare the most frequently used terms, the all-encompassing term of competence is predominantly used in Translation Studies. Knowledge seems to be the preferred term in Writing Research. From here on onwards, we will use the term competence to refer to the set of knowledge types, skills, abilities and attitudes that are necessary for completing the task successfully and efficiently.

to pinpoint commonalities and differences with the descriptions found in Translation Studies.

2. Writing competence in translation-competence models

There are a fair number of models that attempt to define translation competence⁴, either based solely on didactic experiences or outlined for empirical research. Over the years, the views on translation competence have evolved and co-existed, going from translation competence being a summation of linguistic competences in the SL and TL to a multi-componential concept (Pym, 2003).

Wilss' (1976) model is one of the earliest descriptions of translation competence and is exemplary of the linguistic-summation concept. He considers what he calls 'translational (translatory) competence' to be "the ability to reproduce technical, common language and literary texts adequately in the target language" (1976, p. 118). This competence consists of three components: (1) a receptive competence in SL; (2) a reproductive competence in TL; (3) a supercompetence that synchronizes the first two monolingual knowledge-areas.

The multi-componential conceptualisation of translation competence emerged in the 1990s and is the most widely accepted view nowadays. There are numerous multi-componential models, but, despite minor discrepancies, all of them present translation competence as "a system of competencies that interact, are hierarchical and subject to variation" (PACTE, 2002, p. 43). If we take a birds-view approach to these models, they generally consist of a communicative component in the SL and TL; an (inter)cultural and subject matter component; a component related to documentation and the use of tools; a component related to knowledge of the translation profession; a strategic component; a component encompassing attitudinal and interpersonal issues. These components that are considered to be specific to translation competence (e.g., in contrast to bilingualism) are: the strategic component; the instrumental component, and the component related to knowledge of translation (PACTE, 2011).

In the following sections, we will briefly discuss these subcomponents. We will take the models formulated by PACTE (2005/2007/2008/2011; see Figure 1) and Göpferich (2008/2009; see Figure 2) as a point of

⁴ Other terms are also used to refer to translation competence, such as *translator competence* (Király, 1995), *translational competence* (Chesterman, 1997; Neubert, 2000), *translational ability* (Pym, 1993) or *translation skill* (Sim, 2000).

departure for this discussion, but we will also integrate views from other scholars. After the description of the various subcomponents, we will address how text-productive competence is situated in the discussed translation-competence models.

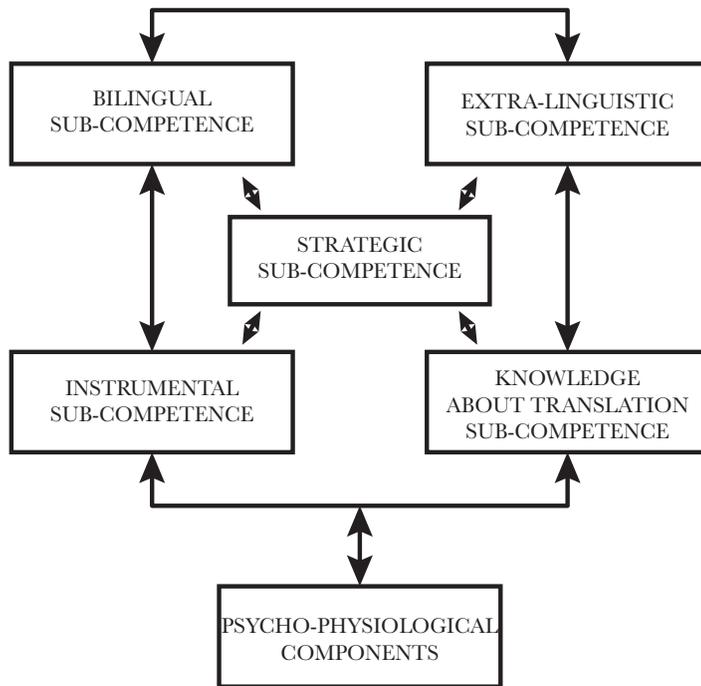


Figure 1. PACTE's model of translation competence (2007, p. 331).

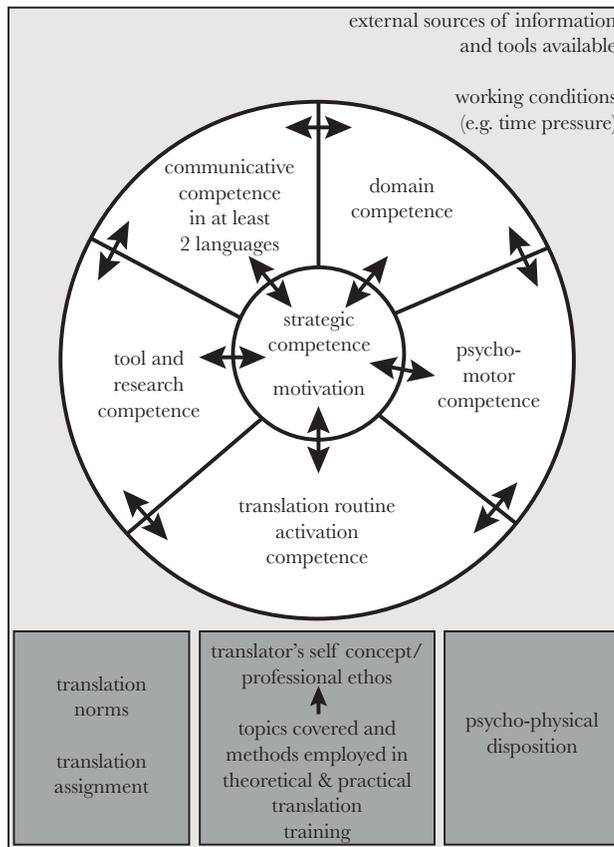


Figure 2. Göpferich's model of translation competence (2009, p. 21).

2.1 Linguistic subcompetence

Good linguistic competence seems to be essential for translators. The components labeled either bilingual subcompetence (PACTE, 2005; Figure 1) or communicative competence in at least two languages (Göpferich, 2009; Figure 2) seem to support this view. Göpferich (2009, p. 21) states that communicative competence is built on “lexical, grammatical and pragmatic knowledge in both languages”, but also considers cultural knowledge to be part of it (e.g., in the case of culture-specific linguistic and textual conventions).⁵ According to PACTE, the bilingual subcompetence entails mainly procedural “pragmatic, socio-linguistic, textual and lexical-grammatical knowledge in each language”, as well as “interference

5 Risku (1998) has voiced a similar view in her cognition model of translation competence.

control” (2005, p. 610). The latter implies the ability to “deverbalise” and to maintain the SL and the TL in separate compartments. Presas (1998) affirms that a translator should be able to keep the two linguistic systems strictly separate, as well as the corresponding conceptual systems. However, an associative competence is also crucial in translation, as is reflected in Hönig’s (1995) model of an ideal translation process and Pym’s (2003) minimalist approach (as pointed out by Göpferich, 2009, p. 14). Hönig (1991) argued that frames and schemes are activated in the long-term memory (LTM) during the transfer phase, which triggers in associative processes TL lexemes and syntactic structures. These TL units are then subject to monitoring in the short-term memory (STM).

2.2 Extralinguistic subcompetence

The models proposed by PACTE and Göpferich (see Figure 1 and 2) both include a so-called extralinguistic or domain subcompetence, which entails predominantly declarative knowledge, both implicit and explicit, about the world in general, subject knowledge in special areas, as well as the source and target cultures (PACTE, 2003). Göpferich’s description is similar, although she adds “the sensitivity to recognize what additional knowledge is needed from external sources of information to fill one’s knowledge gaps” (2009, p. 22). Interesting is that, when zooming in on cultural knowledge, the PACTE model includes this in the extralinguistic subcompetence only and not in the bilingual subcompetence as Göpferich does.

Extralinguistic knowledge is important in translation, because it enables translators to draw inferences from the ST to solve comprehension problems. Data analysis in a small study conducted by Kim (2006) even suggests that it seems to supersede linguistic knowledge in solving comprehension problems, although it is often used in combination with another strategy such as dictionary search. This may explain why highly specialized texts are often translated in professional translation practice by subject matter experts, whose translations are subsequently revised by translators to correct linguistic errors. Collombat points to the importance of (part of) extralinguistic knowledge for transfer and TT production: she relates general knowledge to logic, critical reflection and mental doubt and stating that general knowledge also “leads to vigilance that can help translators avoid pitfalls” (2006, p. 63). Thus, extralinguistic competence may not only influence ST comprehension but also TT monitoring.

2.3 Instrumental subcompetence

The instrumental subcompetence is nearly identical in the models proposed by PACTE and Göpferich, but it is labeled ‘tools and research competence’ in Göpferich’s model. This subcompetence concerns the “ability to use translation-specific conventional and electronic tools, from reference works such as dictionaries and encyclopaedias (either printed or electronic), term banks and other databases, parallel texts, search engines and corpora, to the use of word processors, terminology and translation management systems as well as machine translation systems” (2009, p. 21). The instrumental subcompetence may be used to compensate for shortcomings in other subcompetences, such as lack of linguistic or domain knowledge.

The use of this subcompetence may vary between novice and expert translators. While addressing information integration component in her cognition model of translation competence, Risku (1998) argues that expert translators differ in their research from novice translators, because a) they consider research necessary in any case (even under time pressure); b) they use abstract problem representation for their research; c) the extent of their research is conditioned by available time and specific needs. She states that “in der Entwicklung der Informationsintegration von laienhaftem zu kompetentem Verhalten kristallisiert sich eine Tendenz von *kumulativer* zur *intentionalen* Informationssuche aus” (Risku, 1998, p. 163). Empirical studies have shown that the use of reference works indeed differs between translators of varying translation experience and competence. Novice translators mainly use reference works for comprehension problems, whereas professionals use them for text-production problems (Gerloff, 1988). Jääskeläinen (1989) found that novice translation-students prefer bilingual dictionaries, whereas advanced students use monolingual dictionaries and reference material. Studies by Jääskeläinen (1999) and Künzli (2001) showed that only professional translators use specialized dictionaries and that they use a wider range of sources than novices. With regard to frequency and depth of research by students and professionals, the (few) empirical studies paint varying pictures, though.

2.4 Knowledge about translation subcompetence

According to PACTE, the ‘knowledge about translation sub-competence’ entails predominantly declarative knowledge about how translation functions (types of translation units, processes required, methods and procedures used, and problems) as well as knowledge about professional

translation practice (PACTE, 2003). Göpferich has a distinct perception of this subcompetence. In her model, this subcompetence can be found in two separate entities: the translation routine activation competence and the translator's self-concept. The latter is not perceived as a competence, but rather as a factor that determines the employment of the various subcompetences. A similar role is attributed in this model to the translation brief and norms, as well as the translator's psycho-physical disposition. The former comprises "the knowledge and abilities to recall and apply certain—mostly language-pair-specific—standard transfer operations (or shifts) [...], and which frequently lead to acceptable target-language equivalents" (Göpferich, 2009, p. 60). Using Hönig's terminology, Göpferich describes this competence as "the ability to activate *productive* micro-strategies" (2009, p. 60, our emphasis). These productive microstrategies are controlled, routine transfer processes for ST-items that have a standard TL-equivalent.

Risku (1998) also refers to microstrategies, more particularly rule-based microstrategies, which she considers typical of the information integration as well as the activity-planning and decision processes of novice translators. She believes expert translators are more aware of the relative nature of these microstrategies, and focus more on a macrostrategy. Process studies (e.g., Tirkonnen-Condit, Mäkisolo & Immonen, 2008) have demonstrated that routine transfer processes may often (although not necessarily) result in literal translation: in these studies, both novices and professionals use literal translation as the first tentative translation solution, which is immediately monitored and, if necessary, revised. Englund Dimitrova (2005) suggests that literal translation is a strategy to expand the translator's working memory (WM) during TT generation.

2.5 Strategic subcompetence

The strategic subcompetence is understood to be the center or steering force that controls the activation of all subcompetences. This metacognitive subcompetence entails mainly "procedural knowledge to guarantee the efficiency of the translation process and solve the problems encountered" (PACTE, 2008, p. 106). It has both a planning, monitoring, coordinating and problem-solving function, as it leads to a) the development of an adequate translation method or macrostrategy, b) the evaluation of the process and the decisions taken (which are ideally all subjected to this macrostrategy), c) the adequate activation of the different subcompetences, also to compensate for possible shortcomings in them, d)

the identification of translation problems and the use of problem-solving procedures to remedy them (PACTE, 2005; Göpferich, 2008).

The concept of macrostrategy is central to the strategic competence in PACTE's and Göpferich's models. Hönig (1995) describes the macrostrategy as the translator's cognitive plan containing the characteristics of the TT, such as function, audience and medium of publication, as well as the steps to search for necessary information, to check the accuracy of the subjective associations, and to improve thematic knowledge. In an ideal translation process, this macrostrategy is developed prior to the transfer stage and serves as a steering and monitoring mechanism, determining and controlling the use of microstrategies. Risku (1998) stresses the dynamism of the macrostrategy as being characteristic of expert translation: it is multidimensional, situation-specific, more dependent on prior experiences instead of rule-based, and may be modified or specified during the translation process. Experts will use the macrostrategy to guide their information integration, activity-planning and decision. Risku also argues that experts have a more elaborate view of the translation process, their role and position as translators (self-organisation). Moreover, they reflect more on what they do and what they know (i.e., metacognition). Empirical studies (Gerloff, 1988; Jääskeläinen, 1999) have demonstrated that with increasing experience and competence, translators indeed show more awareness of translation problems, produce more tentative translation equivalents, edit and revise more, and monitor their tentative solutions more critically.

When discussing strategic competence, we must also mention motivational factors. According to Göpferich (2008), they determine together how consistently the translator adheres to a particular macrostrategy. The importance attributed to motivation is one of many resemblances between Göpferich's model and Risku's (1998) cognition model of translation competence. Risku considers both motivation and emotion influential factors in human behaviour and information processing, and hence in the translation process (together with cognitive components). She also relates them to the translator's self-organisation, which in the case of expert translation supposes the "Modifikation der eigenen Handlungsstrategien" due to greater awareness and reflection (Risku, 1998, p. 136). Motivation cannot be found within the strategic competence in the PACTE model, but among the psycho-physiological aspects (see Section 2.6).

2.6 Psycho-physiological aspects

The PACTE model includes psycho-physiological components, but these are not represented as a specific subcompetence. The psycho-physiological components comprise, alongside psycho-motor mechanisms necessary for reading and writing, “(1) cognitive components such as memory, perception, attention and emotion; (2) attitudinal aspects such as intellectual curiosity, perseverance, rigour, critical spirit, knowledge of and confidence in one’s own abilities, the ability to measure one’s own abilities, motivation, etc.; (3) abilities such as creativity, logical reasoning, analysis and synthesis, etc.” (PACTE, 2003, p. 93). These heterogeneous elements are also included in Göpferich’s model, but divided over various categories: the psycho-motor competence and psycho-physical disposition. Another difference is that Göpferich does not consider the former to be a subcompetence, in contrast to the latter. Moreover, Göpferich’s (2008, p. 157; 2009, p. 23) conceptualisation of the translator’s psycho-physical disposition remains rather opaque: she mentions intelligence, ambition, perseverance and self-confidence as components, but does not refer to specific cognitive abilities. However, she does clarify that this disposition determines—like the translator’s self-concept—the functioning of the various subcompetences and may be of influence on how quickly translators develop their translation competence (Göpferich, 2008, p. 153). Although this hypothesis still needs empirical validation, a study by Laukkanen (1996) has indicated that the translator’s self-confidence and feeling of certainty may have an impact on translation quality. Interestingly, Göpferich explicitly situates (intrinsic and extrinsic) motivation outside the psycho-physical disposition and places it within or alongside the strategic competence (cf. above).

2.7 Text-productive competence in the translation-competence models

As we can deduce from the previous sections, the multi-componential translation-competence models do not contain a reference to writing competence. The only explicit reference to writing was found in relation to psycho-motor mechanisms.

Despite the lack of references to writing competence, we have found more or less explicit references to a (text)-productive competence in the TL. This is most evident in Wilss’ (1976) model, in which the text-productive competence consists of, or is restricted to, a *re*productive competence in the TL, which comprises “a comprehensive syntactic, lexical, morphological and stylistic knowledge of [...] the TL” (p. 120). Wilss does

not relate this reproductive competence to writing; in fact, he explicitly marks off translational competence as a whole from the monolingual skill of writing. The reproductive competence in the TL is called re-expression competence in other models (such as the early version of the PACTE model (2000), Beeby (2000), Neubert (2000) and Schäffner (2000)). It appears to be a synonym of, or reference to, text-productive competence, because this re-expression is associated with “textual organisation and creativity in the TL” in the early version of the PACTE model (2000, p. 102). Moreover, Beeby (2000, p. 186) mentions composition skills in the TL in addition to re-expression skills, when addressing this subcomponent in her model of inverse translation competence.

Another explicit reference to the translator’s text-productive competence can be found in the reference framework drawn up by the expert group of the European Master in Translation (2009) for the competences which should be achieved, acquired and mastered at the end of the translator training at university level in Europe. In the description of the intercultural competence feature the following requirements:

- Knowing how to produce a register appropriate to a given situation, for a particular document (written) or speech (oral);
- Knowing how to compose a document in accordance with the conventions of the genre and rhetorical standards;
- Knowing how to draft, rephrase, restructure, condense, and post-edit rapidly and well (in languages A and B). (EMT expert group, 2009, p. 6)

On the basis of the first two requirements, the EMT reference framework seems to link text-productive competence primarily to procedural knowledge. But, how is this competence represented in the most recent, and nowadays most widely acclaimed, models of translation competence, such as PACTE’s and Göpferich’s? In these models, text-productive competence no longer comprises one single, neatly delimited component in the overall configuration of translation competence, but is a subcomponent of one or more subcompetences. The most explicit references to a productive competence in the TL can be found primarily in the descriptions of the ‘bilingual subcompetence’ (PACTE)

or ‘communicative competence in at least two languages’ (Göpferich).⁶ When linguistic knowledge is addressed in translation-competence models, the distinction between receptive competence in the SL and productive competence in the TL usually remains implicit. In the early version of the PACTE model, the communicative competence “should be separated into understanding in the SL and production in the TL” (2000, p. 101). The revised version does no longer make this distinction, but simply states that this is “predominantly procedural knowledge required to *communicate* in two languages” (2008, p. 106, emphasis added). In contrast, Cao (1996) and Göpferich (2008) differentiate between receptive and productive competence. Cao (1996) even states that the productive competence in the TL needs to reach the proficiency level of an educated language user with native or near-native level of competence. In turn, Göpferich (2008) argues that “target-language receptive competence must not be neglected, because it is needed for monitoring processes in which source-language units and target-language units are compared for semantic equivalence, for example” (2009, p. 21). This stance is rather unique, since TL competence is mainly viewed as a productive or active element (e.g., in Kelly, 2005) instead of a receptive one.

Following this line of thought, text-productive competence seems to be related to different types of linguistic knowledge. These knowledge types, especially socio-linguistic, rhetoric, pragmatic, discourse, genre and textual knowledge, are often difficult to distinguish from one another in the various translation-competence models. In the description of her model, Göpferich specifies for example that discourse knowledge and genre knowledge are grouped underneath the header of pragmatic knowledge, which “also includes knowledge about genre and situation-specific conventions in the respective cultures” (2009, pp. 20–21). Risku relates the latter to textual competence, as she highlights the importance of “eine solide Basis in den Fähigkeiten des Umgangs mit Empfängererwartungen, Konventionen, Textsorten und Texttypen – kurz: eine hinreichende *Textkompetenz*” (1998, p. 3, our emphasis). Textual knowledge is part of the bilingual competence in the PACTE model and is integrated into the subcompetence labelled ‘communicative competence in at least two languages’ (as part of pragmatic knowledge) in Göpferich’s model.

6 Other terms can also be found for this subcompetence, such as ‘translational language competence’ (Cao, 1996), ‘language competence’ (Neubert, 2000), ‘linguistic competence’ (Roberts, 1984, as quoted by Kelly, 2005, p. 29; Schäffner, 2000), ‘general language competence L1 + L2’ (Kastberg, 2002), or ‘communicative and textual competence in at least two languages and cultures’ (Kelly, 2005).

However, it represents a distinct subcompetence in the models proposed by Neubert (2000) and by Schäffner (2000). It is in relation to this textual competence that we can find another explicit link with the translator's text-productive competence. Schäffner (2000, p. 147) feels that "familiarity with target culture conventions and typical structures" is required for TT production, but she as well as Neubert (2000) perceive textual knowledge mostly as declarative knowledge. Campbell (1998) has a more procedural view of textual competence. In his model of competence related to translation into the second language, target-language textual competence is defined as the translator's "ability to manipulate the genre potential of the target language by deploying grammar and lexis above the level of the sentence" (Campbell, 1998, p. 153). Campbell understands textual competence to be, or at least be connected with, the translator's text-productive competence, since he also describes textual competence as the "ability to *write* translation in a way that reflect[s] an ability to manipulate English [i.e., the TL in case] stylistically" (1998, p. 104, our emphasis).

References to the translator's text-productive competence are not exclusive to the linguistic component of translation competence. Another, albeit more implicit, link is also present in the subcompetence of Göpferich's model that is called 'translation routine activation competence' (similar to PACTE's knowledge about translation subcompetence). Göpferich states that this subcompetence could be described in Hönig's terminology "as the ability to activate *productive* micro-strategies' (2009, p. 21, our emphasis) and gives as an example of a microstrategy: "Avoid repeating the same terms in German texts" (2009, p. 21). The link with text-production becomes more explicit in Risku (1998), who links micro-strategies partly to text-production schemata, 'die die Mittel und Wege der Steuerung kommunikativer Situationen im allgemeinen betreffen und die die Bildung sowohl kulturell, situativ als auch textuell adäquater Repräsentationen (Handlungen) beinhalten" (1998, p. 255). These microstrategies are controlled by the macrostrategy, and thus the strategic competence. This link between procedural linguistic knowledge (knowing how) and strategic knowledge (knowing when and why) also becomes evident in Hönig's theoretical reflections about the four different ways in which potential translation equivalents become part of the TT (as pointed out by Göpferich (2009, p. 16)): "(1) as a linguistic reflex stimulated by the first contact with the projected ST and semantic associations in the uncontrolled workspace; (2) as an automatic transfer from the uncontrolled workspace after a macrostrategy has been worked out; (3) as a product

of a microstrategy applied in the controlled workspace which has been approved by monitoring; (4) as a product of interdependent processes taking place in the controlled and uncontrolled workspaces, whereby the final approval can be either by uncontrolled ('automatic') or controlled ('cognitive') processes." (Hönig, 1991, p. 80).

Summarizing, writing competence is not featured in the translation-competence models. Instead, we find references to a text-productive competence. In the most recent models, the descriptions of the bilingual or communicative subcompetence are the only subcompetence of the PACTE model and Göpferich's model, in which we can find a more or less explicit reference to the translator's (text)-productive competence. However, the text-productive competence also appears to stem from and be interwoven with other subcompetences, although this is not explicitly defined or described. In short, it appears that for the production of text in the TL, translators build on declarative but mostly procedural communicative knowledge in the TL that integrates at the same time the ability to avoid interference from the SL and ST. This knowledge is intertwined with knowledge about translation micro-strategies, strategies that are in turn determined by the macro-strategy, the steering force in the strategic competence.

3. Writing competence as described in Writing Research

It is warranted to reflect not only on the position of writing competence in translation competence, but also on the concept of writing competence itself as discussed in the discipline of Writing Research. This will help us understand what it means when we say that 'a translator should be able to write', and how the text-productive competence of translators might differ from the competence of writers.

However, summarizing the literature on writing competence in Writing Research is less straightforward as it may seem. First, it is difficult to find a single definition of what it actually entails to being able to write, due to the different uses given to writing by different people on different occasions about different topics and for different purposes and reasons (Cushing Weigle, 2002). Second, unlike in Translation Studies, there does not exist a widely acclaimed and accepted model for writing competence

in Writing Research.⁷ Instead, the focus lays on acquisition of writing competence. The distinction between competent and incompetent writers is generally used to define writing competence, stressing the perception of writing competence as “an evolving continuum of abilities where some aspects are more developed than others due to the influence of factors such as cognitive style, writing experience or personality traits” (Roca de Larios, Murphy & Marín, 2002, p. 27).

Given the lack of a universally accepted model of writing competence, we will deduce the various components of writing competence from the literature on the writing process. This discussion of the writing process will simultaneously give us some insight into how writing and translation differ from one another. We will use Hayes and Flower’s 1980 cognitive model of written language production to structure this discussion. This model proposes that writing involves three basic subprocesses of planning, translating (i.e., text generating) and reviewing, which are influenced and guided by the task environment, a general control mechanism known as the “monitor”, and the writer’s long-term memory (LTM) (see Figure 3). It is important to note that Hayes and Flower’s proposal is not a model of writing competence, but that its cognitive architecture of the writing process can shed light on what components converge to make up writing competence. In 1996, Hayes proposed a revised version of the Hayes/Flower (1980) model, mainly adding motivational-affective and social-physical components to the cognitive description of the writing process. For completeness, we also refer to Hayes (2011) and (2012), in which he proposes three models of children’s writing, which are an elaboration of Bereiter and Scardamalia’s (1987) knowledge-telling writing model. In 2014, an adaptation of Hayes’ 2012 model was proposed by Leijten, Van Waes, Schriver and Hayes to encompass activities of skilled professional communicators in the model as well. This model emphasizes the use of external resources (e.g., by introducing a ‘searcher’ in the process level and by rephrasing ‘task-materials’ to ‘task-related sources’ in the description

⁷ There are a number of competence models for specific writing contexts. Examples are those by Kruse and Jakobs (1999); and by Beaufort (2007); and by Kruse and Chitez (2012) for academic writing competence. In the model proposed by Kruse and Jakobs (1999), which has been slightly revised by Kruse and Chitez (2012), writing is perceived as an integrative “skill [...] not separable from disciplinary knowledge and critical thinking, from understanding writing processes and procedures, from communicative and discursive skills, from media use and new literacy demands and, finally, from genre and language competences” (Kruse, 2013, p. 52). Beaufort’s (2007) model is highly similar and comprises the following components: domain knowledge, rhetorical knowledge, genre/text-type knowledge, writing process knowledge and knowledge of discourse community. Other examples are the series of core competences that have been proposed for business writing (Jones, 2011) and technical writing (Hart-Davidson, 2001).

of the task environment), the visual and graphic design components of writing (e.g., by introducing design schemas in the control level and referring to ‘text-and-graphics-created-so-far’ in the task environment) as well as motivation management (see Figure 4).

We will use the Hayes/Flower (1980) model in the following description, since it allows both for a more structured discussion of the competences necessary and for a comparison with translation competence. However, we will address the modifications proposed in the model proposed by Leijten, van Waes, Schriver and Hayes (2014) and other general writing models, if and when relevant for the reflection on writing competence.

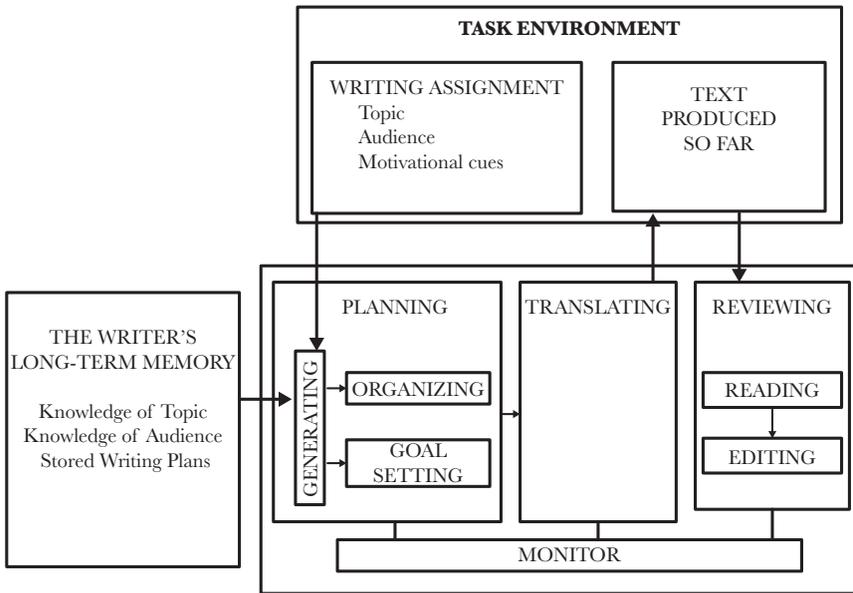


Figure 3. Hayes/Flower model (1980, p. 11).

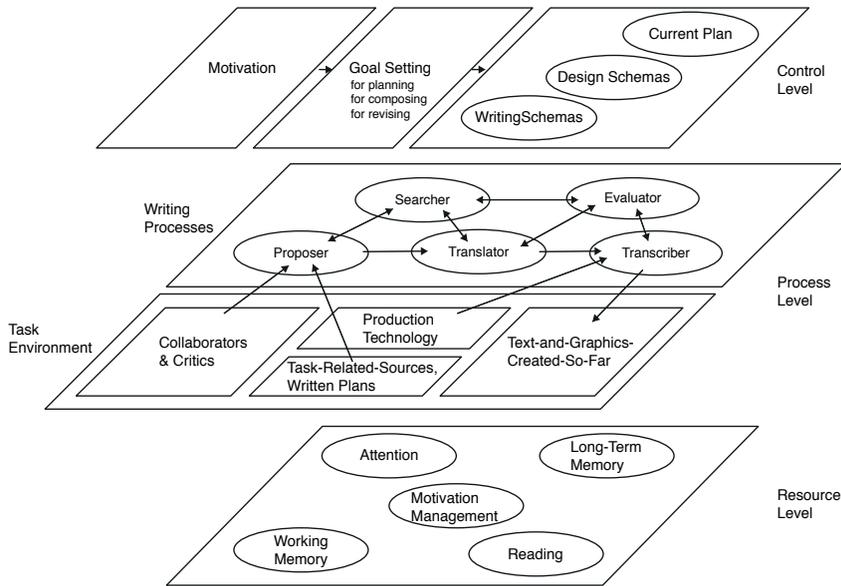


Figure 4. Model proposed by Leijten, Van Waes, Schriver and Hayes (2014, p. 324).

3.1 Writing: Transcription and text generation

Before describing the various stages of the writing process, it is important to note that writing scholars usually differentiate between transcription and text generation when referring to writing (Berninger & Swanson, 1994; Chenoweth & Hayes, 2001). Transcription comprises the physical and cognitive acts of forming the written (as opposed to oral) representation of a message. It includes so-called low-level skills, such as handwriting and typing motor skills, but also linguistic knowledge about letter formation, spelling, punctuation, phonics and syntax. Text generation is viewed as the creative mental composition and production of a message and builds on content selection, lexical retrieval, and syntactic processes (McCutchen, 2011). Text generation is considered to comprise higher-level skills, most of which are more (meta)-cognitive in nature also used in communicative acts other than writing. Developmental studies have shown that the effort required by transcription can interfere with text generation, both in terms of conscious lexical retrieval processes and fluency with which the text is produced (Berninger, et al., 2002).

3.2 Planning

Let us start by discussing what is, generally and in Figure 3, presented as the first process in writing: planning. It is important to stress that different kinds of planning can be distinguished in writing: planning of processes (i.e., determining the order in which the different writing processes and subprocesses are carried out) and planning of contents (i.e., establishing the text content, form and desired impact on the audience). The main function of planning is to establish a writing plan which a) organises ideas or knowledge units that have been retrieved from the LTM, without specifying the language in which these ideas are to be expressed; and b) stipulates goals or pragmatic criteria—extracted from the task environment—to evaluate the appropriateness between the ideas, the audience and the writer’s goal (Alamargot & Chanquoy, 2001). Writers can either invent the writing plan afresh for each assignment or—if a suitable writing plan from a previous assignment has been stored in their memory—retrieve it from the LTM and adapt it. All of these are actions that can take place before or during writing, at a general or local level. In Hayes’ 1996 model, planning was reconceptualised and subsumed in a more general category called ‘reflection’, which additionally comprises problem solving, decision-making and inferencing (McCutchen, 2006). In the most recent version (Leijten, Van Waes, Schriver & Hayes, 2014), planning is no longer featured as an autonomous process. It rather constitutes an interaction between the process, control and resource levels: the ‘proposer’ generates ideas in non-verbal form (cf. process level, writing processes in Figure 4), while drawing on collaborators and critics, written plans and task-related resources (cf. task environment in Figure 4), which may have been obtained via the ‘searcher’. Simultaneously, goal setting, plans and schemas from the control level regulate the processes initiated by the ‘proposer’.

Obviously, the planning component of writing processes builds heavily on reflective skills (ETS, 2010). These include cognitive abilities such as conceptualisation (i.e., organizing and categorizing ideas) and structuring of arguments. Furthermore, topic or domain knowledge (defined by Alamargot and Chanquoy as “all the things that the writer knows about the topic that must be developed in the text” (2001, p. 7)) is essential to plan the content of the text to be written.

Both the availability and the structure of domain knowledge is key, since they influence the retrieval of ideas from the LTM and their processing. In developmental research, it has been argued that there are three stages that characterize how writers interact with their ideas and

beliefs: knowledge-telling, knowledge-transforming and knowledge-constituting (or crafting) (Bereiter & Scardamalia, 1987; Kellogg, 2008). When writers progress, they will no longer only retrieve and tell what they know. They will start to review the ideas they present, which may prompt them to rethink afresh the ideas they have (Hayes, 2004) and even to actively constitute new knowledge representations in the LTM (Galbraith, 1999). This presumed link between writing and critical thinking, as well as creativity, can be found in the assessment of writing in higher education, where great emphasis is placed upon on how original, critical and logically sound the writer develops his ideas in a text (Cushing Weigle, 2002). Reasoning and critical inquiry are consequently cognitive abilities which are also instrumental to planning processes, especially for argumentative texts.

A second implication of the progression from knowledge-telling into knowledge-transforming and knowledge-constituting, is an increased awareness and conscious consideration of the text's intended audience and purpose in the planning processes (Lindgren, Leijten & Van Waes, 2011). As Alamargot and Chanquoy (2001) highlight, the influence of pragmatic knowledge remains vague in the Hayes/Flower 1980 model as well as in other general writing models. Research has shown that writers engage more in conceptual (i.e., non-content) planning, as they formulate goals in terms of intended audience, tone, rhetorical purpose and how to achieve these goals, with clear distinctions between the plan and the text (McCutchen, Teske & Bankston, 2008). Related to pragmatic knowledge is audience knowledge, since writers need to have a perception of the intended audience, its status with respect to the writer and its background knowledge. Especially professional writers also have to be able to anticipate the stakeholders' likely reading processes and responses to the text content (Schriver, 2012).

Another concept frequently mentioned in relation to pragmatic and audience knowledge is discourse knowledge. McCutchen, Teske and Bankston even include audience knowledge in discourse knowledge, as they state that "skilled writers seem to employ stored representations of text structures that may also include audience knowledge, in terms of the expectations of members of a disciplinary discourse community" (2008, p. 460). Alamargot and Chanquoy describe the discourse knowledge mentioned in Bereiter & Scardamalia's (1987) developmental model of writing as follows: "the text knowledge (Discourse Knowledge) mainly concerns linguistic knowledge (for example, lexical and syntactic

information) and knowledge about the type or the nature of the text (narrative, argumentative, expository, etc.). The use of possible text schemas (as for example the narrative frame) supposes that this schema belongs to the writer's Discourse Knowledge" (2001, p. 7). Moreover, they state that discourse knowledge retrieves or modifies pragmatic processes in combination with a problem-solving component called rhetorical problem space. Following this line of thought, genre knowledge (i.e., of the formats and characteristics of various text genres) and pragmatic knowledge seem related to discourse knowledge as well. Empirical research has shown that developmental differences in genre knowledge seem to influence macro-level processes, such as developing a macrostructure of the text (Kintsch, 1998) and taking into account pragmatic, rhetoric values of the intended reader (Stockton, 1995).

Schrivier (2012) argues that professional writers additionally need sophisticated knowledge about the social networks and structures of the working place as well as good social skills in order to 'contextualize' their writings. In other words, professional writers have to "make [their] design activity visible and valued within the context of ongoing organizational activity" (Shriver, 2012, p. 292). This kind of knowledge is already necessary in the planning process, not only to ensure the quality of the project, but also to 'get things done'.

3.3 Translating

The second process within writing was originally called 'translating' (which is presumably a confusing term for translators, but it is used in writing to refer to formulating or generating text). Translating was renamed text production in Hayes' 1996 model and is encompassed in the 'translator' and 'transcriber' processes in the 2014 model (Leijten, Van Waes, Schriver & Hayes, see Figure 4).

During the process of translating, the conceptual structure of the previously mentioned writing plan will be elaborated and specified into a preverbal message that subsequently has to be transformed into a linguistic form. How this exactly takes place, has been relatively neglected in comparison with the study of the planning and revising processes of writing (Alves, 2012). Alamargot and Fayol (2009) note that the theoretical description of the translating process has been divided by a) psycholinguistic theories of verbal production focused on lexical production, and b) cognitive problem-solving theories focused on written discourse production. A detailed account of all these models is beyond

the scope of this chapter, but we will highlight relevant implications for writing competence. Most models distinguish four processing levels in the translating process: 1) Elaboration of the content of each part of the previously established writing plan, 2) Linearisation of this elaborated content into a syntactico-semantic structure, 3) Linguistic formulation of the linearised semantic propositions into grammatical and lexical structures, and 4) Graphic execution or transcription of the linguistic product.⁸

Until date, the empirical study of the translating process has mainly been restricted to the last processing level of transcription, which builds on motor skills and linguistic knowledge (see Section 3.1). Writers compose in bursts of language in between pauses, and several skills and knowledge types appear to influence the length of these bursts (i.e., fluency). Text generation obviously builds on several types of knowledge present in the long-term memory (LTM). The model proposed by Leijten, Van Waes, Schriver and Hayes (2014) introduces the belief that the writer may also draw on sources other than the LTM. This can be deduced from the explicit reference to task-related sources (instead of text materials, as present in Hayes, 2012), such as human, graphic, textual and/or typographical sources, as well as from the process of the ‘searcher’, which represents the exploration of these external sources (see Figure 4).

A knowledge type essential for text generation is linguistic knowledge, which encompasses a large mental lexicon as well as a heightened command of grammar and a variety of discourse structures to cast words in structures and appropriate style (Kellogg, 2008 referring to Nystrand, 1982). Writers must also master a voice, tone and register suitable to the text demands to convert ideas into rhetorically appropriate text. This pragmatic or rhetorical knowledge has already been mentioned when we described the planning processes of writing, which suggests frequent interaction between planning and formulation processes. Other knowledge types that seem to influence lexical and syntactic choices are genre knowledge, discourse knowledge and audience knowledge. These concepts are often interrelated and thus difficult to distinguish (see Section 3.2). Domain or topic knowledge, which was already mentioned in the paragraph on planning, also comes into play in the translating (and specifically the elaboration and linearisation) process. McCutchen (1986) found that among fourth,

8 An interesting exception to this conceptualisation is for example Rothkegel’s model (2010, 203–215). To model the production of technical texts, she uses a slightly different structure, consisting of five phases: knowledge processing, thematising, sequencing, formulating and presenting. The first phases can be considered to form part of the planning component in Hayes/Flower 1980 model.

sixth and eighth graders, writers with more knowledge of their topic wrote more coherent texts than less knowledgeable writers. With regard to topic development, Hayes (2011) suggests three models which may illustrate how young writers structure their texts: 1) a flexible-focus model, which entails a chain of clauses that lack a global focus; 2) a fixed-topic model in which the topic remains the same throughout the text, and 3) a topic-elaboration model characterized by subtopics which are introduced and elaborated alongside the main topic. Other strategies that have been mentioned in developmental studies about skilled writers are summarizing, paraphrasing or reordering information (Grabe & Kaplan, 1996). The use of these strategies suggests that writers also need to have some strategic knowledge, i.e., knowledge of strategies appropriate for problem-solving and successful completion of the task.

3.4 Reviewing

The concept of reviewing is ambiguous: it concerns the external, physical activity (i.e., the corrections that can be observed in the text) as well as the internal, mental process of the detection, identification and modification of an erroneous text segment. In Hayes and Flower's 1980 model, the term reviewing is used to refer to the internal process of revising, which is composed of two subprocesses: reading and editing. In his 1996 model, Hayes considers reviewing to imply "*critical reading* to interpret text and detect problems, *reflection* to identify the nature of the problem and define a solution, and *text production* to implement the solution" (Hayes, 1996 as paraphrased by McCutchen, Teske & Bankston, 2008, p. 459; see Allal, Chanquoy & Largy, 2004 for an overview of studies of revision in writing). In the 2012 and 2014 models, reviewing seems to correspond to the process of the 'evaluator' (see Figure 4, process level, writing processes). However, reviewing seems to become more encompassing in these models, since the 'evaluator' critiques the outputs of all three processes of the 'proposer', 'translator' and 'transcriber' (Hayes, 2012; Leijten, Van Waes, Schriver & Hayes, 2014).

Revision builds on several knowledge types, skills and abilities. Naturally, reading fluency as well as verbal and discourse comprehension are crucial. (Meta)-linguistic knowledge is necessary to detect and correct problems in spelling, grammar and/or semantic representation. In the detection and identification of problems, domain knowledge also appears to play a role. It aids writers to recognize and resolve discrepancies between the actual text and the intended message, and thus increases

revising effectiveness (Butterfield, Hacker & Plumb, 1994). Audience knowledge is another important factor: during revision, skilled writers take into account simultaneously what they want to say in the text, what the text actually says and how the reader will interpret the written text (Kellogg, 2008). In the revision models elaborated by Flower et al. (1986) and Hayes et al. (1987), we also find a reference to task knowledge (i.e., knowledge about the revision task to be accomplished and awareness of the complexity of revision). Essential to this knowledge is the so-called task definition: the writer's representation of the task to accomplish, which will determine which processes are carried out during revision and when. It depends among other things on the writer's (metacognitive) knowledge about revision processes and criteria, audience knowledge and pragmatic knowledge (Alamargot & Chanquoy, 2001). In an experimental study among college freshmen, Wallace and Hayes (1991) proved that instruction in task definition drastically improves revision quality. It is difficult to verify how task knowledge differs exactly from strategic knowledge. Hayes et al. (1987) note that writers need to know a repertoire of 'procedures for fixing text problems' (i.e., detection and diagnosis strategies) and of course actual revising strategies (Alamargot & Chanquoy, 2001). A study by McCutchen, Francis and Kerr (1997) suggests that novice writers use a more sentence-by-sentence strategy and focus more on surface features of the text, whereas skilled writers develop a macrostructure of the text they are revising and consider the text's overall meaning.

3.5 Monitoring

In the previous paragraphs, the processes of planning, translating and reviewing have been discussed independently. However, a writing process is non-linear and there is much interplay between these three processes that needs to be managed and controlled. In Hayes and Flower's 1980 model (see Figure 3), an entity called 'monitor' manages and controls the organisation and sequencing of the planning, translating and reviewing processes. This control system also evaluates if the text corresponds with the established writing goals. Hayes (1996) replaced the monitor with the concept of task schemata, which vary according to the different text production components (planning, revising, specific text type, etc.).⁹ A task schema would include knowledge acquired by practice (i.e., procedural

⁹ There are numerous other models that attempt to describe the nature and modes of processing control in writing (according to modularist or interactionist perspectives). We refer to Alamargot and Chanquoy (2001) for a critical review.

knowledge) stored in LTM, as well as the task goals, the choice and temporal organisation of the processes to reach these goals, and criteria to evaluate the result of these goals (Alamargot & Chanquoy, 2001). These task schemata seem to be a mix of task knowledge and strategic knowledge, because their functioning is also closely related to the notion of strategy. After all, a writer has to choose a procedure to realise and organise the various processes optimally and appropriately. The use of strategies is necessary given the constraints due to the limitation of cognitive resources and storage capacity (Olive, 2012). In the 2012 and 2014 models, the control level seems to represent the ‘monitor’ (see Figure 4).

3.6 Long-term memory and working memory

When describing the knowledge types, skills, abilities and attitudes instrumental to writing, we must also address the important role that is attributed in the literature to the writer’s memory. In Hayes and Flower’s (1980) model, there was only one entity that was explicitly related to cognitive resources: the LTM. However, availability of knowledge in LTM is not enough, as the writer must be able to rapidly and timely retrieve it and/or keep it active. Moreover, the cognitive processes of planning, translating and reviewing may be coordinated by the previously mentioned monitor or task schemata during writing, but they can only be successfully executed if there are adequate working-memory (WM) resources to allow for these processes in the first place. Inefficient processes at a lower level (such as transcription and text generation fluency) take up WM capacity, which otherwise could have been used for higher-level processes such as planning and revising. Research has also shown that larger WM spans induce higher text generation fluency, quicker lexical retrieval and higher structural complexity of texts (McCutchen et al. 1994; Ransdell & Levy, 1996; Hoskyn & Swanson, 2003). With regard to revision processes, McCutchen et al. argue that “working-memory limitations may constrain the amount of text that writers are able to consider at any given point in time, [...] may reduce the writer’s ability to shift between processes, inhibiting the writer’s ability to initiate revision processes whenever needed (Kellogg, 1996)” (2008, p. 460). In other words, planning, translating and reviewing processes are all influenced by the constraints of WM capacity (Kellogg, 1996). However, WM was absent from Hayes and Flower’s 1980 model. It was introduced in Hayes’ 1996 model, featured as well as in Kellogg’s 1996 model and is still present in the most recent models. Their notion of WM has largely been inspired by Baddeley (1986): a temporary

storing and processing system of information composed of a central executive and two slave systems, the phonological-articulatory loop and the visuo-spatial sketchpad, as well as in the case of Hayes (1996) a semantic memory. The evolution of WM capacity could be an explanatory factor for the development of writing expertise: expert writers would have more powerful, important and efficient processing capacities than novice writers (Alamargot & Chanquoy, 2001).

3.7 Motivation/affect

Many (if not all) of the processes discussed above are influenced by the writer's motivation and affect. However, their importance was not much considered in the Hayes and Flower's 1980 model. Hayes introduced motivation and affect (composed of the writer's goals, beliefs, attitudes, predispositions and cost/benefit estimates) in his 1996 model of writing processes, and they are even more explicitly present in his 2012 model. In the model proposed by Leijten, Van Waes, Schriver and Hayes (2014), motivation management is integrated. Over the past two decades, the social aspects of writing have received more attention in Writing Research (e.g., in Bazerman, 2012). More specifically, the concept of self-regulation has been increasingly used to explain the management of cognitive processes in writing and the development of writing expertise. Self-regulation can be defined as the writer's self-initiated thoughts, feelings, and actions to achieve personal goals, both in terms of successfully completing the writing task and improving personal writing competence (Zimmerman & Kitsantas, 2007). According to social-cognitive theories, self-regulation involves three cyclical phases of forethought, performance control and self-reflection processes. Forethought is a preparatory phase that builds on task analysis processes (goal setting and strategic planning) and sources of self-motivation, such as self-efficacy (i.e., "beliefs about one's capabilities to organize and implement actions necessary to attain designated performance of skill for specific tasks" (Zimmerman, 2000, p. 14)) and the writer's motivation to initiate the writing task. Performance control involves self-control and self-observation processes, which affect attention, volition and writing behavior. It also provides input for the subsequent phase of self-reflection processes. Self-reflection occurs after performance efforts and concerns both evaluating one's writing performance and attributing causal significance to the outcomes (self-judgments) and comparing these outcomes with a standard or goal (self-evaluation) (Zimmerman &

Kitsantas, 2007). Thus, self-regulatory skills are also considered to be a component of writing competence.

4. Discussion

Surprisingly, we did not find the concept of writing competence in the literature on translation competence despite the widespread belief that “translators should be able to write”. We could detect some—mostly implicit—references to a text-productive competence, but a definition thereof is lacking. At first glance, it appears that a translator’s text-productive competence as viewed by translation scholars is restricted to linguistic or communicative competence, although a certain connection to strategic knowledge (about macro- and micro-strategies) seems to exist as well. Perhaps, a more nuanced interpretation of the translator’s text-productive competence can be obtained by comparing translation competence to writing competence.

Table 1 visualizes the similarities and differences between writing and translation competence. The first column provides a summary of the subcomponents of translation competence, as proposed by PACTE and Göpferich, presented in arbitrary order. The second column contains the symbol “√” when we have found the same subcompetence in the literature on writing competence. The third column states whether the nature of the competence is conceptually the same, similar or different in writing, by means of “=”, “≈” and “≠” respectively. The same symbols are used in the fourth column to indicate whether the subcomponents of the respective translation subcompetence are required to an identical, similar or different degree in writing. The last column states whether the components of the translation subcompetences serve the same, a similar or different purpose in comparison with writing.

Table 1. *Overview of similarities and differences between writing and translation competence*

Translation subcompetences	Comparison with writing competence			
	Present in literature Writing Research	Nature	Degree	Purpose
Communicative competence: <ul style="list-style-type: none"> • grammatical & lexical knowledge • pragmatical (incl. discourse and audience) knowledge • textual (incl. genre) knowledge 	√	=	=	=
Domain competence: <ul style="list-style-type: none"> - general knowledge - domain knowledge - cultural knowledge 	√	=	=	≠
Instrumental competence: <ul style="list-style-type: none"> - tools - sources 	(√)	≠	≈	≠
Knowledge about translation: <ul style="list-style-type: none"> - parameters - professional practice - routine transfer strategies 				
Strategic competence: <ul style="list-style-type: none"> - planning strategies - monitoring strategies - coordinating strategies - problem-detection and problem-solving strategies 	√	≠	≠	≈
Psycho-motor competence and psycho-physiological aspects : <ul style="list-style-type: none"> - psychomotor skills (for transcription) - cognitive faculties (memory, perception, attention etc.) - cognitive abilities (conceptualisation, structuring, reasoning, critical inquiry etc.) - attitudinal aspects (motivation, curiosity, perseverance etc.) 	√	=	=	=

Table 1 shows that nearly all knowledge types, skills, abilities and attitudes necessary for translation are also discussed in relation to the writing process. ‘Knowledge about translation’ is the only component of translation competence of which we did not find any reference in the literature on writing competence. This is not surprising: writers obviously need similar knowledge specifically catered to writing tasks and professional practice (e.g., Schriver, 2012), and not so much to translation tasks. Furthermore, we found virtually no reference to knowledge necessary for locating and using external (electronic, print, human) sources in the descriptions of writing development, except in the model proposed by Leijten, Van Waes, Schriver & Hayes (2014). This is surprising: it is indeed unlikely that writers will use translation-specific tools (such as translation memories), but they may consult the same or similar external sources as translators during their writing process. This is why the symbol \surd has been put between brackets for this particular subcompetence. The other subcompetences required for translation can be found in the literature about the writing process as well. Yet, this does not necessarily imply that the subcompetences which writers and translators have in common are similar in nature, nor that they are used (and thus required) in the same degree or for the same purpose. Let us now discuss those commonalities and differences in nature, degree and purpose of the various subcompetences.

First, the most salient commonality is command of the language, as encompassed in the communicative competence. Although translators obviously need to have a command of not one but two languages, the necessary knowledge types for the TL are in nature the same for writers and translators. Lexical, grammatical, pragmatic (discourse, audience) and text (and genre) knowledge are essential—be it in translation or in writing—to produce a text that not only complies with language norms and conventions, but also achieves the designated communicative goal and fits the targeted communicative situation and audience. In our view, it is the degree and purpose of the procedural component of these knowledge types that differ in writing and translation. Let us illustrate this specifically for the genre knowledge: the declarative (factual and conceptual) knowledge of a particular text genre will not differ whether you write a text from scratch or you start from a given ST and work towards a TT. But how you use this knowledge will differ. This is primarily due to the fact that in translation, the ST determines the content, structure and style of the text production in the TL. Generally speaking, the translator will follow the content and form of the ST unless there is a discrepancy with the genre norms and

conventions of the target language and culture (providing the translation brief did not require a source culture-oriented translation). To detect these discrepancies, the translator needs (contrastive) declarative genre knowledge. But, how much procedural genre knowledge does a translator need? That seems to depend on the observed discrepancies between the ST and projected TT. The more discrepancies, the more procedural genre knowledge a translator will need to introduce the necessary modifications to make the TT comply with genre conventions in the target culture (i.e., transediting, cf. Schrijver, Van Vaerenbergh & Van Waes, 2012). Moreover, it is likely that extensive procedural genre knowledge might also be helpful to avoid ST interference. When translators know how to compose a particular text genre in the TL (and consequently have the same procedural genre knowledge as writers), this might help them to focus less on the ST. Yet, this is still a hypothesis that has to be validated by empirical research. Moreover, this would also imply the use of strategic writing knowledge (see below).

Second, another striking commonality form the psycho-motor and psycho-physiological components. Translators and writers use the same psychomotor skills necessary for reading and writing (also with electronic tools). Another shared feature are the WM capacity and LTM. Although they are not a competence and thus not included in Table 1, we want to mention them given their crucial importance in both translation and writing. It is also interesting to see that the impact of WM span and retrieval structures in LTM on performance is still “virgin territory” in Translation Studies. Self-regulation (in terms of self-motivation, performance control and self-reflection) is another crucial factor for translators and writers alike, not only from a process perspective but also from a developmental point of view. Self-regulatory skills are included in the psycho-physiological components and the psycho-physical disposition of PACTE and Göpferich’s models respectively, but they seem to receive more attention in Writing Research. Translators and writers also need the same cognitive abilities such as conceptualisation, reasoning, critical inquiry etc., but they use those to a different extent and with another purpose. Since their usage is highly linked to strategies, we will highlight the main differences when discussing the strategic subcompetence.

Third, general, world and/or domain knowledge are in concept the same for writers and translators, but the purpose of this knowledge is distinct. In writing, this knowledge is primarily used to generate ideas and to steer text production. In translation, it may be used for terminological

issues in the TT production, but it has mainly a receptive purpose: to understand the ST and to monitor possible incoherence in the TT. Consequently, the degree of knowledge that writers and translators need will likely be different. It is striking that cultural knowledge (i.e., of the source and target culture) is hardly mentioned in the publications on (general) writing. Cultural knowledge is key for translators, not in the least for detecting discrepancies between the ST (and source culture) and the projected TT.

Fourth, the instrumental subcompetence (i.e., use of tools and research of external sources) is a bit tricky. The tools that writers and translators use tend to be quite different, whereas they use more or less the same sources. Nevertheless, the degree in which they need declarative and procedural knowledge of both will be alike. What is distinct, is what they use external sources for: writers tend to be more focused on content, whereas translators will primarily turn to external sources for equivalence or terminological issues.

Fifth, many parallels can be drawn between the strategic subcompetence in translation and the strategic knowledge (and task schemata) in writing. After all, both are considered to be responsible for problem-solving, as well as planning, coordinating and monitoring adequately the various subprocesses. However, the presence of the ST as a starting and guiding point in the translation process appears to be the big game-changer when comparing the nature, degree and purpose of these strategies in writing and translation. In writing, planning strategies concern both the process and the product, whereas in translation planning is directed primarily or entirely at the process. With regard to the product, planning in writing entails the what (content), when (structure) and how (form). Planning of the what and the when is absent in translation, since the TT content has already been provided by the ST in concept and structure. The translator will have slightly more leeway in determining the form, but actual planning of the how is very limited. Only for those instances and translation tasks where transediting is needed and/or free translation is apt, a translator may need planning strategies. Therefore, we believe that writers and translators have (and need) significantly different planning strategies, although the purpose of these strategies is highly similar: optimal organisation of the process and product. The presence of the ST also explains why writers and translators use cognitive abilities such as conceptualisation, structuring of arguments, reasoning and critical thinking differently. In writing, they are essential in the planning process to

create the what, when and how. In contrast, the translator will mainly use them to comprehend the ST and to monitor the coherence and logic of the TT. Therefore, we feel that it is in the reviewing or revision processes, where the extent to which cognitive abilities and monitoring strategies are used is most alike. Both writers and translators need these abilities and strategies to check the coherence and cohesion of the (target) text, as well as the appropriateness with regard to pragmatic and textual criteria. The only difference is that the translator must additionally check whether what (s)he has written in the TL corresponds to what the ST actually says denotatively and connotatively. Another cognitive ability necessary for both activities is creativity, which in translation seems to be more concerned with text formulation than with text conceptualisation. As Kussmaul states: “Of course, translators are not as free in their productions as writers are, but in the first phase of the creative process they must have the same ability to recognize a problem, gather relevant information and form initial hypotheses about possible solutions as any creative person.” (1995, p. 41). As the quote by Kussmaul (1995) suggests, creativity is not only related to fluency of thinking, but also to problem-detection and problem-solving, which is characteristic of both the writing and translation process. Consequently, it could well be that similar problem-detection and -solving strategies are employed and needed by writers and translators. However, this still has to be corroborated by empirical research. The presence of the ST and the transfer operations specific to translation may prompt other types of problems than in writing. In this light, it could be argued that, perhaps, translators have two sets of strategies. One catered specifically to translation tasks and instances where formal correspondence between ST and TT is possible or necessary. And the other for when this is not the case and more “free” text production (transediting) is feasible and appropriate. The latter could resemble writers’ task schemata and strategic knowledge. This leaves the coordinating strategies: given the complex cognitive nature of both processes, for which so many knowledge types and skills are necessary, we believe that these are highly similar in nature. The degree in which writers and translators need and employ them will likely be similar—or even identical—as well.

Summarizing, translators and writers share many skills, abilities and attitudes: psychomotor skills, cognitive faculties and abilities, and self-regulatory skills. However, these are not exclusive to text-productive activities such as translation and writing. The linguistic or communicative competence in the TL seems to be, though. This perhaps explains why

the literature seems to restrict the text-productive element of translation competence to this subcompetence. The presence of the ST suggests that translators might not always need the same procedural knowledge as writers, but that the extra knowledge that writers have, might well be essential or at least beneficial for translators to avoid ST interference and create an acceptable TT. Related to this procedural pragmatic and text knowledge is strategic knowledge. Given the complex nature of the two processes, we hypothesize that monitoring, coordinating, problem-detection and problem-solving strategies will be similar for translators and writers. With regard to strategic knowledge concerning text generation and monitoring in translation, a major part of this knowledge type will be catered to transfer operations, i.e., the link between ST comprehension and TT production, due to the presence of the ST. However, the more free translation becomes and/or transediting is needed, it is likely that translators use (and need) the same strategies as writers.

5. Conclusion

For various reasons, it has proven to be a rather ambitious if not impossible goal to define the writing competence of translators. First of all, there is no direct mention of writing competence in the translation-competence models. It therefore appears that it is more common to use the term text-productive competence instead of writing competence. Second, this text-productive competence of translators is not explicitly addressed, let alone defined, in the literature in Translation Studies. Third, it is difficult to make a comparison between writing competence—as described in Writing Research—and the text-productive competence—deduced from the literature in Translation Studies—, because the approach differs in the two disciplines. Writing is primarily studied from a developmental perspective, whereas in Translation Studies, the focus lays more on professionalisation given the modeling of expert translation competence. This makes it complicated to see if and how the various knowledge types, skills, abilities and attitudes attributed to writers are also valid for translators. Fourth, the various components of translation competence (and writing competence) are not only strongly interconnected, but they may also have a different function depending on the process in which they are employed. Examples are discourse and audience knowledge; self-regulatory skills, metacognitive and strategic knowledge; task knowledge and strategic knowledge. This overlap manifests itself in the translation process: it is often very hard to determine where ST comprehension stops and TT production starts

(Schrijver, Van Vaerenbergh & Van Waes, 2011). This also happens in the writing process, as McCutchen (2006, p. 118) explains: “Prelinguistic ideas may be abandoned when appropriate language is difficult to generate (McCutchen, 1988), and new ideas may be prompted by the act of generating text (Galbraith, 1996). Even skilled writers make frequent revisions in word choice and grammatical structure in the course of translating ideas into language (Chenoweth & Hayes, 2001; Kaufer et al., 1986; McCutchen, 1988)”. The interplay between various subcompetences makes it complicated to delimit the text-productive competence of translators.

This being said, the literature on translation competence seems to restrict the translator’s text-productive competence to communicative competence in the TL, building on declarative but predominantly procedural lexical, grammatical, pragmatic and textual knowledge. This communicative competence in the TL cannot be viewed in isolation of the ability to control interference from the ST and SL. In addition to these elements, the translator’s text-productive competence also appears to stem from or be intertwined with strategic knowledge. Taking into consideration that the text-production that takes place during the translation process may be more or less ST-oriented, the competence needed for this may resemble the competences needed for other forms of text productions, such as writing and adaptation, to a greater or lesser extent. A comparison between the competences attributed to writers and translators has shown that they indeed share many identical knowledge types, skills, abilities and attitudes. However, although a number of subcompetences bear great resemblance at first sight, closer examination reveals divergence in their scope and/or purpose.

2

An exploratory study of transediting in students' translation process

Abstract

Translators often have to edit the source text to produce a target text that is understandable and acceptable in the target culture. In 1989, Stetting coined the term transediting to refer to this overlap of translating and editing in the translation task. This chapter reviews the existing literature on this topic. It also reports on an exploratory study of transediting in the translation processes of translation students with different degrees of declarative and procedural knowledge. Four MA translation students were asked to translate an American patient information leaflet for a Dutch-speaking audience in accordance with the valid European Medicines Agency directive and guidelines. Of the four participants, two participants possessed merely declarative knowledge of both the EMA standards and the text genre. The other two participants also had some procedural knowledge, i.e., experience with translating. Data on the translation processes were collected through think aloud and computer keystroke logging. By triangulating the data, we found not only a difference in the degree of transediting carried out by the participants, but also divergence in phase allocation of transediting in the translation processes. No clear link could be established between the use of transediting and the participants' declarative and procedural knowledge.

This chapter is based on 1) Schrijver, I., Van Vaerenbergh, L., & Van Waes, L. (2012). An exploratory study of transediting in translation students' translation processes. *Hermes – Journal of Language and Communication in Business*, 49, 1–19. Retrieved from <http://bcom.au.dk/hermes>; and 2) Schrijver, I., Van Vaerenbergh, L., & Van Waes, L. (2011). Transediting in students' translation processes. *Artesis VT Working Papers*. Retrieved from http://www.artesis.be/vertalertolk/upload/docs/onderzoek/2011-1_Schrijver_Van_Vaerenbergh_Van_Waes.pdf.

1. Introduction

In the 1980s, translation-process research emerged as a new research paradigm within Translation Studies, which placed the main research focus on the different mental steps that translators take to produce target texts (TTs). As a result of this new tradition of empirical process research, many insights have been gained into what takes place in the translator's 'black box', and more particularly how translators draft TTs. With regard to the drafting of TTs—in other words, the translator's text production—, aspects such as the use of translation strategies and the segmentation of the writing phase in the translation process have been examined (e.g., Jakobsen, 2003; Künzli, 2003; Englund Dimitrova, 2005). However, a phenomenon which has received relatively little attention in translation-process research is transediting, the combination of translation and editing.

Transediting is a professional reality for translators and its study could shed a different light on text production within translation. To our knowledge, the study of transediting has been restricted to news translation (e.g., Vuorinen, 1996; Hursti, 2001; Schöffner, 2012), in which particularly forms of gatekeeping (i.e., the control and selection of news flow) have been examined. In this chapter, we will review the concept of transediting in a broader sense, and present the results of an exploratory study of the use of transediting by translation students in the translation of patient information leaflets.

2. Transediting: Literature review

Although translation may not be considered by some as writing per se, a central component of the translator's work is indeed text production: the translator composes the source text (ST) again in another language. That is why translation has sometimes been described as a form of rewriting. In various empirical process-oriented studies, the actual phase of the translation process in which the TT is drafted has been examined with special attention devoted to segmentation, pauses, translation strategies, units of translation and the working profiles of translators with different levels of expertise (e.g., Lörcher, 1993; Jakobsen, 2002; Künzli, 2004; Asadi & Séguinot, 2005; Dragsted, 2005). However, the text production investigated in these studies primarily concerns the written "faithful" transfer of content and style of the ST (in language A) into a TT (in language B). Yet, on some occasions, translation goes beyond the mere reproduction of the ST in another language. Because of the translation commission, different text conventions in the target language (TL), cultural

divergence or even poor ST quality, translators are often forced to make minor and/or major textual changes. In this context, the term rewriting acquires a new meaning.

In the late 1980s, Stetting (1989, p. 374) introduced the term transediting, which she used as a composite term of translating and editing to refer to the “combination of both tasks”. To illustrate the content of this term, she lists three forms of transediting: (1) cleaning-up transediting, (2) situational transediting and (3) cultural transediting. These forms all imply acts of ST rewriting, and sometimes of ST re-ordering, which are essentially both communication-oriented and receiver-oriented. According to Stetting (1989, p. 377), translators may opt to carry out transediting for three reasons: to adapt the ST to (1) a standard of efficiency in expression in the TL, (2) the intended function of the translated text in its new social context, and (3) the needs and conventions of the target culture. Stetting does not enter into the discussion about free versus literal translation, but simply presents transediting on a spectrum “at one end [the free end] followed by dynamic translation” (1989, p. 379) with literal translation at the other end. She also stresses that transediting will predominate in the translation of non-fictional, practical, everyday texts, for which acceptability is sought. Following this last line of thought, it can be reasoned that transediting is almost intrinsic to House’s (1977; 1997) covert and Nord’s (1997) instrumental translation.

Despite its innovativeness, Stetting’s concept of transediting poses a number of problems. First, it raises the question whether transediting can be distinguished from translating. Since Stetting does not provide a clear definition of the term transediting (in contrast with translation proper), the two concepts of translation and transediting remain fuzzy. This definitional vagueness is perhaps intrinsically characteristic of the concept of transediting, since it can be argued that all translation tasks—and especially those in technical translation—involve translating, writing¹ and forms of editing² (Risku, personal communication, 18 January 2010). One

-
- 1 In this chapter, writing is understood to be the physical drafting of a text, without taking into consideration whether the unit being produced is transferred from a particular ST or whether the unit constitutes a ‘new’ item created by the person who is drafting the text.
 - 2 Mossop (2001) defines editing as follows: “Finding problems in a text which is not a translation, and then correcting or improving it, with particular attention to making the text suitable for its future readers and for the use to which they will put it” (p. iii). In the context of translation, editing can be interpreted as the monolingual revision of the TT, without taking into account the ST. Corrections and changes made to the TT may lead to clear deviations in formal correspondence from the ST (e.g., additions, omissions, optional class shifts).

might argue that this is even more true in the case of covert or instrumental translations. Nevertheless, some clarification as to how transediting relates to translation is desirable. Nearly every act of translation—even ‘faithful’ translation—includes some alteration or editing of the ST, since a one-to-one relationship between the ST and the TT is not always feasible due to syntactic and lexical constraints of the TL. However, that type of editing is not referred to when using the concept of transediting. Transediting refers to the *conscious* deviation from the ST when a linguistically correct literal equivalent exists in the TL, but cannot or should not be used in the TT due to the specifications of the translation commission. As such, transediting is part of what most scholars and practitioners consider to be translation. However, transediting can also be used with another purpose, viz. the amelioration or optimisation of the ST in the TL, which can be seen as more invasive or more extensive and thus exceeding the boundaries of translation proper. Not many translation commissioners are happy to accept ST improvements introduced in the TT by translators, despite the fact that they do expect to receive a good text in the TL. This second facet of transediting is likely to draw heavily on the translator's writing skills and, in this sense, links up with the (technical) writing activities proposed as added value services by the European norm for translation services EN:15038 (Normcommissie 380 138 "Vertaaldiensten", 2006, p. 19).

A second problem is that Stetting's article merely introduces the concept of transediting. Consequently, it leaves unresolved whether she views transediting as a method, strategy or shift. Since Stetting at one point states that she uses the term transediting "to think through and develop an alternative approach to certain types of translation tasks" (1989, p. 373) and presents it "on a spectrum, [...] at one end [the free end] followed by dynamic translation" (1989, p. 379), transediting could be viewed as a translation method, i.e., the global strategy the translator applies to the ST as a whole. This appears to be how news translation has generally been approached to study how fragments of several news sources are "reshaped" to fit the needs and expectations of the target readers and the target news organisation's values. However, this conceptualisation of transediting as a translation method begs the question: how does transediting differ from the concept of transcreation? Transcreation is a term mainly used for the translation or localisation of marketing, advertising and media texts (see Stibbe, 2009; Balemans, 2010; Ray & Kelly, 2010 for more information). The overall function of the TT might be what sets apart the two concepts: informative vs. persuasive function. There is an additional complicating

factor in the conceptualisation of transediting: from Stetting's three-fold classification, it can be deduced that she also views transediting as a strategy, i.e., a conscious approach or plan that is implemented in a given context to solve a translation and/or communicative problem. Her classification is based on the underlying motivation to 'interfere', due to a problem caused by ST quality, TT situational or cultural aspects. Transediting is implemented by means of operations pertaining to three main classes: to change, remove or add (Stetting, 1989, p. 378). In Stetting's article, no reference is made to the textual result of this implementation. In other words, Stetting presents transediting as a method and a strategy, but not as a shift. However, this still leaves some issues unresolved. First, the multiple lists of translation production 'strategies' offered by translation scholars can generally be divided into the same three classes that Stetting uses.³ So, what is the difference then with transediting? Take, for instance, the omission of a ST element: in our view, this can be the implementation of a transediting strategy when used as a deliberate ST deviation to comply with a differing TT function, audience and/or TL conventions or to improve the ST (e.g., to avoid redundancy). However, omission can also be used to solve a translation problem: e.g., when the translator does not succeed in finding the right equivalent in the TL and decides to omit the ST term altogether in the TT.

Third, Stetting's elaboration of the three forms of transediting provides some insight into how transediting is used, but also leaves a number of questions unanswered. We will now explore these three forms in more detail to examine how transediting can be distinguished from other translation strategies. The cleaning-up form of transediting is brought about by poor ST quality. It involves a streamlining of the ST, in wording and structuring: this rewriting seems to affect the ST's micro-textual level (i.e., the phrase, clause and/or sentence level) as well as the macro-textual level (i.e., paragraph level). This suggests, on the micro-textual level, a considerable overlap between transediting and various (mainly syntactic) translation 'strategies' of for example Chesterman's 1997 proposal.

Situational transediting is defined rather vaguely: it adapts the ST to "the intended function of the translated text in its new social context"

³ In Translation Studies, there is an ongoing debate about the concepts of strategies, techniques, procedures, shifts, solution-types etc. (see Chesterman, 2005; Marco, 2007). A detailed account of and reflection on this discussion is beyond the scope of this chapter. In this chapter, we have put the term strategy between inverted commas when it is not or not entirely used in the sense that we use it.

(Stetting, 1989, p. 377). This can be interpreted as widely as that the TT fulfils a different function than the ST. However, assuming that the ST function will not be altered in the translation, transediting may be used as well to achieve the TT's function in a more effective manner. To give an example from the exploratory study we have conducted: instructions in patient information leaflets are normally accompanied by statements as to why the patient has to act in a particular way. The ST which we used in our study contained a sentence in which first the reason was mentioned and subsequently the instruction. Two participants changed the ST sentence order to make the instruction more direct and explicit. This 'interference' was deliberate, since maintaining the original sentence order would not have gone against the syntactic rules nor common usage of the TL. The instructional function of the TT is reinforced by this micro-level restructuring, which makes this particular act of ST rewriting an example of situational transediting. Many of the situational transediting operations can also be conditioned culturally, which makes the distinction with cultural transediting almost impossible. This is also the case with the previous example: it is advocated in the *Guideline on the readability of the labelling and package leaflet of medicinal products for human use* to first give the instruction and then the explanation (European Commission, 2009, p. 9). Therefore, the micro-level restructuring can also be labelled as cultural transediting, since it is implemented to adapt the ST to textual conventions in the target culture.

Stetting's description of cultural transediting, viz., the adaptation of the ST to "the *needs* and *conventions* of the target culture" (1989, p. 377, our emphasis), leaves room for interpretation as well. One might even make a connection between this form of transediting and Lefevere's (1992) definition of rewriting. Lefevere (1992, p. vii) used the term rewriting to describe translation as the adaptation of an original text under the influence of patronage, ideology and poetics in the target system. However, since transediting is said to be predominant in everyday, practical texts (Stetting, 1989, p. 379), a connection to ideology and power is difficult to grasp in Stetting's view of cultural transediting. One can therefore assume that rewriting in the case of Stetting's transediting refers to the adaptation of the ST to the target culture's textual conventions and expectancy norms as well as culture-specific references. But this inclusion of realia creates another difficulty: how to delimit transediting from cultural filtering? It appears that cultural filtering is only one of the operations which can be

used to implement cultural transediting, specifically for the translation of realia.

Other scholars have used the concept of transediting as well. Transediting is for example included in Chesterman's (1997) classification of translation 'strategies'. He lists transediting in his classification of pragmatic translation 'strategies', which he defines as "strategies which primarily have to do with the selection of information in the TT, [...] governed by the translator's knowledge of the prospective readership of the translation" (1997, p. 107). In Chesterman's classification, transediting is described as "the sometimes radical re-editing that translators have to do on badly written original texts: it includes drastic re-ordering, rewriting, at a more general level than the kinds of changes covered by the other [pragmatic] strategies" (1997, p. 112).⁴ Unfortunately, Chesterman does not provide the reader with any examples of transediting to illustrate his description. When comparing Chesterman's description with Stetting's understanding of transediting, Chesterman's interpretation of transediting seems to focus on the ST quality. Thus, it mainly covers the cleaning-up form of transediting introduced by Stetting. In Chesterman's classification, cultural filtering seems to partly comprise Stetting's cultural transediting.

At this point, it is also warranted to look at the observations made by Mossop in his 2001 book *Revising and editing for translators*. Mossop (2001, pp. 53–54, 61–62, 67) states that sometimes translators may need to engage in (mental) stylistic, structural and content editing, as well as copy-editing, as a means to tailor the TT to the target recipients. Whereas Mossop's stylistic tailoring can be considered part of the semantic and syntactic translation 'strategies' proposed by Chesterman, his structural and content editing appears to correspond to Chesterman's view of transediting. Given Stetting's broad description of transediting, nearly all of Mossop's editing forms could be considered forms of transediting, even though Mossop does not use or refer to this particular concept.

A more recent article by Mossop (2010) can also be linked to the concept of transediting. By analogy with Mason's (2006) description of a dialogue interpreter's moves in order to "repair miscommunication", Mossop discusses how translators translate what "might have been written" in the ST (2010, pp. 95–96). It is important to note that he is solely interested in conscious (deliberate) mental acts of cleaning up the

⁴ Chesterman (1997) lists the following pragmatic translation strategies: cultural filtering, explicitness change, information change, interpersonal change, illocutionary change, coherence change, partial translation, visibility change, transediting, and other pragmatic changes.

ST in order to repair a possible miscommunication (2010, p. 97). Mossop (2010, pp. 100–101) describes translation as the reporting of a source discourse. In this reporting, the translator can be a Motivator or not; that is to say, the translator can express his own ideas in the translation by writing something in the TT that is not present in the ST, or not.

Based on this criterion and the notion of intent, Mossop proposes four kinds of reporting: plain, reconstructive, summary and fictive reporting. In plain reporting, the translator “tries to convey all and only the meaning he attributes to the source wording” (2010, p. 103). There is, consequently, no transediting taking place in this case. However, in reconstructive reporting, the translator is repairing ST wording that “strikes him as not representing the intention of the writer” (2010, p. 103). This can be considered the cleaning-up form of transediting, as the translator conveys “what *should* have been written” in the ST. In these two types of reporting, Mossop (2010, 104) advocates that the translator is no Motivator, since he has the intention of conveying *not* his own ideas, but all and only someone else’s ideas. The third type of reporting is called summary reporting, in which the translator “conveys only meaning which he attributes to the source, but not all of the meaning” (Mossop, 2010, p. 104). In contrast, the translator does not subtract but adds to the ST in the fourth type of reporting, fictive reporting. In both cases, the translator is believed to be a Motivator: he conveys his own or the commissioner’s ideas on “what *might* have been written” in the ST. There is one condition: what he writes should be loyal to or compatible with the source. If not, the translator switches from reporting to adapting, writing something “that *would not* have been written” by the author of the ST (Mossop, 2010, pp. 107–108). The difference between reporting and adapting is based on the translator’s attitude toward the ST. In Mossop’s view, this makes it impossible for someone other than the translator to define a TT wording as reporting or adapting. In conjunction with transediting, one could argue that summary and fictive reporting may to a certain degree correspond with Stetting’s situational and cultural transediting, as they both are conditioned by the translation commission and needs of the target audience. Figure 1 visualizes the relation between Mossop’s (2010) views on reporting and adapting, Stetting’s (1989) transediting, and transcreation. In the lower segment of the figure, the corresponding communicative processes between the ST author, translator and TT reader are visualized. The arrow on the right represents the correspondence between ST and TT: a dotted line between the ST author and the TT reader symbolizes

that there are deviations in content between the ST and the TT (i.e., there is a variance between what the TT reader receives and what the ST author has written). The left arrow represents the loyalty of the translator to the ST author: a dotted line between the ST author and the translator implies that in this communicative process, the translator has not been loyal to the ST author. If the translator has been loyal to the ST author, a straight line is used.

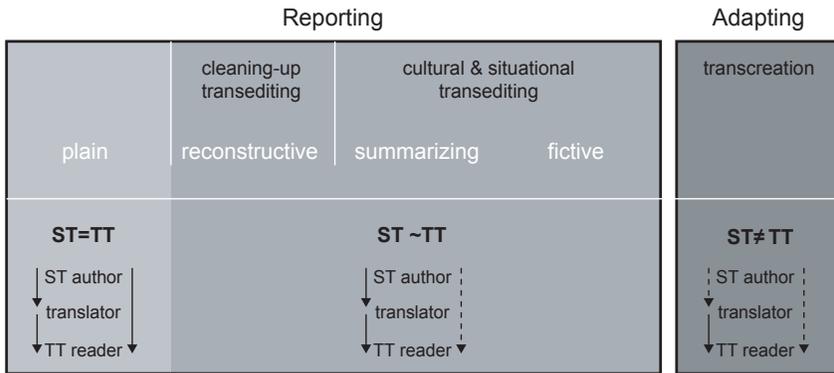


Figure 1. Relation between Mossop's (2010) views on reporting and adapting, Stetting's (1989) transediting, and transcreation (designed by Mariëlle Leijten).

To sum up, transediting can be looked at from two perspectives. On the one hand, a translator can resort to transediting due to ST quality issues. On the other hand, transediting can occur as a result of the translation commission: the ST must be (partly) rewritten, because the TT function and audience, and/or TL conventions and norms differ. In our study, we will use the following operational definition of transediting: Transediting is the conscious or automatized cognitive route to solve a problem caused by either poor ST quality or differing function, audience, conventions and/or valid text norms in the target culture. Since it is very difficult to draw a sharp line between cultural and situational transediting, we use a two-fold classification of transediting based on the two perspectives stated above (cleaning-up transediting and cultural/situational transediting).

3. Research questions

The experiment reported on in this chapter was drawn up as a pilot study in the larger framework of a doctoral research project on text production in the translation process. For this exploratory study, we addressed four research questions, which we formulated as follows:

1. How do MA translation students use transediting in their translation processes? And which particular operations can be observed?
2. In what phase of the participants' translation processes is transediting used?
3. Does a difference in the participants' knowledge lead to a variance in the use of transediting as can be observed in the think-aloud and log data?
4. Can triangulation of think aloud and computer keystroke logging shed light on the use of transediting in the translation process?

4. Method

For this exploratory study of transediting, four Dutch-speaking MA translation students were asked to translate an American patient information leaflet (PIL) for a Dutch-speaking audience in accordance with valid European legislation. Process data were collected via think aloud and computer keystroke logging.

4.1 Participants

The four participants were all native speakers of Dutch and studied English in the one-year master programme of translation. They had completed a three-year BA programme in applied language studies with a specialization in translation at the department of Translators & Interpreters at Artesis University College Antwerpen in Antwerp, Belgium.⁵ Moreover, they had taken the theoretical introductory course on technical and scientific translation, in which four hours were dedicated to detailed information about the European legislation and norms concerning PILs, as well as on PIL readability and usability. By selecting participants who met these requirements, we were able to assume that they all shared important characteristics concerning language and translation competence: they had been enrolled in the same English and Dutch language courses (on grammar, text production, text analysis, language and culture, reaching

5 In September 2014, this department became part of the University of Antwerp.

a C1-level in English and C2-level in Dutch) and translation seminars. More importantly, all of the four participants (called CB, SA, RN and KL) had gained declarative knowledge (understood in the sense of Anderson, 1981) of the EMA standards and the PIL text genre in the theoretical introductory course. However, two of the selected participants (CB and SA) also had some limited experience with translating Spanish and British PILs into Dutch. In the master programme, they were enrolled in a seminar of specialized translation Spanish-Dutch, as they studied Spanish as their second foreign language. In this practical translation course, CB and SA had received eight hours of translation instruction on the translation of PILs: they had translated one Spanish PIL of 1500 words into Dutch in accordance with the European legislation. In addition, they had translated an excerpt of a Spanish information leaflet for healthcare professionals (i.e., SPC, summary of product characteristics) into Dutch and had rewritten it for laypeople following the European directives. Moreover, SA had translated a British PIL into Dutch as part of an individual translation assignment in the seminar on specialized translation English-Dutch. It could be argued that CB and SA had limited procedural knowledge (Anderson, 1981), i.e., they had learned methods to translate PILs by means of deliberate practice in the translation of this text genre.

4.2 Materials

We decided to use the text genre of PILs for this experiment, because of its explicit communication and reader orientation. Moreover, this text genre can vary considerably across languages and cultures in terms of text conventions, which allows for the study of transediting. In the European Union, PILs have to comply with strict regulations and guidelines, established by the European Medicines Agency (EMA).⁶ They must adhere to a certain structure and to standards of readability and usability. These standards are outlined in an official guideline⁷ and in a template drafted by

6 Legislation concerning patient information leaflets are set out in Directive 2001/83/EC of the European Parliament and of the Council of 6 November 2001 on the Community code relating to medicinal products for human use, which was amended by various subsequent directives, the most recent being Directive 2011/62/EC of the European Parliament and of the Council of 8 June 2011.

7 European Commission Enterprise and Industry Directorate-General 2009: Guideline on the readability of the labelling and package leaflet of medicinal products for human use. Retrieved from http://ec.europa.eu/health/files/eudralex/vol-2/c/smpc_guideline_rev2_en.pdf. And European Commission Enterprise and Industry Directorate 2008: General Guideline on the packaging information of medicinal products for human use authorized by the community. Retrieved from http://ec.europa.eu/health/files/eudralex/vol-2/c/bluebox_02_2008_en.pdf

the Quality Review of Documents (QRD) group of the EMA⁸. Important features are standard phrases in each of the six sections of the PIL, as well as the active way of addressing the reader and the explanations of difficult medical terms.

In light of our interest in transediting, the translation of a British PIL into Dutch would not have been the best option. Therefore, we chose to use patient information about a medicine not yet commercialized in the European Union. We selected the patient information of Geodon® and decided to shorten this text from 1512 words to approximately 900 words (see Appendix 1) in order to reduce the duration of the translation task and minimize the negative effects of students' fatigue and cognitive overload on the think-aloud data.

4.3 Procedure

Each participant did the experiment individually in an empty classroom. The author of this chapter was present in the same room, but did not intervene unless the participant stopped verbalizing her thoughts for more than two minutes. The same laptop was provided for every session. All four participants were allowed to use dictionaries and the Internet. They also had at their disposal two electronic monolingual Dutch dictionaries (one generic, one medical) as well as two bilingual dictionaries English–Dutch/Dutch–English (one generic, one medical). Moreover, a paper copy of the Dutch QRD template was supplied. No time restrictions were imposed for the translation task.

The participants were asked to say everything that came to mind while translating, without trying to explain or justify these verbalizations. The verbalizations were audio-taped using a digital voice recorder. Since the participants were not familiar with this method of concurrent think-aloud, a practice session was organised for each participant individually before starting the pilot study. In addition, the participants' translation processes were registered by a computer keystroke logging tool. In the current study, we chose to use two keystroke logging programs, Translog (Jakobsen, 1999; 2006) and Inputlog (Van Waes & Leijten, 2006), to discover which program would be better suited for this kind of studies. The two

8 QRD 2010: Human Product Information Annotated Template (NL) v. 7.3.1. Retrieved from [Http://www.ema.europa.eu/docs/en_GB/document_library/Template_or_form/2009/10/WC500004368.pdf](http://www.ema.europa.eu/docs/en_GB/document_library/Template_or_form/2009/10/WC500004368.pdf). It is important to note that the experiment presented in this chapter had been carried out before the Dutch QRD template was revised in January 2010 and versions 7.3. and 7.3.1. were issued.

participants working with Translog were shown the program beforehand to familiarize them with the computer software. The participants who were monitored using Inputlog were not familiarized with this program, since they were simply asked to work in an MS Word environment.

4.4 Data collection

Data on the translation process were collected using two online methods: think aloud and computer keystroke logging. Each data-collection method is discussed below as well as its merits and limitations. Let us first look at think aloud (TA). TA is a research method developed in the field of cognitive psychology by Ericsson and Simon (1984/1993). However, for the last two decades it has also been widely used in translation-process studies (see Jääskeläinen, 2002, for an overview). By having translators verbalize their thoughts when translating, we can tap into information heeded in their short-term memory (or working memory). TA has provided insights into the problem-solving and decision-making processes of translators, both novices and professionals. Although this research method has proved extremely useful to unravel some of the mysteries surrounding translators' cognitive processes, it does have some limitations. The main points of criticism levelled at TA concern interference and low levels of both validity and reliability (see Göpferich, 2008, and Dam-Jensen & Heine, 2009, for an extensive overview). Verbalizations may disturb the problem-solving cognitive processes of translating, since translating and speaking are performed simultaneously in the same domain. Another consequence of this interference is a slowing-down effect: thinking aloud while translating takes up more time than translating 'silently'. This claim has been empirically validated by Krings (2001) and Jakobsen (2003), who report average delays of 33% and 25% respectively. Several studies have also found that TA alters the sequencing of cognitive processes, for example, the segmentation of the translation process (Jakobsen, 2003). However, further research is needed to assess the effect of TA on task performance. Objections have also been raised against the validity of TA. Verbalizations provide only indirect data since they reflect only conscious, non-automated cognitive processes. Only information that is in the person's focus of attention, that is, heeded in short-term memory, will be verbalized. Furthermore, participants' willingness to verbalize thoughts may vary considerably. The reliability of TA has also been questioned, since it might be possible that inconsistencies occur between the mental processes involved and the verbalizations uttered.

In this study, we chose to use a second data-collection method (computer keystroke logging (CKL)), with the objective of complementing the verbal report data and compensating some of the shortcomings mentioned above. CKL provides a quantitative account of all the movements on the computer (keystrokes and mouse movements such as clicks, deleting, scrolling and cursor navigation) during a task. This research instrument has long been used in the field of writing research, but since the development of Translog in 1997, CKL has also found its way into translation-process research. Several keystroke logging tools are currently available (e.g., Inputlog, Jedit, Proxy, ScriptLog, Trace-it, Translog), each with its own characteristics. For the pilot study, two experiments were logged using Inputlog version 3.0 Beta, developed at the University of Antwerp by Van Waes and Leijten (for a presentation of the program, see Van Waes & Leijten, 2006; Leijten & Van Waes, 2013, and the website www.inputlog.net). For the other two experiments, we opted for Translog 2006 Academic Edition, designed by Jakobsen and Schou at the Copenhagen Business School (see Jakobsen & Schou, 1999). Although Inputlog was initially designed for tracking writing processes and Translog for recording translation processes, both programs essentially log the same data. There are indeed some differences to be observed, but we will state the most striking difference in the interest of brevity: the configuration of both logging tools. Inputlog records the keystroke and mouse movements in all Windows programs (e.g., MS Word), whereas Translog has its own in-house developed word processor.

4.5 Data analysis

The data-collection methods provided us with a vast amount of qualitative and quantitative data.

First, all verbalizations, the lengths of pauses and paralinguistic signals were transcribed using a slightly adapted version of the GAT system (see Göpferich, 2008, pp. 72–77). Second, the output data were extracted from the keystroke logging tools. Inputlog saves the data in IDF files, from which MS Excel or XML files can be generated.⁹ In Translog, the TranslogSupervisor interface generates linear representations of the output data. Although both logging tools use different symbols in their notation systems, the resulting linear representations are easy to read. Table 1 shows an excerpt of the output data generated by Inputlog.

⁹ In later versions of Inputlog, IDF files are called IDFX.

Table 2 provides similar information for Translog. For main symbols and conventions in Inputlog and Translog output files, see Van Waes and Leijten (2006), and Jakobsen and Schou (1999) respectively.

Table 1. *Inputlog excerpt*

interval	output
0:00:00	{4437}[Movement]{12203}[Movement]]{37500}Lees de hele bijls
0:01:00	luiter zorgvuldig {2610}door voordat u start met het gebruik va n dit geneemiddel{3000}.[ENTER]{5875}- Bewaar deze bijslu iter. Het kan nodig zijn {2360}om deze bogmaals {2109}[BS9] nogmaals {7203}[BS6] eens door te lezen
0:02:00	. [ENTER]{7000}Heeft u nog vragen, rond[BS3]{3812} aadpleeg dan {6312}u [BS]w arts of apotheker.[ENTER]{6313} Dit geneemiddel is aan u persoonlijk {2422}voorgeschreven. Geef dit geneesmiddel n

Table 2. *Translog excerpt*

<pre>[Start] [*04:19.691] [^] ***** [^] B*ijsl♦iter:♦in formatie♦voor♦de♦ghe⊗⊗ebr♦ik(sters) ⤵♦♦G♦♦♦edodon ⊗⊗⊗⊗odonn⤵ ([^] [Paste] ♦♦♦ [^] ♦♦♦ [^] ♦♦♦ [^] ♦♦♦ ⊗⊗⤵ (*ziprasio⊗done♦HCI) ⤵♦♦♦♦♦♦♦♦1.♦♦♦♦♦♦♦♦ ♦♦IS♦GEODON♦♦♦♦EN♦♦WAARVOOR♦WORDT♦HET♦GEBRUIKT♦⤵ ♦♦♦♦GEOD⊗⊗⊗eodon♦is♦een♦ [*43.646]</pre>
--

To ensure that triangulation would be implemented systematically at the moment of data analysis, we created a working document in which the think-aloud and log data were placed next to each other. For this purpose, the transcripts of both the verbal data and the logging data were first divided into segments or so-called language bursts (Chenoweth & Hayes, 2001). These segments are strings of words, characters or mouse clicks preceded and followed by pauses longer than the defined threshold. Pauses in verbalizations are often considered as indicators of problems or cognitive processing. We used the minimal pause-length of 2 seconds as a segmentation criterion. This threshold was formulated in accordance with features relevant to the study and on the basis of previous research conducted by other scholars (e.g., Krings, 2001; Englund Dimitrova, 2005; see also Wengelin, 2006, for a review). For instance, Englund Dimitrova states that “very short pauses, up to about 2 seconds, are often followed in

the process by the correction of typographical errors, and thus seem to be used for monitoring processes that are not directly related to the process of translating as such" (2005, p. 96). The research questions that we strived to answer in this study did not address the correction of typographical errors in fluent text production.

As a final step in the data analysis, we placed the segments of both data sources next to each other in an MS Excel file. Subsequently, each TA segment was coded as a means to reconstruct the processes taking place in the participants' heads. The coding labels used were inspired by the classification proposed by Krings (2001, pp. 515–525). This classification consisted of the main classes, which are illustrated below with examples of verbalizations—translated from Dutch into English—which were identified as instances of a particular category:

- **NONTASK:** non task-related processes, such as making a comment in general, speakings with the researcher, or miscellaneous
"I have finished"
- **GLOBTASK:** global task-related processes, such as performing a physical action, making an incomprehensible remark, making a remark concerning task management, etc.
"Now I will just reread the entire text again..."
- **SOURCE:** ST-related processes, such as ST reading, directing attention to a particular ST element, analyzing an ST element and reformulating an ST element in the SL
"psy-ch-tro-pic"; "no idea what that (ST-word) means"
- **TARGET/PROD:** TT production-related processes, such as reading a TT element, directing attention to a particular TT element, producing a new TT element before or during writing, etc.
"how can I articulate that?"; "I think there is a fixed expression for that in Dutch but I don't know it"; "is a sort of psychotropic, psychological, psy, psychological effect comma uhm also known as"
- **TARGET/TRED:** transediting in TT-related processes, such as making a plan to deviate deliberately from the ST in the TL on the basis of ST quality or differing norms and expectations in the target culture
"then, according to the directives, we should insert an index... uhm, which should be placed in the middle, so, in this patient information leaflet colon"

- **TARGET/MON:** target text monitoring or evaluation-related processes, such as making a positive or negative evaluation of TT element, making a comparative evaluation of different TT elements, making a final or provisional decision for a TT element, etc.
"I will just keep herbs, I think... no"; "oh no, that doesn't sound right, uhm, feeling tired, yes, that sounds better"
- **REFBOOK:** reference work related-processes, such as beginning, ending or planning an instance of reference work use etc.
"I am going to look that up on Wikipedia"; "Van Dale states medicine, drugs as the meaning of remedy"

These main coding classes were divided into several subcodes, also based on Krings' classification. In light of the formulated research questions, categories have been omitted and added to Krings' classification. For example, the coding classes WRITE and MACHINE were omitted, because neither physical writing processes nor machine translation-related processes were investigated in the pilot study. The coding class TARGET/TRED is not featured in Krings' classification. It was introduced in this pilot study to focus on the primary research item of the study, that is, transediting, using the definition proposed in Section 2 of this chapter. This main coding class was divided into several subcodes to differentiate various processes related to transediting:

- **TARGET/TRED/CONTENT:** express the need for and/or perform transediting of the content, structure and style of the ST by means of or in reference to:
 - **/STAND:** introduction of standard phrases proposed by the EMA-directives and/or QRD-template
"so then a standard phrase, which I will copy (from the QRD template)... so, tell your"
 - **/PATIENT:** explanation of difficult medical terms in TT
"so I will put that between brackets as well, just to explain it... it is a condition in which the heart is incapable to pump sufficient blood"
 - **/USAB:** usability or direct nature of instructions in TL
"so it is...no, it is important... to be patient... no, be patient, it is better to put it more directly"
 - **/RESTR:** restructuring the ST information in the TT
"here it says something about breast feeding, which doesn't belong to Possible side effects but to section 2... so we should go back"

- /CONSIST: consistency in word use in TT that had not been present in the ST
"uhm... I feel that it is better to use the same word here as before"
- /OMIT: omission of an element of the ST in the TT
"then it says something about going to the nearest emergency room, but I will just leave that out... because Dutch patient inserts... don't feature that, it can be expected that you should know what to do"
- TARGET/TRED/TECH: express the need for transediting of the visual design of the ST in reference to the formatting (frame, centre, justify, font size, bold, italic, underline, capital letters, bullet points) of TT
"hmm, that should be put in a frame"
"an enumeration in bullet points, because that improves readability, uhm"
- TARGET/TRED/PPI: express a plan or a problem in the use of transediting
"in the English text they always put the medication in capitals but I don't think that... in the template it doesn't state explicitly how to do that"

Each segment could receive more than one coding label. We also analysed the log data to see if these confirmed our initial coding of the TA segments or provided further information. In the event of additional information, we introduced another coding label although this was never necessary for any of the transediting processes.

5. Results and discussion

Given the exploratory character of the data analysis, the results will be presented alongside critical reflections. We will use the research questions stipulated in Section 3 of this chapter to structure the discussion of the results.

5.1 Transediting strategies used by the participants

After careful consideration of the ST quality, the translation brief and the TT norms, we hypothesized that the transediting carried out by the participants would mainly entail cultural/situational transediting. This hypothesis proved to be correct when we analysed and coded the think-aloud and log data. Little cleaning-up transediting was carried out. When analysing the use of transediting in the TA and log files, we could distinguish various transediting strategies such as restructuring, substitution

and omission of ST units as well as addition of information in the TT. These four main classes were defined as follows:

- Restructuring: performing a restructuring of the ST in the TT which takes place above the level of the sentence or at the level of the phrase and the sentence (corresponding to coding labels TARGET/TRED/CONTENT/RESTR and TARGET/TRED/TECH)
- Substitution: substituting particular ST elements to achieve consistency in word choice and instruction manner throughout the TT, which is not present in the ST (TARGET/TRED/CONTENT/CONSIST, and TARGET/TRED/CONTENT/USAB)
- Addition: adding information to the TT which is not present in the ST (TARGET/TRED/CONTENT/STAND, and /PATIENT)
- Omission: deleting one or more ST-units which are considered redundant, irrelevant, unsuitable or contrary to the TT intended readership and use (TARGET/TRED/CONTENT/OMIT)

We will illustrate these classes with a few examples, starting with restructuring. In accordance with the EMA directive, the TT had to follow a specific structure consisting of six sections, each with a well-defined content. In contrast, the ST contained eight sections and the order in which specific information on the medicine was given did not completely correspond with the order established by the EMA directive. This forced all four participants to carry out macrolevel restructuring (i.e., restructuring above the level of the sentence), which mainly consisted of the reorganization of ST paragraphs in the TT. This can be considered cultural/situational transediting, as it clearly adapts the ST to the text norms valid in the target culture. Restructuring could also be observed at a micro-level, i.e., at the phrase and the sentence level, as illustrated by the example of the sentence-order change in Section 2 of this chapter (i.e., by first mentioning the instruction and subsequently the reason). Another, more visual type of restructuring could also be observed at the micro-level: all four participants broke down long enumerations of diseases and possible side effects mentioned in the ST, by using bullet points. This particular strategy is recommended in the *Guideline on readability* (European Commission Enterprise and Industry Directorate-General, 2009, p. 9)

to foster TT readability. Consequently, it could be labelled as cultural/situational transediting.

A second transediting strategy that we could observe in the participants' TA and log files was substitution of ST units. In the ST, synonyms such as medicines and medication are used. Three out of four participants paid special attention to consistency in word choice in the TT. This resulted in systematic substitution of particular ST units: e.g., the term *geneesmiddelen* (Dutch for *drugs*) was systematically used instead of *medicamenten* (medicines) en *medicatie* (medication). Another substitution operation was observed with regard to the manner in which the reader is instructed in the ST. Two participants, CB and NR, expressed the need to use the imperative form consistently throughout the TT, whereas instructions were given in the ST by means of other forms as well, such as should be + past participle (e.g., *side effects should be discussed with your doctor if they occur*). Since these two types of ST manipulation may have the objective to ameliorate the ST, this can be considered cleaning-up transediting. However, they are motivated by text conventions in the target culture and can therefore be considered examples of cultural/situational transediting as well.

The transediting strategy addition could be found in the translation of the medical terminology as well. Although all participants decided to maintain the specialized terms, the participants with both declarative and procedural knowledge also added a description for laypeople to foster text comprehension. The strategy of adding information to the TT could also be observed in other instances. All four participants added an introductory table and index, section headers and standard phrases to the TT. These are obligatory features in European PILs and are mentioned in the QRD template. These additions can be labelled as cultural/situational transediting.

A fourth transediting strategy observable in the TA and log data was the omission of ST units. Most of these omissions had the objective of avoiding redundancy and can therefore be considered cleaning-up transediting. Some were, by contrast, culturally motivated: e.g., temperatures in Fahrenheit do not need to be included for the target culture if they are also mentioned in Celsius. Others had a stylistic motivation: the third ST paragraph about the risk of dangerous changes in heart rhythm had already been included in the fourth TT section which the participant had previously drafted. The decision to omit this ST paragraph was based on knowledge of TT norms: information can be repeated in several

sections of European PILs, but repetition of the same information must be avoided in one single section.

5.2 Use of transediting in different phases of the translation process

In order to discuss in which phases of the participants' translation process transediting took place and how the participants differed in this respect, we first briefly discuss the methods that can be used to divide the translation process into phases.

5.2.1 Methods of dividing the translation process into phases

In empirical translation-process studies (e.g., Jääskeläinen, 1999; Jakobsen, 2002; Englund Dimitrova, 2005), the translation process has generally been divided into three major phases: (1) the pre-writing phase, (2) the writing phase and (3) the post-writing phase. Englund Dimitrova (2005, 86) provides the following definitions of the three phases:

1. Pre-writing phase: begins when the participant has received the ST and the oral information about the translation brief, and finishes when the participant starts to write down the TT as an integral text. Making notes about word meanings etc. while reading the ST for the first time is not considered as a start of the writing phase.
2. Writing phase: begins when the participant starts to write down the TT and finishes when (s)he has written down an integral version of it.
3. Post-writing phase: begins immediately after the writing phase and finishes when the participant declares that (s)he is finished with the translation task.

This method of dividing the translation process will be referred to as Method 1. Several observations have to be made about the delimitation of the three phases in view of the research questions posed in this study. First, the notion of an integral version of the TT has not been defined clearly. Does an integral version refer to a TT that consists of the TL equivalents of *all* the ST units? Or—in light of the translation brief—of all the *necessary* ST units? Has an integral version been produced when the participant has stated that she has finished a draft translation and will subsequently look for missing parts? Or must these forgotten words and phrases be inserted into the TT to be able to speak of an integral version? Thus, a detailed definition of the integral version of the TT is fundamental for establishing

the end point of the writing phase and, consequently, the starting point of the post-writing phase. Of course, these points may be easy to pinpoint in a straightforward translation task, but in case of text genres that vary considerably among languages and/or cultures, no clear three-phase translation process may be discerned. Especially for *intergeneric* translation tasks (i.e., translation between genres; see Askehave & Zethsen, 2002, p. 17), the translator will have to produce TTs that may not contain all ST units. Jakobsen states that the end of the writing phase can be identified unambiguously by the typing of the final punctuation mark, since this is “typically followed by a great deal of cursor movement ... indicating that the target text is being monitored and reworked” (2002, p. 193). However, in the data collected for this present study, this boundary was not clear-cut. This may have been the result of transediting, which included extensive restructuring and therefore a vast amount of cursor movement throughout the translation process. However, even in a normal translation situation, it can be challenging to pinpoint the end of the writing phase. For example, a translator can decide to leave a number of particularly difficult translation problems open and only come back to it after having revised all the already translated units. Second, it remains unclear in the current three-phase division how many other activities are present in one single phase other than the dominant activity (reading, writing or revising respectively).

In the present study, the translation task would inherently lead to the use of transediting. Consequently, the first TT word written down did not necessarily have to stem from the ST. To delimit the writing phase from instances of text generation not related to the ST, we decided to integrate this parameter into the definitions, which led to a second method to structure the translation process (hereinafter called Method 2). The think-aloud data and log data also confirmed this need to differentiate. Figure 2 visualizes the main characteristics of both methods.¹⁰ In this figure, the differences between both methods are underlined.

¹⁰ Method 1 represented in Figure 2 is our interpretation of Englund Dimitrova's (2005) definition of the three phases of the translation process.

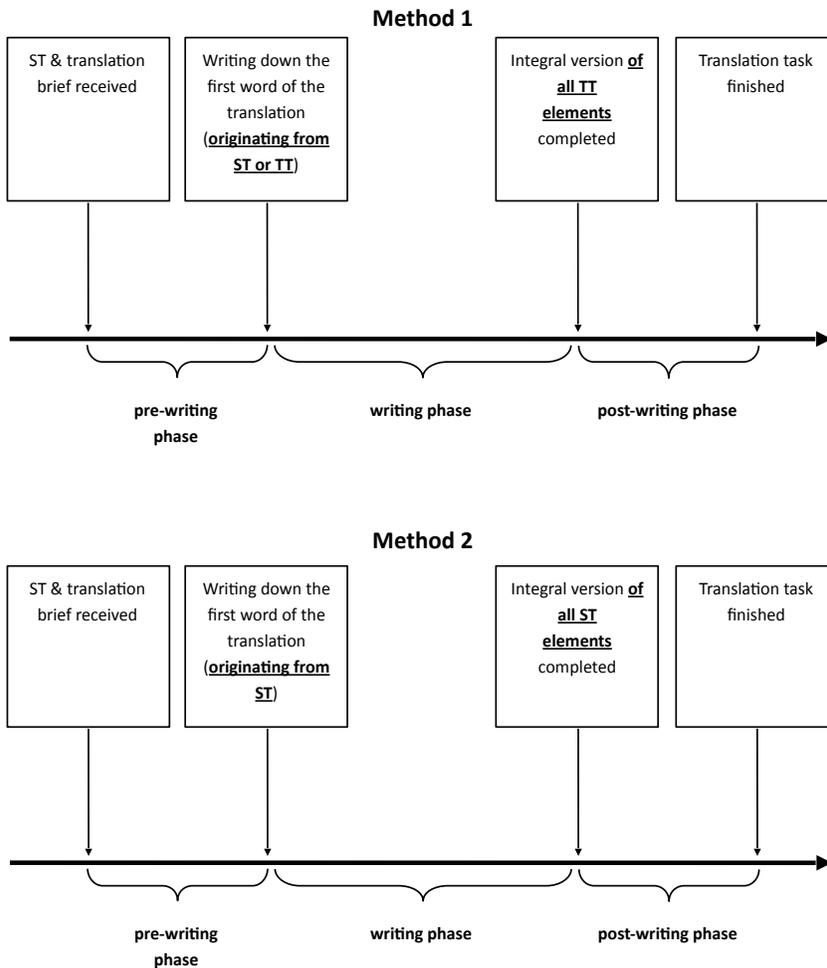


Figure 2. Characteristics of Methods 1 and 2 (differences underlined).

For each method, we calculated how much time the four participants spent on each of the three phases. Table 3 shows the temporal data (absolute and relative values) of the translation processes for all four participants, as calculated by Method 1. All four participants had short pre-writing phases. The data of the writing phases did not present major inter-individual differences in relative terms, with the exception of SA. The post-writing phase presented two striking cases, which suggests a difference in working styles: KL appeared to prefer to solve translation problems and revise

while drafting the TT, whereas SA gave priority to translating fluently and returning to challenging items at the end of the translation process.

Table 3. *Times spent on the translation process and its three phases I (in absolute and relative values according to Method 1)*

participant	translation task	pre-writing phase	writing phase	post-writing phase
CB	02:07:45 (100)	00:00:55 (0.72)	01:59:02 (93.18)	00:07:48 (6.11)
SA	02:16:16 (100)	00:00:38 (0.46)	01:59:02 (87.35)	00:16:35 (12.17)
RN	02:23:09 (100)	00:04:38 (3.21)	02:15:37 (94.74)	00:02:54 (2.03)
KL	02:24:32 (100)	00:00:16 (0.19)	02:23:23 (99.20)	00:00:53 (0.61)

1. Expressed in hours:minutes:seconds.

Table 4 shows the same information (absolute and relative values) but now calculated by Method 2.

Table 4. *Times spent on the translation task and its three phases I (in absolute and relative values according to Method 2)*

participant	translation task	pre-writing phase	writing phase	post-writing phase
CB	02:07:45 (100)	00:10:18 (8.06)	01:46:32 (83.39)	00:10:55 (8.55)
SA	02:16:16 (100)	00:12:39 (9.28)	01:47:09 (78.63)	00:16:28 (12.08)
RN	02:23:09 (100)	00:05:58 (4.17)	01:42:18 (71.46)	00:34:53 (24.37)
KL	02:24:32 (100)	00:14:08 (9.78)	02:09:31 (89.61)	00:00:53 (0.61)

1. Expressed in hours:minutes:seconds.

By comparing the time values provided by the two methods, we get a more differentiated insight into the use of transediting, particularly at the beginning and at the end of the translation process. The most flagrant nuances can be observed when looking at the results for RN and CB. When using method 2, RN's writing and post-writing phase becomes relatively shorter and longer respectively. So, when comparing the values

of the two methods for RN, this means that she writes something non-ST-related down before she translates the first ST sentence. Moreover, it indicates that she has finished translating every word of the ST before she completes an integral version of all necessary TT elements, thus implying use of transediting. This had not been visible by using only method 1. As for CB, the same can be said: by comparing the time values of method 1 and 2, we can now see that she already engages in text production not related to the ST in the early stages of her translation process. In the case of KL and SA, the differentiation is less distinct, but still more insight can be gained into the use of transediting in the pre-writing phase. Although method 1 seemed to imply that these two participants spent relatively little time on their pre-writing phase, method 2 clearly demonstrates that they engage in text production not related to the ST before starting to translate the ST. One could consequently argue that Method 2 provides a clearer view of non-ST-based text production, and subsequently of transediting in the pre-writing and post-writing phase (see Figure 3).

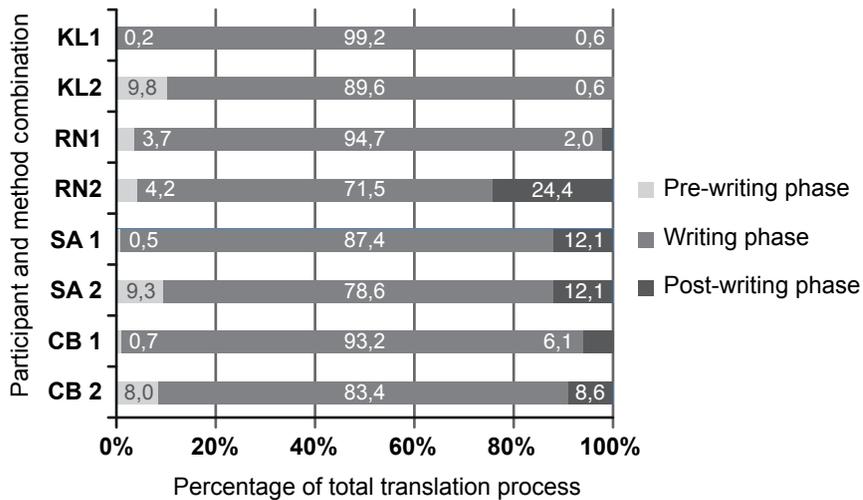


Figure 3. Division of translation process into three phases (according to Methods 1 and 2, with KL1 = participant KL according to Method 1, KL2 = participant KL according to Method 2, etc.).

Although Method 2 provides a clearer view of non-ST-based text production, it still does not take into account the recursive nature of the translation process.¹¹ Thus, in further research it might be helpful to divide the translation process into a number of phases, without labelling them according to the predominant cognitive activity. In this respect, several approaches can be taken into consideration. Looking at the process on the basis of TT paragraph level or leaving text units together and focusing instead on time by dividing the translation process into a particular number of chunks. It would also be interesting to focus on which and how cognitive activities follow one another to examine the recursive nature of the translation process and the different functions of one particular cognitive activity such as revision or writing (1-to-1 rendering of the ST or transediting) in the translation process, as suggested by Breedveld (2002).

5.2.2 Participants' use of transediting in the three phases of the translation process

The TA and log files provided us with valuable information on how, when and—in some cases even—why the participants used transediting. When looking specifically at when transediting operations were carried out, the phase allocation appears to be the result of the four participants' different working styles. Table 5 provides an overview of the participants' use of transediting in the three phases of the translation processes.¹² Three of the four main types (i.e., restructuring, substitution and addition operations) have been divided into subtypes, since the temporal allocation of these strategies differed.

Table 5 shows that RN has a different working style than CB, SA and KL. The think-aloud and log data confirm this: RN first introduced one introductory sentence featured in the QRD template, then translated the ST without changing its structure and, as a final step, edited the translation in accordance with the EMA norms. During the writing phase, she carried out transediting by means of micro-level restructuring and substitution. RN only began restructuring the TT at a macrolevel when translating the last two sentences of the ST. In the post-writing phase, she also added the

11 Note that although the recursive nature of the process (a phenomenon also present in writing processes, as discussed by Van den Bergh and Rijlaarsdam, 1996) can be observed in both TA and log data, some instances of the recursive nature of the translation process may not be visible, such as internal revision.

12 For a more detailed account of the participants' working styles and acts of ST rewriting, we refer to Schrijver, Van Vaerenbergh & Van Waes (2011, pp. 17–23).

obligatory introductory table, index and standard phrases, and omitted redundant words and sentences. In addition, she made the way in which the instructions were presented to the reader more homogeneous.

Table 5. *Participants' use of transediting operations in pre-writing (PR), writing (W) and post-writing (PO) phase of the translation process*

transediting operation	participants			
	CB	SA	RN	KL
restructuring				
macrolevel restructuring	W	PR+W	W+PO	W
micro-level restructuring	W	W	W	W
substitution				
synonyms	W		W	W
instruction manner	W		W+PO	
addition				
standard phrases	PR+W	PR+W	PR+PO	PR+W
explanation medical terms	W	W		
omission				
	W	W	W+PO	W

In contrast, CB, KL and especially SA already carried out much transediting before the actual translation of ST units. They seem to have similar working styles, although some differences can be observed. CB, for instance, started the translation process *not* by reading the ST, but by writing the introductory table and index obligatory in EMA PILs. Then, she proceeded with the translation of the ST and restructured it as she went along, carrying out all of the previously mentioned transediting operations. She used the post-writing phase to reread the TT and to introduce some small changes. KL took a similar approach, although she followed the TT structure in her translation process. Her pre-writing phase was in absolute terms very short, because she immediately translated the title of the ST. Subsequently, she took the QRD template as a starting point and filled in the TT sections with the translations of the corresponding ST paragraphs. KL spent very little time on the post-writing phase. This may seem surprising, but it is partly due to the definition used for the post-writing phase: KL transedited and revised while translating the ST.

Participant SA started her translation process by drafting the introductory table. She also read through the entire ST, jotting down which TT section each ST paragraph belonged to. Subsequently, she started drafting the TT, by first typing the index and then translating the ST paragraphs that she had assigned to TT Sections 1 through 5. During the writing phase, she performed all transediting operations, except substitution, which she did not use at all in her translation. In the post-writing phase, SA read through the TT, correcting some orthographical errors and changing a few words without manipulating the ST.

5.3 Difference in use of transediting among participants with different knowledge

Overall, the use of transediting was observed in all of the four participants' TAPs and log files, albeit to a different extent (see Table 6). When we look at the data in absolute terms, the participants with both declarative and procedural knowledge (CB and SA) seem to address and use transediting more frequently than the participants with only declarative knowledge (RN and KL).

Table 6. *Types and numbers of transediting operations*

transediting operation	participants			
	CB	SA	RN	KL
restructuring				
macrolevel	17	16	17	9
micro-level	3	0	3	0
substitution				
synonyms	3	0	3	2
instruction manner	3	0	3	0
addition				
standard phrases	61	46	40	25
explanation medical terms	8	10	0	0
omission	4	3	5	2
total	96	75	71	38

These absolute numbers shed some light on the difference in focus among the participants. The most striking results are those of CB and KL. CB

used a variety of transediting strategies, with a frequency clearly above the average. She analyzed each ST segment and evaluated if its wording and structure would be appropriate in the target culture in terms of textual norms and target readers' expectations. Moreover, she elaborated a great deal on why and how ST units should be changed in the TT, frequently contemplating a number of alternatives. On the contrary, KL was less thorough in analyzing the ST and, consequently, seemed to be less attentive to items that might require transediting. In addition, her comments about the need for transediting were succinct. It is nevertheless difficult to corroborate whether the difference in the participants' knowledge led to a difference in the use of transediting. Among all participants, the awareness to introduce the obligatory standard phrases into the TT and to restructure the ST was prominent in the think-aloud and log data. Furthermore, no clear-cut differences between the two participant groups could be ascertained with regard to micro-level restructuring. It is interesting to see that the participants with only declarative knowledge of PILs did not pay any attention to explaining difficult medical terms not in the verbalizations nor in the log data, which suggests that they did not take into account the knowledge level of the TT recipients and thus did not see or feel the need for cultural transediting.

Nevertheless, these absolute numbers may for various reasons give a slightly distorted picture. The numbers presented in Table 6 reflect only the degree of transediting in the think-aloud and log data. These data do not state whether the transediting strategies were used correctly or not. The analysis of the quality of the transediting—as well as the quality of the overall TT—was beyond the scope of this study. However, this certainly ought to be taken into consideration in further research.

5.4 Methodological considerations

Several suggestions can be made to optimize the methodological framework for future research on transediting in the translation process.

First, triangulation of think aloud and computer keystroke logging indeed proved to compensate their individual shortcomings and provided rich complementary data on transediting. The qualitative findings helped elaborate the quantitative results because, as Jakobsen pointed out, keystroke logging data “do not speak until we begin to theorise about them” (1999, p. 15). Table 7 shows a sample excerpt of the final working document to demonstrate this: from the log data in Table 7, we could interpret that the participant made the correction of ge- (from the verb

gebruiken, to use), which she replaces with *inneemt* (take), based on stylistic preferences. However, the TA provides us with an explanation that the participant herself verbalized: since *Geodon* is a capsule, the verb *innemen* (take) would be a more logical choice than the verb *gebruiken* (use). The complementarity of the think-aloud and logging data enabled us in this case to interpret this more exactly.

TA proved useful to understand the nature of pauses in the log files, since they indicated, for example, if the participant was consulting reference works for an equivalent word in the TL. This was particularly helpful for the analysis of the Translog log data, since no keystrokes or mouse movements outside the Translog program were recorded and it was not clear from the log data alone why a participant stopped generating text.

Second, despite its complementarity with keystroke logging, the think aloud did, in many instances, not provide further insights into why the participants translated ST segments the way that they did. Given the relatively long duration of the translation process, this could have been caused by cognitive overload and fatigue. However, other factors could have also been of influence, such as the incomplete nature of human thought processes, affective factors or even automatic processing (Jääskeläinen, 2000). The latter does not seem very likely, since all participants were translator students with little to no experience in the translation of PILs. The method of prompted immediate retrospection might avoid these problems. Retrospection does not affect the duration of the task execution, the segmentation and the nature of the translation process itself. Moreover, by opting for retrospective dialogues or interviews, the researcher can focus on particularly interesting points in the process (see Hansen, 2006; Leijten, 2007). However, there is still the alleged risk of incomplete or distorted data as the recalled information has undergone processes of abstraction, generalization, etc. (Englund Dimitrova, 2005). The contemporary logging programs may have solved this presumed lack of reliability of retrospection, as they offer the possibility to replay the translation process, which might serve as stimulated recall. However, critical analysis of information obtained by retrospection is crucial, especially in tasks which require more time, since fatigue and recursive actions within the translation process may cloud retrospection.

Table 7. Excerpt of triangulation file of coded TAP log-file segments

Start	TAP ¹	End	Code	Code	Start	Inputlog ²	End
05:44	2 wat u moet weten (----) voordat u (----) geodon capsules (----) in (--) gebruikt	05:57	TARGET/TRED/ CONT/STAND		05:43	{3422}	05:46
05:57	(2.0)	05:59			05:46	Wat u moet weten vo ordat u Geodon capsu les ge	05:58
05:59	hm (----) en het kan in- neemt zijn (----) omdat het een capsule is (----) hoe wordt		TARGET/MON/ EVAL/COMPARE/ TT-TT	TARGET/ MON/ DECISION/ DEF	05:58	{4407}	06:01
		06:11			06:01	[BS2]inneem[ENTER]	06:06
					06:06	{3047}	06:09

Note 1. Translation of Dutch verbalization: 2 What you should know before you use Geodon capsules // Uh, and it can be to take, because it is a capsule. How does //

Note 2. Translation of keystroke log data: What you should know before you use Geodon capsules. [BS2] take [ENTER]

Third, we chose to use two keystroke logging programs to discover which program would be better suited for this kind of studies. Although both programs are easy to use and provide invaluable insights into the translation process, we have come to prefer Inputlog for several reasons. First, we found Inputlog to be less intrusive and more ecologically valid, since it allowed participants to work in an MS Office environment using MS Word, Internet Explorer and online dictionaries, just like they would normally do. In contrast, Translog logs the translation processes in an autonomic environment in which both (fragments of) the ST and the emerging TT are presented. Second, Inputlog registers in which software program (in the Windows environment) the participant is working, whereas Translog logs only internal activities. Third, the statistical data provided by the two programs vary. Translog provides information about user events, numbers of text-production and text-elimination keystrokes, cursor navigation, mouse events and miscellaneous events, as well as information about total duration, user events per minute and text production per minute. Inputlog, on the other hand, yields those statistical data and more, such as information about the numbers of segments, pause time, average writing time and word length.¹³ Despite our preference for Inputlog, we would advice to use this program in combination with other data-collection methods, such as screen capturing. Screen recording software, such as Camtasia, can provide valuable information about text production strategies too. On several occasions, the TA in the present study suggested that the participants used phrases encountered on the Internet as the translations for ST sentences. This could have been easily checked if screen images had been available. In addition, we would suggest using a video camera in future research to register the participants' movements and expressions. This may be helpful as an additional source when processes are unclear from the other data sources alone. For instance, for the restructuring of the ST it was sometimes unclear whether the participant made her decision by looking at the QRD template or by tapping into her knowledge of the text type.

Fourth, the present study has highlighted the difficulty of triangulating think-aloud and computer keystroke logging in a systematic

13 It is important to note that there is a slight difference between Translog and Inputlog in the treatment of text-production activity. Translog considers all keystrokes—including spaces, punctuation marks and hard enters—as instances of text production, whereas Inputlog (in analogy with MS Word) does not take into consideration hard enters.

way, particularly in terms of data analysis. Publications on mixed-method experiments in empirical translation-process research rarely give information about how triangulation has been carried out in the analysis of the various data sources and about which method has been taken as a starting point in the analyses of data. We designed a working document in which TA data are placed alongside log data, which allowed us to analyse the two data sources comparatively. This juxtaposition is a first step to improving triangulation in the data-analysis phase, but even in the current working document, the TA segments and log segments are not completely aligned. This has two major implications: (1) it complicates the coding of the segments and (2) the total number of segments of the two data sources vary, which makes it difficult to establish the quantitative inter-individual incidences of coding labels. The number of segments with which the TT is produced has, of course, been calculated according to the log file but the coding of the cognitive processes has been based primarily on the TA segments. Consequently, statistical analysis is problematic. Given the limited number of participants and the exploratory and descriptive nature of this study, statistical analysis was not an issue.¹⁴ However, the segmentation of the working document is a challenging factor which could be remedied in further research. It might be argued that TA-based coding is sufficient. However, we encountered a few examples in the log data that represent the use of transediting strategies which were not mentioned in the TAP, i.e., automatic use of the transediting strategy. A solution to improving the working document and its possible statistical uses would be to split the existing TA and log-file segments and to align them fully. However, this would imply respecting the pauses in the TA while segmenting the log data, and vice versa. This would make the transcription and segmentation of the TAP data and the log data even more time-consuming. Therefore, it might be sensible to adopt a more pragmatic approach, especially for experiments with a larger sample of participants. In that case, researchers could design a working document, using the method proposed above, but only zooming in on critical incidents.

Fifth, the quality of the TT should be taken into consideration when investigating transediting. This will make observations about

¹⁴ This use of a small sample of participants appears to be a critical point in the majority of translation-process studies. Having few participants is nevertheless logical, because using both TA and computer keystroke logging provides an ample amount of data, which are almost impossible to handle in case of dozens of participants. However, in order to be able to generalize findings larger populations are necessary.

transediting strategies, working profiles and process parameters more complete and profound. It might also yield interesting data that could be used in translation pedagogy. The evaluation of translation quality is a thorny subject among scholars. Nevertheless, we feel that by using several expert raters to evaluate the TT according to a well-established model of evaluation criteria, subjectivity can be controlled if interrater reliability is high.

6. Conclusion

In the first part of this chapter, we reviewed and discussed the concept of transediting. This concept has in our view great potential to approach and study translation as a form of text production and to examine the writing competence of translators. However, further theoretical reflection is needed in order to define transediting in more detail and to distinguish it from other concepts and translation strategies.

The second part of this chapter reported on an exploratory study of transediting in the translation process of four Dutch-speaking MA translation students. In this study, it was primarily the translation brief and the clear differences between the ST and TT norms which gave rise to the need for ST rewriting. The situational and cultural transediting was implemented by macrolevel and micro-level restructuring, addition and omission. Cleaning-up transediting was only used by means of substitution. The phase allocation of transediting operations appeared to be the result of the participants' working styles. The awareness of the need for transediting varied considerably among participants, as well as the use of transediting as demonstrated by the think-aloud and log data. However, no clear link could be established between the use of transediting and the participants' declarative and procedural knowledge.

Although our exploratory study has provided some valuable insights into transediting, more research is needed from a variety of perspectives. For example, it would be interesting to take into account various text types and genres. The degree of (permissible) transediting will vary considerably according to the text type and genre. On the basis of interviews with several professional translators specialized in the translation of PILs, we have found that pharmaceutical companies give professional translators very little room to improve TTs. This implies that, although the degree of transediting displayed in the pilot study complies with valid European directives, it will be less feasible and frequent in professional environments. Another aspect that would be interesting to explore is translation students'

transeditorial consciousness and/or ability to critically review the quality of the ST, as suggested by Stetting (1989, p. 381). This is certainly an important aspect in light of translation pedagogy, but also considering students' future as professional translators. Unfortunately, they will almost certainly be confronted with poorly composed STs and should thus be adequately prepared to transedit to avoid a 'garbage in, garbage out' situation.

Acknowledgements

We would like to thank the translation students who were so kind to participate in this study. A special thanks goes to Agnes Feltkamp, former chairwoman of the Belgian Chamber of Translators & Interpreters, for sharing with us her view on the use of transediting in professional translation of patient information leaflets.

Appendix 1: Source text GEODON

GEODON® Capsules

(ziprasidone HCl)

What Is GEODON?

GEODON is a type of prescription medicine called a psychotropic, also known as an atypical antipsychotic. GEODON can be used to treat symptoms of schizophrenia and acute manic or mixed episodes associated with bipolar disorder.

Who Should Take GEODON?

GEODON may be prescribed for you if you have schizophrenia or acute manic or mixed episodes associated with bipolar disorder. Symptoms of schizophrenia may include: hallucinations, delusions, paranoia, becoming withdrawn from family and friends. Symptoms of manic or mixed episodes may include extremely high or irritable mood; increased energy, activity and restlessness; racing thoughts or taling very fast; easily distracted; little need for sleep.

Your risk of dangerous changes in heart rhythm can be increased if you are taking certain other medicines and if you already have certain abnormal heart conditions. Therefore, it is important to tell your doctor about any other medicines that you take, including non-prescription medicines, supplements, and herbal medicines.

Who should NOT take GEODON?

GEODON is not approved for the treatment of patients with dementia-related psychosis. Elderly patients with a diagnosis of psychosis related to dementia treated with antipsychotics are at an increased risk of death when compared to patients who are treated with placebo.

Anything that can increase the chance of a heart rhythm abnormality should be avoided. Therefore, do not take GEODON if you have certain heart diseases, for example, long QT syndrome, a recent heart attack, severe heart failure, or certain irregularities of heart rhythm. Or if you are currently taking medications that should not be taken in combination with ziprasidone, for example, dofetilide, quinidine, other Class Ia and III antiarrhythmics, mesoridazine, gatifloxacin, mefloquine, pentamidine, arsenic trioxide, dolasetron mesylate, or tacrolimus.

What To Tell Your Doctor Before You Start GEODON

Only your doctor can decide if GEODON is right for you. Before you start GEODON, be sure to tell your doctor if you:

- have had any problem with the way your heart beats or any heart related illness or disease
- any family history of heart disease, including recent heart attack
- have had any problem with fainting or dizziness
- have had any problems with your liver

- have ever had an allergic reaction to ziprasidone or any of the other ingredients of GEODON capsules.
- have low levels of potassium or magnesium in your blood

GEODON And Other Medicines

There are some medications that may be unsafe to use when taking GEODON, and there are some medicines that can affect how well GEODON works. While you are on GEODON, check with your doctor before starting any new prescription or over-the-counter medications, including natural/herbal remedies.

How To Take GEODON

Take GEODON only as directed by your doctor. Swallow the capsules whole. Take GEODON capsules with food. It is best to take GEODON at the same time each day. GEODON may take a few weeks to work. It is important to be patient. Do not change your dose or stop taking your medicine without your doctor's approval. Remember to keep taking your capsules, even when you feel better.

Possible Side Effects

Because these problems could mean you're having a heart rhythm abnormality, contact your doctor IMMEDIATELY if you faint or lose consciousness or have palpitations.

Common side effects of GEODON include the following and should also be discussed with your doctor if they occur: feeling unusually tired or sleepy; abnormal muscle; nausea or upset stomach; movements, including tremor, shuffling, and uncontrolled involuntary movements; diarrhea; dizziness; rash; restlessness; increased cough/runny nose. If you develop any side effects that concern you, talk with your doctor. It is particularly important to tell your doctor if you have diarrhea, vomiting, or another illness that can cause you to lose fluids. Your doctor may want to check your blood to make sure that you have the right amount of important salts after such illnesses.

What To Do For An Overdose

In case of an overdose, call your doctor or poison control center right away or go to the nearest emergency room.

Other Important Safety Information

Neuroleptic malignant syndrome (NMS) can occur with all antipsychotic medications including GEODON. Signs of NMS include very high fever, rigid muscles, shaking, confusion, sweating, or increased heart rate and blood pressure. NMS is a rare but serious side effect that could be fatal. Therefore, tell your doctor if you experience any of these signs.

Adverse events related to hyperglycemia, sometimes serious, have been reported in patients treated with atypical antipsychotics. There have

been few reports of hyperglycemia or diabetes in patients treated with GEODON, and it is not known if GEODON is associated with these events.

Before taking GEODON, tell your doctor if you are pregnant or plan on becoming pregnant. It is advised that you don't breast feed an infant if you are taking GEODON.

Because GEODON can cause sleepiness, be careful when operating machinery or driving a motor vehicle. Since medications of the same drug class as GEODON may interfere with the ability of the body to adjust to heat, it is best to avoid situations involving high temperature or humidity. It is best to avoid consuming alcoholic beverages while taking GEODON.

GEODON has not been shown to be safe or effective in the treatment of children and teenagers under the age of 18 years old.

Keep GEODON and all medicines out of the reach of children.

How To Store GEODON

Store GEODON capsules at room temperature (59°-86°F or 15°-30°C).

3

The effect of writing training on the translation product of translation students

Abstract

This chapter presents the results of an experimental study of the effects of writing training on the translation product of undergraduate translation students. A classic pretest-posttest experimental design was used, in which the experimental group was trained in writing instructive texts in their mother tongue (Dutch), whereas the control group received placebo training. In the writing training, considerable attention was drawn to consistent and action-driven titles, logical and chronological information structure, consistent use of illocutionary indicators and terminology. These issues were represented in the source text by means of rich points that had to be transedited (Stetting, 1989). The effect of writing training on the transediting of these rich points was studied, as well as on formulation and structure of the target text. The effect of writing training on translation quality was also examined. The results show that the experimental group transedited significantly more rich points and did so more correctly. The experimental group's translation products also showed significantly fewer violations of target-language genre conventions, but a clear and significant influence of the writing training on overall translation quality could not be ascertained.

This chapter is based on Schrijver, I., Van Vaerenbergh, L., Leijten, M., & Van Waes, L. (2014). The translator as a writer. Measuring the effect of writing skills on the translation product. In D. Knorr, C. Heine, & J. Engberg (Eds.), *Methods in Writing Process Research [Textproduktion in Medium]* (pp. 99-122). Peter Lang: Bern.

1. Introduction

Translators are not writers, although many commonalities can be observed when comparing these two professions. In recent years, the relation and overlap between translation and writing has received increasing attention, especially in the domain of technical writing and technical translation (Göpferich, 1996; Schubert, 2006; Schrijver & Van Vaerenbergh, 2008; Gneccchi et al., 2011). Without going into detail about the debate on the differences between writing and translation, it will come as not surprise that translators should be able to produce texts in the target language (TL). Or, as Peter Newmark once wrote: “All translation problems finally resolve themselves into problems of how to write well in the target language” (1988, p. 17). Many translation professionals and teachers indeed recognize the importance of these skills for translators. Most translation competence models, such as those formulated by PACTE (2005) and Göpferich (2009), also attest to this view, although they do not refer to writing competence but rather to target-language productive competence. Of course, translation competence encompasses a multitude of knowledge types, skills, abilities and attitudes, and writing skills are not the *sine qua non* of translation competence. Yet, it cannot be denied that knowing how to produce a text is pivotal for translators. This is especially true in the case of covert (House, 1997) or instrumental (Nord, 2005) translations: translation types that are not to be recognized as translations and serve as independent communicative instruments. In other words, they ought to read like originals. The importance of being able to produce a text also comes to light in translation class practice. It is often precisely the drafting of the target text (TT), as opposed to comprehending the source text (ST), that many translation students find challenging. Although this issue has not been the focus of extensive empirical research, Carl and Dragsted (2012) show a number of interesting examples that confirm the complexity of TT-production in the translation process. In their analyses of sequential vs. parallel processing in translation, all behavioral patterns that point to translation problems are triggered by TT-production problems instead of ST-comprehension problems.

Following this line of thought, it is not surprising that a considerable number of translation scholars have advocated the integration of writing training in a translation studies programme. By doing so, translation is placed within the whole spectrum of text production (Jakobsen, 1994; Schubert, 2012). The descriptions (or suggestions) of how this writing training can be organized vary. Writing training is presented either as

a separate course or module alongside translation courses within the translation curriculum (Meyer & Russell, 1988; Doloughan & Rogers, 2006), or as a series of introductory exercises at the start of a translation course before demanding real translation (Jakobsen, 1994). The descriptions of how specialized this writing training can or ought to be are also disperse, ranging from drafting texts with varying functions on non-specialized topics to specialized writing training. This specialized writing training may cover many fields (e.g., academic writing, business writing, journalistic writing, legal writing), as shown by Meyer and Russell's (1988, 117-118) account and Göpferich's (2004, 367-372) description. Independent of the nature of the writing training described, the objective is to familiarize the translation students with an array of genres and text types. This may be achieved by means of exercises in the composition of texts, but intra- and interlingual revision (error identification and correction) and editing, *précis*-writing (i.e., summarizing) and abstracting are also listed as examples (Meyer & Russell, 1988). The language focus of the described writing training is the TL—which may be either the mother tongue or the foreign language—, or as Meyer and Russell (1988, p. 114) phrase it, the “dominant language”. Moreover, the goals that this proposed writing training aims at, are multiple: to help translation students develop (a) a greater critical awareness of acceptability norms in the target culture, which may minimize the risk of ST interference during the translation process; (b) more confidence in the TL, which may positively affect translator self-concept as a text designer instead of a text producer (see also Gross, 2003; Katan 2004); (c) skills to produce texts in different fields of knowledge without being an expert in the conventions and concepts of all fields.

In spite of these proposals and the acknowledged importance of writing competence for translators, writing training is not a universal feature of translation studies programmes throughout the world, as testifies Göpferich (2004). Merkle (2010) refers to the following quote by Kelly (2005, p. 115) to illustrate this situation: “Much translator training, particularly at undergraduate level, is based on the myth that learners already master their ‘working languages’. I use the term myth because the vast majority of translators they are working with simply do not have the language competence necessary to undertake many translation tasks, particularly at the beginning of their training”. Another explanation may be found in the didactic approaches used in translation training, which have shifted from transmissionist to student-centred paradigms in the last

two decades. In the social constructivist approach suggested by Kiraly (2000), translator education is organized using authentic collaborative translation projects. These projects may consist of sub-tasks, but these tasks will need to emerge naturally from the actual projects (Kiraly, 2000). Simulated writing exercises that do not explicitly and authentically contribute to the completion of these translation projects run counter to the philosophy of the social constructivist approach. The integration of writing training appears to be more feasible in translator training that is task- and competence-based, such as those advocated by González Davies (2004, pp. 6 & 59–60) and Hurtado Albir (2007, p. 180). Recent evolutions in the professional field of translation have renewed attention for writing training as a component of translation studies programmes (Byrne, 2010). As translators increasingly carry out activities that go beyond the confines of ‘translation proper’, incorporating writing training in translation programmes will not only cater to market expectations, but it can also empower translation students by giving them skills that are transferrable to a variety of professional activities.

The translation scholars that advocate incorporating writing training within a translation studies programme presuppose the beneficial effect of writing training on students’ progress and/or motivation. Doloughan and Rogers in fact hint at the potential reciprocity of translation and writing, in which one process “feeds into and nourishes the other” (2006, p. 39). Yet, the potential transferability from knowledge, skills and/or attitudes acquired in writing to translation has not been the object of empirical research in Translation Studies to date. Research conducted in the neighboring discipline of Writing Research provides some interesting insights. A number of empirical studies in L1 and in L2 writing have shown that genre-specific writing training (especially by means of modeling) increases genre awareness of both formal linguistic features, rhetorical purposes and social contexts (e.g., Henry & Roseberry, 1998; Cheng, 2007). Genre-specific writing training also appears to have a positive effect on motivation (Henry & Roseberry, 1998; Carter, Ferzli & Wiebe, 2004) and the development of a metalanguage (Gosden, 1998; Hammond & Macken-Horarik, 1999). These empirical studies, albeit limited in number and concerning training in different text genres, seem to confirm the pedagogic belief that genre-specific writing training will help to increase students’ genre awareness, and consequently facilitate their development of writing expertise (Hyland, 2003). Within Writing Research, a number of studies also have addressed the issue of transferability of genre-specific

writing competence developed in one language into the other (e.g., L1 into L2, and vice versa) or from one domain into another. Research by Berman (1994), Mustafa (1995), and Kobayashi and Rinnert (2008) provide indicators that there is reciprocity between the genre-specific writing competence gained in one language and writing performance (in the same text genre) in the other language if the textual features are similar in both languages. In contrast, transfer of writing competence across domains (i.e., in the same language across disciplines and text genres) proves to be much more challenging (e.g., McCarthy, 1987; Spack, 1997; Fishman & McCarthy, 2001), even for experts (Smart, 2000). Consequently, Tardy states that the “issue of transferability continues to be a vexing one for both [writing] research and pedagogy” (2006, p. 87).

In this chapter, we will present the results of a quasi-experimental study of the effects of writing training on the translation product of BA-level translation students. This data-driven exploratory study is not aimed at evaluating which kind of writing training is most beneficial or how and when writing training can best be offered in a translation studies programme.

2. Research questions

The present study aims at answering the following main research question: Does writing training have an effect on the translation product of translation students? Building on the accounts by Meyer and Russell (1988), Jakobsen (1994) and Göpferich (2004) as well as on the results of related studies conducted in Writing Research (see Introduction), we put forward the following hypotheses to accompany this research question:

1. Writing training in the TL will lead to an increased focus on and compliance with TL genre norms and conventions, which result in more transediting visible in the translation product. Transediting, which is a concept introduced by Stetting (1989, p. 374), implies acts of ST rewriting, and sometimes of ST re-ordering. It entails “the conscious or automatized cognitive route to solve a problem caused by either poor ST quality or differing function, audience, conventions and/or valid text norms in the target culture” (Schrijver, Van Vaerenbergh & Van Waes, 2012, p. 6).
2. Writing training in the TL will lead to a better quality of the translation product.

Studies in L1 and L2 writing indicate that genre-specific writing training increases genre awareness and helps students to recognize the relationship between purpose, audience and linguistic choice within a specific genre (Yasuda, 2011). Genre-specific writing training also increases students' strategic knowledge of how to shape the text linguistically and pragmatically in such a way that the desired purpose of the text is met (Cheng, 2008). When *translating* a genre into a TL, it is likely that translation students use this genre and strategic knowledge in the drafting of the TT and/or while revising the TT. As a result, they will become more attentive of the acceptability of the TT and less prone to ST interference. This means that they will also focus less on the ST form and more on how the ST content can be expressed in accordance with the linguistic and pragmatic TL genre conventions. The resulting transediting will concern both formulation and structure of the TT. Assuming that these students' ST comprehension skills have remained the same to those of translation students lacking writing training, the primary difference will be an increased focus on and compliance with acceptability norms in the target culture, and as a consequence, fewer errors against TL conventions. This will likely lead to better overall translation quality in the case of an instrumental translation (in the sense of Nord, 2005), which is the object of this experiment.

3. Method

A controlled intervention study was conducted, which involved a classic pretest-posttest quasi-experimental design. In this design, one group of translation students was trained in writing instructive texts in their mother tongue (Dutch), whereas the other group was not.

To determine the effects of writing training on the formulation of the translation products, we focused the treatment of the experimental group on specific problems that would also be present in the translation tasks. These problems were operationalized in the ST by means of so-called rich points, a term coined by the PACTE research group to refer to "specific source-text segments that contain translation problems" (PACTE, 2011, 37). The PACTE (2011) categorization of rich points consists of linguistic, textual and extralinguistic problems as well as problems relating to ST intentionality, the translation brief and/or the TT reader. In the present study, the rich points represented mainly textual problems as well as problems relating to the translation brief and/or TT readers. The rich points allowed for a more systematic and controlled analysis of the TT

formulation. However, an exclusive focus on rich points would entail the risk of missing effects on other items of TT formulation and structure. Therefore, we also carried out a textual analysis of the TTs (see Section 3.5). Moreover, all translation products were holistically and analytically evaluated.

3.1 Participants

Seventeen third-year BA-level students participated in this experiment, 13 female and 3 male ($n=17$; average age: 24.1 years ($SD=7.7$)).¹ These students were enrolled in a BA programme in applied language studies with a specialization in translation at the department of Translator & Interpreters at Artesis University College Antwerp (Belgium).² All participants had Dutch as their first language and had had two years of Spanish language training, reaching level B2 of the Common European Framework of Reference for Languages (CEFR) (Council of Europe, 2001). They had had one year of Spanish-Dutch translation training, mostly in translating general informative texts. Consequently, these participants had some strategic knowledge of how to go about a translation task, search for terminology and background information. Moreover, they had been taught to take into consideration external controlling factors such as the translation brief, textual norms etc. The participants did not have any experience or specialized training in translating user manuals. According to Belgian secondary school learning objectives, they were expected to have an intermediate level of writing proficiency, but they had not received any additional formal writing training courses in Dutch at university level.

After the pretest, the participants were assigned to one of the two groups. The experimental and control group consisted of nine and eight participants respectively. The assignment of participants was carried out by means of uniform distribution on the basis of the mean of three scores. These three scores were obtained for the pretest translation task, a series of three writing tasks, and the general Spanish-Dutch translation course in the previous year of the BA programme.³ The mean overall score of

1 The high standard deviation has been caused by one male student of 34 years old and one female student of 51 years old. They were assigned to the experimental group and the control group respectively.

2 This department is now part of the University of Antwerp.

3 The overall (raw) analytic score obtained for the translation task in the pretest was transformed to a ranked score to allow for statistical analysis, because the other scores (i.e., pertaining to the writing tasks and the previous translation course) were also ranked scores.

the composed experimental and control group was 5.86 ($SD=0.71$) and 5.70 ($SD=0.58$) respectively. A two-tailed Mann-Whitney U-test showed no significant differences between the two groups, neither for the mean of all three tests together nor for the mean score of each separate test.⁴

Great care was taken to control possible data noise. The use of three scores for the participant assignment was aimed at controlling the participants' writing competence (by means of the writing tests), their overall translation competence (by means of their final mark in the general translation course) and their competence in translating the text type used in the study (by means of the pretest translation task). Questionnaires were used to obtain information about the participants' previous translation training and experience, as well as their familiarity with the genre under scrutiny in this study. It was also ensured that the material provided to the two groups during the experimental sessions contained an equal amount of words from user manuals, either in Dutch or Spanish. Moreover, the participants of both groups had equal time on task.

3.2 Materials

In this section, we will provide a detailed description of the materials used in this study.

The genre selected for this study was a user manual: a highly user-centred text genre, in which clear and unequivocal formulation is essential to ensure usability. As Göpferich (2010a) acknowledges, these texts are not difficult to comprehend but rather challenging to formulate in the TL. The STs used in this experiment are all excerpts of original Spanish user manuals of household appliances (gas cooker, fabric shaver, refrigerator and turnspit oven, see Appendix 1–4) of approximately 250 words in length. These texts were selected from a corpus of original Spanish user manuals composed by Murcia Bielsa (1999).⁵ The selection was based on the low complexity of the ST content matter to avoid ST comprehension problems and to focus more on TT formulation problems, our main research interest. The STs were abbreviated and adapted for the purpose of this research project. A native Spanish speaker, responsible for the

4 The means (and standard deviations) for the three scores (translation pretest, writing tasks and general translation course) showed not to be significantly different between the two groups: 6.47 (1.33), 6.44 (0.83) and 6.22 (0.89) for the experimental group, and 6.28 (1.17), 6.03 (1.05) and 6.19 (0.59) for the control group.

5 The exception was the instruction manual of the fabric shaver from the Spanish brand Solac, found on the company's website (Solac, 2013).

Spanish language courses at Artesis University College Antwerp, checked the STs for linguistic correctness.

In correspondence with the skopos theory (Reiß & Vermeer, 1984), the participants were given a translation brief. This brief was provided alongside the STs: “Translate the Spanish text below into Dutch. The client has a [product object of the user manual] manufactured by a Spanish firm. The technicians who developed the product, have written a user manual in Spanish. However, the client will only sell the [product] in the Netherlands and Flanders. The Dutch translation will therefore function as an authentic original text in the target culture and will need to comply with the quality requirements of a user manual in Dutch (text conventions, understandability, readability, consistency, etc.)”.

The STs were slightly adapted to contain a number of rich points (14 in total).⁶ Although a literal translation of these ST items might result in a lexically and syntactically acceptable TT, they require transediting to comply with the textual norms and the target readers’ expectations in Dutch or to create better text coherence. To select these rich points, we took into account the textual norms of a user manual in Dutch (Steehouder, 2008, which is based on professional best practices and extensive usability testing). The rich points concerned both formulation and structure of the TT and were divided into four categories: *Titles* (2 rich points), *Information structure* (2 within sentence; 2 within text), *Illocutionary indicators* (7) and *Terminology* (1). In order to reduce subjectivity, the selected rich points were discussed with and approved by three experts in the field of technical writing and translation. These experts were affiliated to the University of Twente (Netherlands), the University of Antwerp and Artesis University College Antwerp (Belgium) respectively. All held PhD degrees and had extensive experience in and/or contact with the cited professional domains. Expert I was an assistant professor specialized in document design, instructive texts and human-centred design. Expert II was a full professor in professional and technical communication. Expert III was a full professor in translation studies.

In the following, the rich point categories will be described in more detail, starting with the *Titles* category. Steehouder (2008) states that titles of content sections in Dutch instruction manuals should contain an action verb and an object, since an instruction always relates to a specific action that the reader needs to carry out on or with a particular object. Since these

6 See Appendix 5 for an overview of all rich points of each of the four STs.

titles are focused on or oriented at actions, we will refer to this type of titles as action-driven titles. These titles may take on one of three structures in Dutch: they may include (1) the action verb in the infinitive form (*De begintijd instellen*–‘To set the start time’), (2) the action verb in a nominal form (*Het instellen van de begintijd*–‘Setting the start time’) or (3) a question (*Hoe stelt u de begintijd in?*–‘How do you set the start time?’). Steehouder recommends putting the object in first place in Dutch (*De begintijd instellen*–‘To set the start time’), as this is assumed to facilitate the reader’s information search. Moreover, consistency in title formulation throughout the text is warranted for the same purpose.

The second category of rich points is more pragmatic in nature: *Information structure* is central in user manuals. As Byrne (2012, p. 181) explains: “Most people do not enjoy reading instructions and will only do so as a last resort. Of these people, a great number will perform each step described in instructions as they read them before moving on to the next step.” Byrne (2012) also advises the translator to rearrange the order of individual steps in a set of instructions if the ST sequence is not logical or chronological. This applies to the *macro-textual* level: the warning “*Para su limpieza, desconectarlo de la red*” (‘To clean [the appliance], disconnect from the power supply’) should come before or at least at the beginning of the various instruction steps of how to clean a refrigerator, and not at the very end. Given the user’s reading habits described above, the order in which information is given within a sentence is also important. For example, the sentence “*Antes de insertar las pilas, debe asegurarse que el interruptor de funcionamiento del aparato está en posición de apagado*” (‘Before inserting the batteries, you must ensure that the operating switch of the device is in the off position’). The preposition *antes* in the adverbial clause highlights that the action described in the main clause should be carried out *before* inserting the batteries. Although you will encounter this particular sentence order in many Spanish user manuals, it is preferable in Dutch to switch the subordinate and main clause around to avoid misunderstandings and dangerous situations.

Illocutionary indicators, or the linguistic form to indicate instructions, are likely to be determined by text conventions (Kusssmaul, 1995) and may differ among languages. Contrastive knowledge of these conventions is therefore essential for a translator. In Spanish, the most frequently used linguistic forms to express instructions are the infinitive (e.g., *limpiar*–to clean), the imperative (*limpia* or *limpie*–clean), the verb *deber* in personal or impersonal form (*debe limpiar*–you must clean; *se debe limpiar/debe limpiarse/*

debe(rá) ser limpiado–it must be cleaned) and the future tense (*se limpiará*–it will be cleaned) (Gamero & Öster, 1999). Steehouder (2008) states that the imperative (*reinig*–clean) is the preferable form in Dutch, followed by the infinitive (*reinigen*–to clean) and, only in certain circumstances, the passive voice (*wordt gereinigd*–is being cleaned).

Terminology is another important aspect in instructions. If terms are not familiar, they should be explained to the reader. Terminology should also be consistent throughout the text to enforce the communicative function of the text, because synonyms for the same concept may cause confusion (Byrne, 2012). In the STs used in this study, the reference to the household appliance itself or components thereof is generally specific. However, in some instances, a synonym is used, such as *congelador* (freezer) (for *compartimento congelador*–freezer compartment), or even a hypernym, such as *aparato* (device).

The quality assessment of the translation of every rich point was based on the conventions described above, that is, consistent and action-driven titles containing an action verb and object, chronological information-structure below and above sentence-level, use of imperatives to express instructions, consistent and precise usage of terminology.

3.3 Design

Figure 1 gives an overview of the experimental sessions, which took place over a period of six weeks: a pretest, treatment theory, treatment practice, immediate posttest and delayed posttest. Detailed information about these sessions will be provided in Section 3.4 of this chapter.

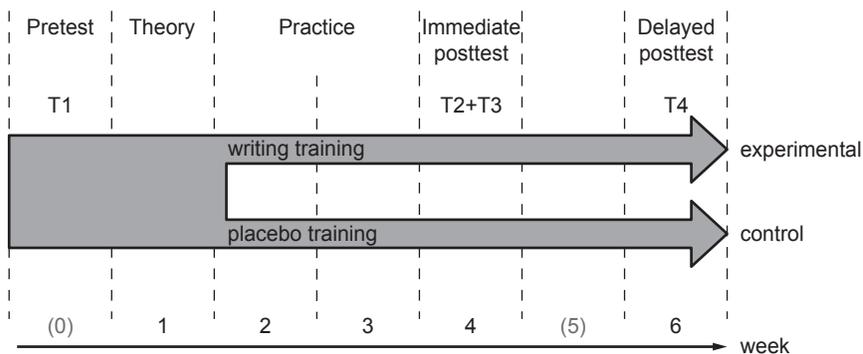


Figure 1. Overview of experimental sessions (designed by Mariëlle Leijten).

This study was organized as a 2 (condition: experimental vs. control group) x 3 (time: pretest-immediate posttest-delayed posttest) design, with condition being the between-variable and time the within-variable. The dependent variables analyzed in this study were the fourteen rich points divided over four categories (see Section 3.2 of this chapter) and the quality of the translation products (see Section 3.4.5).

3.4 Procedure

The experimental sessions were conducted as part of the participants' regular translation course in the third year of the bachelor programme in applied linguistics with a specialization in translation. Although the participants were informed that these experimental sessions formed part of a research project, they were not notified in advance of the contents of these sessions or the project.

3.4.1 Pretest

The pretest, which took place in the computer language lab, consisted of two parts, each taking about one hour. Part 1 consisted of three tasks to measure the participants' writing and editing abilities in Dutch, and part 2 entailed one translation task to measure the participants' translation performance. This pretest served several purposes. First, the scores of these tests were used for the composition of the participant groups (see Section 3.1 of this chapter). Second, the translation pretest served as a referential comparison measure to study the effect of the treatment on the participants' translation products.

The three writing tasks (included in Appendix 6) had been selected from authentic didactic material, viz., a course module on effective written communication in Dutch of the Master in Multilingual Professional Communication at the University of Antwerp. The tasks focused respectively on (a) cohesion and coherence; (b) readability; (c) usability. These are all crucial aspects when writing effective instructive texts. In all three tasks, a text excerpt in Dutch was given on paper, which the participants had to edit or rewrite using MSWord. It was a deliberate choice not to administer a free writing task, because translators also start their translation and text production process from a given ST. Two trained raters, one being the researcher, scored the writing tasks on a scale from 0 to 10. Evaluation criteria varied per task and were based on the linguistic and rhetorical problems that each task presented. Inter-rater reliability was accessed with an intra-class correlation (ICC), which was respectively .917,

.940 and .884 for writing task 1, 2 and 3, showing a high consistency in the evaluators' scores. Therefore, a mean score was used for further analysis. Statistical analysis also revealed that the means (and standard deviations) for the three writing tasks were not significantly different between the two groups that had been composed after the pretest: 6.47 (1.33), 6.44 (0.83) and 6.22 (0.89) for the experimental group, and 6.28 (1.17), 6.03 (1.05) and 6.19 (0.59) for the control group.⁷

The remaining hour of this pretest session was dedicated to a translation task. The participants received a paper copy of the ST (gas cooker, see Appendix 1) and translation brief, but were required to produce their translation in MSWord. In order to create a setting that resembled their natural working environment as much as possible, all participants were allowed to use the Internet and electronic dictionaries. The participants had at their disposal several electronic dictionaries, e.g., a monolingual generic Dutch dictionary, several bilingual dictionaries such as Spanish–Dutch/Dutch–Spanish and English–Dutch/Dutch–English. The time limit of one hour was imposed upon the translation task to avoid extensive searches in external sources and to stimulate participants to use their internal sources.⁸ A previously conducted pilot study had confirmed that one hour was a reasonable amount of time to complete the translation task.⁹ If a participant needed slightly more time to complete the translation task, this was granted in order to obtain complete translation process and product data of all participants.

Translation process data were collected using the computer-keystroke logging software Inputlog (version 5.0) and the open-source screen recording software CamStudio (version 2.5). Inputlog provides a quantitative account of all actions on the computer (keystrokes and mouse movements such as typing, deleting and copying, clicking, scrolling and cursor navigation) during a particular task. The program provides a fine-grained log of all events in a Windows environment and is word-processor independent. It was initially designed to log writing processes in MSWord, but it also registers keystrokes in other Windows based programs and also

7 Mean of writing task 1: $U=35.50$; $p=.491$; mean of writing task 2: $U=22.50$; $p=.104$; mean of writing task 3: $U=35.00$; $p=.472$.

8 Internal resources is a term borrowed from Dam-Jensen (2012), who refers to Pavlovic (2007, p. 89) and can be defined as “the resources that the translator possesses as a result of past experiences, competences and knowledge from long-term memory” (Dam-Jensen, 2012, p. 153).

9 This is not the pilot study described in Chapter 2, but concerns the pretesting of the translation brief and ST among eight students enrolled in the same translation course the year before the present study.

identifies these environments. For example, it also tracks keystroke and mouse activity in Internet Explorer or electronic dictionaries, something for example Translog cannot do (an overview of keystroke logging tools can be found at www.writingpro.eu). Another advantage of Inputlog is the great amount of predefined analyses it automatically generates. For a detailed description of the program, we refer to Leijten and Van Waes (2013) and the program's website: www.inputlog.net. CamStudio was used to complement Inputlog data with visual input of the screen activity. To avoid learning effects and to keep the translation task as ecologically valid as possible, no other data elicitation methods were used. These reasons also informed our decision not to use think-aloud in this study.

3.4.2 Treatment

The treatment started one week after the pretest and continued for three consecutive weeks. The treatment entailed one theory session of one hour and two practice sessions of two hours each. The difference between the two groups consisted in the practice sessions: writing training for the experimental group, other-not writing-practice related-training for the control group. In these sessions, no explicit tips and tricks were given with regard to how to use the information provided in the translation process.

In the theory session, the participants received a Dutch handout about the structure and content parts of instructive texts, as well as their pragmatic and linguistic characteristics.¹⁰ Examples in Spanish, Dutch and English were included to illustrate the theory. The handout was based on the theory module from the course on writing instructive texts in Dutch offered by the online writing center Calliope, developed at the department of Management - Professional Communication of the University of Antwerp (De Meyer, Leijten, Opdenacker, Stals & Van Waes, 2010, section Theory). The information was language-independent, except for a discussion of the specific Spanish and Dutch forms of illocutionary indicators (see Section 2.2 of this chapter). In the handout, no clues or instructions were given as how to use this theoretical information in the translation process. The participants received the handout on paper and were told to read it carefully, because its contents would be examined at a later time. They were not allowed to take the handouts home to avoid unequal time on task. Both groups took part in this theory session to ensure that they acquired basic declarative genre knowledge, i.e., factual and

¹⁰ The treatment materials can be found on www.writingpro.eu (see Data repository, author: Schrijver)

conceptual knowledge about textual and linguistic conventions and norms of instructive texts in Spanish and Dutch. Genre knowledge is not only a component of translation competence, but also of writing competence. Given the importance of genre knowledge in translation, it was crucial that participants from the two groups had similar declarative knowledge of instructive texts.

The treatment for the experimental and control group differed in the practice sessions, as they were characterized by a writing, monolingual context and a translational, multilingual context respectively. In the two practice sessions, the experimental group was trained in how to compose an instructive text in Dutch. For the first training session, taught by the primary researcher, the participants were asked to prepare three exercises originating from didactic material developed by De Meyer, Leijten, Opdenacker, Stals & Van Waes (2010, section Oefeningen). In these exercises, they had to edit fragments of Dutch instructive texts, focusing on titles, information structure, and illocutionary indicators and terminology. These exercises were then discussed and corrected in class using a group discussion. During the second training session, given by an expert in the domain, viz., dr. Joyce Karreman (University of Twente), the students wrote two instructive texts in Dutch: directions to the train station and text message on a mobile phone (information aimed at elderly people). The participants engaged in peer-feedback and group discussions. In these two training sessions, no link to translation or other languages than Dutch was made. Moreover, the user manuals edited and written in these sessions did not concern devices that were object of the STs used in the experiment. The aim of these practice sessions was to develop genre-specific writing knowledge in a monolingual context, encompassing both declarative and procedural knowledge of formal and sociorhetorical aspects of user manuals in Dutch. Not only did the participants learn how to write and edit user manuals focusing on rhetorical, pragmatic and linguistic aspects. They were also taught about the social function of manuals and its influence on the composition process. This implied information about information design (what information do you need to include in a user manual?; and how do you have to structure and present this information?), readability and usability (how do people read user manuals?; and which linguistic means do you have to strive for optimal understanding and usage of the provided information?).

The participants of the control group received two practice sessions that provided them with information about user manuals on a more

generic level and in a multilingual context. The aim was to give these participants training that did not involve writing. However, drawing on a more receptive approach, they were able to familiarize themselves with user manuals without increasing their experience in translating this text genre. In the first session, the control group was trained in finding relevant scientific articles on the translation of user manuals in abstract databases of Translation Studies journals, such as St. Jerome's Translation Studies Abstracts Online. Moreover, they were given an assignment beforehand: four participants were asked to read two articles by Gamero Pérez (2000) and by Vazquéz y del Árbol (2009). The other four had to read the articles by Mata Pastor (1998) and Gamero Pérez (2001). The two groups of four participants also had to engage in a translational activity, since they had to prepare an oral presentation in Dutch of the article they had read by Gamero Pérez (respectively 2000 and 2001), using PowerPoint. These two articles both contrastively discuss linguistic features of Spanish and German user manuals, focusing on either the structure and typical phrasing (Gamero Pérez, 2001) or the discourse markers (Gamero Pérez, 2000). They are theoretical articles in Spanish, in which no explicit tips and tricks are given with regard to how to translate these specific features into Dutch or how to solve specific translation problems.¹¹ In the second practice session, the control group was taught how to use Trados Multiterm. They read a Spanish user manual and created a terminology database with a selection of key words, including definitions, images and hyperlinks. In these two sessions, the control group was exposed to many excerpts from Spanish instruction manuals (about 2000 words), but these exemplary sentences did not match the STs used in the experiment. During the two practice sessions, the participants of the control group received peer-feedback and engaged in group discussions.

3.4.3 Immediate and delayed posttest

One week after completing the treatment, all participants were asked to participate in an announced immediate posttest. The setup of this immediate posttest resembled that of the pretest: a similar instructive ST

¹¹ The articles by Mata Pastor (1998) and Vazquéz y del Árbol (2009) both address the main problems that arise in the translation of user manuals, albeit from a different perspective. Mata Pastor (1998) discusses difficult yet important steps in the translation process of this text type (documentation and terminology search, use of adequate style) and professional issues (translation by non-native speakers). Vazquéz y del Árbol's (2009) article focuses more on micro-textual problems, listing the primary translation errors found in Spanish translations of German and Italian user manuals.

was used of similar length, difficulty and content. This ST also contained similar rich points as the text used in the pretest. However, there were also a number of differences with the pretest.

First, participants took part in the immediate posttest individually in the researcher's office. Second, each participant completed two translation tasks (instead of one) with a break of 10 minutes in between. Two translation tasks were used to increase validity and reliability of the data. The order in which the STs were given to the participants had been randomly assigned, but with an even distribution between those participants who started with text one (fabric shaver, see Appendix 2) and those with text two (refrigerator, see Appendix 3). Third, the data collection was complemented by two other methods: questionnaires and cued retrospective interviews. These were not used in the pretest to avoid carry-over effects. For the first translation task of the immediate posttest, translation process data were collected with Inputlog and CamStudio (as in the pretest). Additionally, the participants were asked immediately afterwards to fill out a 6-item Likert-scale questionnaire with general questions concerning aspects such as the difficulty of the ST interpretation and TT formulation, their motivation, their satisfaction with the final product.¹² Furthermore, they had to generally describe how they had gone about the translation task, which problems they had encountered and why. In this questionnaire, no explicit attention was drawn to the rich points of the ST. For task 2 of the immediate posttest, the same setup was used with two alterations: (1) the program Morae (version 3.0.1) was used instead of CamStudio, and (2) a cued retrospective interview was conducted after the participant had completed the questionnaire. Morae has originally been designed for usability studies, but it proves very useful for text production process research too (Leijten, 2007, chapter 7).¹³ Its functionality resembles CamStudio's, but it also allows the researcher to observe in real time from a different computer the participant's translation process and to code the activities. This enabled us to select a number of interesting moments in the translation process that we could replay during the retrospective interview. This replay would serve as a reminder and retrieval cue for the participant's memory (Hansen, 2006). In this manner, we could get more qualitative process data on interesting instances in the translation process (e.g., pauses

¹² See Appendix 7.

¹³ More information about this program can be found on the website of Techsmith Corporation (2014): <http://www.techsmith.com/morae.html>

before text production or revision bursts), and more specifically on how the participants solved translation problems and dealt with the rich points.

3.4.4 Delayed posttest

The immediate posttest was followed two weeks later by a delayed posttest. The setup of this delayed posttest was identical to the pretest. The only difference was the ST used (turnspit oven, see Appendix 4) and the questionnaire, which was not present in the pretest. The purpose of the delayed posttest was to verify if potential effects of the writing training sustained after a period of time.

3.4.5 Translation quality assessment

Two trained raters assessed independently from one another all translation products. One of them was a professional translator (working languages: Spanish/French/English into Dutch) with more than ten years experience in translation and revision. The other was the researcher, who had been a translation teacher (Spanish into Dutch) for more than 5 years. The translation products were anonymized.

The two raters were asked to assess each translation product as a whole in an “impressionistic” manner, intuitively giving it a score on a scale from 0 to 10. The raters also performed an analytic assessment of the translation using an error-based scheme, comprising four error categories:

- *category A*: ST interpretation and TL formulation errors that hinder the understanding of the ST content by the target audience;
- *category B*: translation choices that violate idiomatic and stylistic preferences in the TL;
- *category C*: examines the translator’s textual competence and concerns errors contravening TL genre conventions;
- *category D*: focuses on the linguistic competence in the TL and entails language-system errors, such as grammar, spelling and punctuation errors.

Within these categories, the errors were weighted differently according to how they influence the skopos of the translation. Those errors that distorted intelligibility of the TT in relation to the brief and the communicative situation were weighted 2, other 1. To attenuate any potential additional subjectivity, no bonuses were integrated in the model. Appendix 8 contains an overview of the analytic assessment scheme.

Various factors may influence the reliability of the assessment methods, such as variations in test administration setting, test rubrics, test input, expected response, and variations in the relationship between input and response types (Angelelli, 2009). We have tried to keep these variations to an absolute minimum. As shown in Table 1, the inter-rater reliability, measured by intra-class correlation (ICC), was relatively low for holistic scoring ($<.70$) in the posttests. The analytic assessment yielded a more satisfactory inter-rater reliability, especially with regard to the overall analytic score and the scores for the error *categories C* and *D* ($>.77$). The error *categories A* and *B* obtained a lower agreement between the two raters ($<.70$).

Table 1. ICC of assessment methods (holistic scoring, overall analytic score and scores of four analytical error categories)

	Pretest	Immediate posttest	Immediate posttest task 1	Immediate posttest task 2	Delayed posttest
Holistic	.830	.627	.327	.731	.562
Analytic (total)	.931	.837	.814	.810	.843
<i>category A</i>	.736	.615	.689	.682	.779
<i>category B</i>	.669	.684	.656	.392	.440
<i>category C</i>	.940	.941	.931	.929	.924
<i>category D</i>	.849	.899	.771	.893	.859

3.5 Data analysis

This study was aimed to test the hypotheses put forward in Section 2 of this chapter regarding the effect of writing training on transediting and on translation quality. For this purpose, we compared the results of the two groups in the pretest, the immediate posttest and the delayed posttest. For the analysis of the immediate posttest data, we used the mean of the two tasks since the task order and the specific ST did not prove to have a significant effect on the results regarding the transediting of the rich points and the quality of the translation product.

To test the first hypothesis regarding the effect of writing training on transediting, we conducted two separate analyses. First, the translated rich points were coded dichotomously, with transedited rich points being awarded a '1' score and literal translations a '0' score. Moreover, the quality of the translation of every rich point was assessed on the

basis of the conventions discussed in Section 3.2 of this chapter. The correct translations (i.e., correctly transedited rich points, which were in compliance with the previously mentioned Dutch text conventions) were assigned a '1' score. The incorrect translations (i.e., literal translation, translations with interpretation errors or incorrectly transedited rich points) were awarded a '0' score. A non-parametric statistical Mann-Whitney U-test (one-tailed) was carried out on these coded data to study the effect of writing training on the translation of these rich points and its quality (i.e., the between-group analysis). A non-parametric Wilcoxon signed-rank test (one-tailed) was used to examine the learning effect, i.e., a significant change in the translation (transediting) of the rich points from the pretest to the two posttests, for each participant group (i.e., within-group analysis). We compared (1) before and after treatment data (i.e., (1a) pretest-immediate posttest and (1b) pretest-delayed posttest) to assess a possible learning effect, and (2) the immediate posttest and the delayed posttest data to assess whether this learning effect persisted over time (retention). Second, a textual analysis of the TTs was carried out to reveal additional effects on items other than the rich points. The TTs of each test were compared systematically among all participants to find any salient and recurring transediting in both formulation and structure. If distinct translation solutions for the same ST segment (phrase, word group or word) were found among the participants, this ST segment was included as an item. Subsequently, the various solutions for each ST item were introduced in Excel to verify whether a tendency among translation solutions could be ascertained among the participants of the same group and across the posttests.

To test the second hypothesis regarding the effect of writing training on translation quality, we used the mean of the two raters' assessment scores to conduct a between-group analysis (Mann-Whitney U-test) and a within-group analysis (Wilcoxon signed-rank test). The mean values for the pretest and the delayed posttest were calculated as follows: $((\text{score rater 1} + \text{score rater 2})/2)$. For the mean values for the immediate posttest, the following method was used: $((\text{score immediate posttest task I according to rater 1} + \text{score immediate posttest task II according to rater 1})/2) + ((\text{score immediate posttest task I according to rater 2} + \text{score immediate posttest task II according to rater 2})/2)/2$.

4. Results

In the following paragraphs, we present the results of the analyses used to test the two hypotheses put forward in Section 2 of this chapter. We will focus primarily on the product analyses, but in relevant cases we will also refer briefly to process data from the retrospective interview to contextualize and interpret the product data.

4.1 Effect of writing training on the transediting of selected rich points

In this section, we will present the results of the between-group analysis to verify whether writing training leads to significantly more transediting and a significantly better translation of the selected rich points. We will also report the results of the within-group analysis to assess possible learning effects for each condition with regard to the use of transediting.

On average, the experimental group transedited more rich points in each category than the control group. Table 2 contains the descriptive statistical data for both the experimental group ($n=9$) and the control group ($n=8$).

The between-group analysis showed no significant difference between the experimental and the control group with regard to the transediting of the rich points in the pretest. However, the experimental group transedited significantly more rich points than the control group in the immediate and delayed posttests, in three out of four rich point categories. The obtained effect sizes suggest a strong relationship between the writing training and the transediting of the rich points (based on Cohen's 1988 criteria for effect size, stipulating a large effect size over .5).¹⁴

Let us now look at the statistical data for each rich point category. The experimental group ($Mdn=1.00$) transedited more *Titles* than the control group ($Mdn=0.00$), $U=10.00$, $p=.005$, $r=-.64$ in the immediate posttest. The same was true for the delayed posttest: $Mdn=2.00$ vs. 0.00 , $U=12.00$, $p=.009$, $r=-.60$. This rich point category consisted of two subcategories: *action-driven titles* and *consistency*. No significant difference could be found between the two groups with regard to the action-driven titles. However, the experimental group ($Mdn=1.00$) performed significantly more transediting to achieve title consistency than the control group ($Mdn=0.00$) in the immediate and delayed posttests, respectively $z=-2.390$, $p=.013$, $r=-.580$, and $z=-2.592$, $p=.013$, $r=-.629$.

¹⁴ Effect size (r) has been calculated according to Field (2009, p. 550).

Table 2. *Descriptive data of the transediting of rich points by both conditions*

		Experimental group		Control group	
		Mean	SD	Mean	SD
Titles (max 2)	Pretest	.44	.53	.25	.46
	Immediate posttest	1.22	.71	.25	.46
	Delayed posttest	1.44	.73	.38	.74
Action-driven	Pretest	.00	.00	.00	.00
	Immediate posttest	.39	.49	.00	.00
	Delayed posttest	.56	.53	.13	.35
Consistency	Pretest	.44	.53	.25	.46
	Immediate posttest	.83	.35	.25	.46
	Delayed posttest	.89	.33	.25	.46
Information structure (max 4)	Pretest	.89	.78	.50	.76
	Immediate posttest	2.56	.98	1.13	.52
	Delayed posttest	2.56	.88	1.00	.93
Micro-level	Pretest	.89	.78	.50	.76
	Immediate posttest	1.22	.62	1.13	.58
	Delayed posttest	1.44	.73	.88	.84
Macro-level	Pretest	.00	.00	.00	.00
	Immediate posttest	1.28	.62	.00	.00
	Delayed posttest	1.11	.60	.13	.35
Illocutionary indicators (max 7)	Pretest	5.22	1.20	5.13	1.46
	Immediate posttest	6.78	.44	5.56	.68
	Delayed posttest	6.78	.44	5.38	1.06
Terminology (max 1)	Pretest	.56	.53	.25	.46
	Immediate posttest	.50	.50	.50	.38
	Delayed posttest	.56	.53	.38	.52

Transediting of *Information structure* also differed significantly between the two conditions in the posttests: the experimental group ($Mdn=2.50$) transedited the information structure significantly more than the control group ($Mdn=1.00$) in the immediate posttest, $U=7.50$, $p=.002$, $r=-.67$. This was also true for the delayed posttest: $Mdn=3.00$ vs. 1.00 , $U=8.50$, $p=.003$, $r=-.66$. However, within this rich point category, only transediting of *macro-level structure* (i.e., above sentence-level) yielded significant results: the experimental group ($Mdn=1.50$) transedited significantly more at the macro-textual level in the immediate posttest than the control group ($Mdn=0.0$), $z=-3.356$, $p=.000$, $r=-.814$. The same trend could be observed in the delayed posttest, ($Mdn=1.00$ vs. 0.00), $z=-3.015$, $p=.002$, $r=-.731$. *Illocutionary indicators* also were transedited significantly more by the experimental group ($Mdn=7.00$) than by the control group ($Mdn=5.75$) in the immediate posttest, $U=8.00$, $p=.002$, $r=-.67$. This was also true for the delayed posttest: $Mdn=7.00$ vs. 5.00 , $U=11.00$, $p=.004$, $r=-.64$. No significant difference was found regarding the transediting of *Terminology*.

The writing training proves to have a significant effect on the amount of transediting of rich points. However, these results do not state whether this increase in transediting also led to a better translation of the rich points. The writing training also proved to have a large effect on this aspect. In the pretest, the results of the two groups did not differ significantly from one another. However, the experimental group translated significantly more rich points correctly than the control group for the category *Titles*, both in the immediate posttest ($U=13.0$, $z=-2.350$, $p=.009$, $r=-.570$) and the delayed posttest ($U=13.0$, $z=-2.592$, $p=.013$, $r=-.629$). Within the subcategories, only *consistency* of titles yielded significant results. With regard to the category *Information structure*, the experimental group also translated significantly more rich points correctly than the control group, in the immediate posttest ($U=8.5$, $z=-2.681$, $p=.004$, $r=-.650$) and in the delayed posttest ($U=14.0$, $z=-2.198$, $p=.017$, $r=-.533$). The results at subcategory are less clear-cut. The significant difference between the two groups concerning the translation quality of *macro-level information structure* could only be observed in the immediate posttest: $Mdn=1.00$ experimental group vs. $Mdn=0.00$ control group, $U=4.0$, $z=-3.383$, $p<.01$, $r=-.820$. On the contrary, the translation quality of the *micro-level information structure* was only significantly better in the delayed posttest: $Mdn=2.00$ experimental group vs. $Mdn=1.00$ control group, $U=18.0$, $z=-1.850$, $p=0.05$, $r=-.449$. The experimental group ($Mdn=6.00$) translated significantly more *Illocutionary indicators* correctly than the control group ($Mdn=3.00$) after the

treatment, but only in the delayed posttest ($U=7.5$, $z=-2.778$, $p=.002$, $r=-.674$). No significant difference was found between the two groups with regard to translation quality of *Terminology*.

Summarizing, writing training has a significantly positive effect on the transediting of *Titles* for *consistency*, *macro-level information structure* and *Illocutionary indicators*, as well as on the translation quality of these rich points. These findings are strengthened by the results of the within group-analyses. No learning effect could be observed for the control group, not in terms of transediting amount or regarding the translation quality of the rich points. On the contrary, the experimental group did show significant learning effects from pretest to posttest in various rich point categories. They transedited significantly more rich points pertaining to the category titles in the immediate posttest ($Mdn=1.00$) than in the pretest ($Mdn = 0.00$), $z=-1.916$, $p<.05$, $r=-.45$. At subcategory level, no significant learning effect could be observed. The experimental group also transedited significantly more rich points pertaining to the category *Information structure* in the immediate posttest than in the pretest (Mdn pretest =1.00 and Mdn immediate posttest= 2.50), $z=-2.567$, $p<.05$, $r=-.61$. Only the subcategory of *macro-level information structure* yielded significant results. Another learning result could be observed for the transediting of *Illocutionary indicators* (Mdn pretest=5.00 and Mdn immediate posttest=7.00), $z=-2.316$, $p<.05$, $r=-.55$. The comparison between pretest and delayed posttest data yielded similar findings. No significant change from the immediate posttest to the delayed posttest could be observed, indicating that the learning effect for the experimental group did not redeem in the observed period. In other words, there is indeed retention of the learning effect. With regard to the translation quality of the rich points, similar results could be observed: no learning effect for the control group, but significant learning effect for the experimental group for *Titles*, *Information structure* and *Illocutionary indicators*. At subcategory level, a learning effect could be observed for *consistency in titles* and *macro-level information structure* (comparing pretest-immediate posttest as well as pretest-delayed posttest).

4.2 Additional effects of writing training on the formulation and structure of the TT

In addition to the rich point analysis, a systematic comparison of the STs and TTs was carried out to reveal effects on TT items other than the rich points. It was difficult to ascertain a general pattern between and within the two groups. Translation solutions varied considerably, not only between

participants within one group, but also within the same participant across TTs and even within one TT. Therefore, we will only address the most salient features.

Writing training seems to have increased awareness of text formatting and design, especially with regard to the use of bullet points, different font styles and warnings. In the pretest, no participant (of either group) introduced any bullet points into the TT to highlight the various steps of a certain instruction or activity. However, 33-44% of the experimental group decided to do so in the immediate and delayed posttests. They used bullet points in a very consistent manner, for every new activity explained in the ST. Moreover, between 33 and 66% of the experimental group introduced some form of explicit warning sign into the TT in the immediate posttest (resp. text on the refrigerator ST and the fabric shaver ST) and 44% in the delayed posttest. With respect to the use of italics, similar percentages could be observed: 33% for the fabric shaver ST, and 44% for the refrigerator ST and the delayed posttest. The participants of the control group did not manifest these tendencies. They did not introduce explicit warning signs (e.g., Important, Warning, Be careful), use italics or bold in the TT to highlight outcome information or warnings. The use of bullet points could be observed, but only among 25% of the control group and then again only in the translation of the fabric shaver ST (immediate posttest).

Writing training also appears to have influenced TT formulation of a few participants at a more general level. To illustrate this effect, as well as other effects, we will present three case studies, in which three translations of the fabric shaver ST produced in the immediate posttest are analyzed. The first two case studies describe the TTs of two participants of the experimental group, Cindy and Liesbeth. Cindy represents the more risk-taking wing of the experimental group.¹⁵ She does not hesitate to deviate freely from the ST structure and content, something to which her pretest translation does not attest. This quite liberal approach was also observed in two other participants of the experimental group. Liesbeth is representative of the other, more conservative, wing of the experimental group. These six participants introduced fewer changes to the ST content and structure, although they did not compromise TT conventions and

¹⁵ Cindy was chosen for this case study, since she was the most extreme case of the risk-taking wing of the experimental group.

logic.¹⁶ The third case study belongs to a participant of the control group, Sanne, who follows the ST structure and formulation very closely in her TT. No great differences could be discerned in the translation products of the participants of the control group.

4.2.1 Cindy

Figure 2 contains the fabric shaver ST (left side) and Cindy's TT (right side). A number of striking features can be observed when comparing the ST and the TT. These concern the structure and the formatting of the TT as well as the general translation strategy.

First, Cindy's TT does not resemble the ST much in terms of formatting. Cindy has restructured the ST content into different actions by means of bullet points and has used italics and bold to highlight warnings.

Second, the overall TT structure is quite distinct from the ST. This can be observed in the use of bullet points, but also in the titles. Cindy has not only introduced a third title (*Na gebruik* [After usage]), but also changed the focus of the titles: it shifts from the working and maintenance of the device (*Funcionamiento* and *Mantener el quitapelusas*) to before, during and after usage (*Voor gebruik*, *Gebruik* and *Na gebruik*). In the cued retrospective interview, Cindy states the following reasoning for this change of titles: "I wanted less steps in that first part, right there. And you don't put in batteries every time you use [the device], because they are already in there. So I had to change it." This comment hints at a certain preoccupation by the participant for the readability (viz., the limited steps of instructions) and the usability of the TT. Cindy also seems to relate the structure and cohesion of the TT to her own visualization of how to use the device. The third ST sentence "*Antes de insertar las pilas, debe asegurarse que el interruptor de funcionamiento del aparato está en posición de apagado*" is now featured first in the first content section.¹⁷

16 The TT of these six participants were quite similar in structure and formulation. Liesbeth was chosen for this case study, because her overall analytic assesment score was closest to the median of these six participants.

17 English translation: 'Before inserting the batteries, you must ensure that the operating switch of the device is in the off position'.

<p>Funcionamiento</p> <p>Hay que insertar 4 pilas alcalinas (4 x 1,5V AA/LR6) en el compartimento de las pilas siguiendo las indicaciones de polaridad.</p> <p>Se cerrará el compartimento presionando la tapa y deslizando hacia abajo.</p> <p>Antes de insertar las pilas, debe asegurarse que el interruptor de funcionamiento del aparato está en posición de apagado.</p> <p>Ponga la prenda sobre una superficie lisa. Seleccionar el nivel de apurado deslizando el selector regulador de niveles de apurado. Situar el interruptor de funcionamiento en posición de encendido.</p> <p>Deslice suavemente, sin presionar, el quitapelusas sobre la prenda estirada adecuando el selector de apurado a cada necesidad. La pelusa y fibras se recogerán en el depósito transparente. El depósito de pelusas no debe llenarse más de sus $\frac{3}{4}$ partes.</p> <p>Apague el quitapelusas situando el interruptor en posición de apagado.</p> <p>Mantener el quitapelusas</p> <p>Le recomendamos vaciar el depósito de pelusas después de su uso. Extraiga el depósito de pelusas deslizando hacia abajo y vacíelo. Debe limpiar la rejilla con la ayuda del cepillo que se adjunta.</p> <p>Para limpiar la parte interna de la rejilla y el cabezal de cuchillas proceda de la siguiente manera:</p> <p>Retire el anillo regulador de apurado deslizando hacia fuera hasta retirarlo del aparato, extraiga la pieza plástica con rejilla ayudándose de una herramienta de superficie plana, limpie las pelusas cuidadosamente con el cepillo para no dañar la zona de cuchillas, y limpie las partes plásticas con un paño seco.</p> <p>No utilizar sobre prendas húmedas, de textura irregular o delicadas como hilo, seda y punto fino.</p>	<p>Voor gebruik</p> <ul style="list-style-type: none"> Controleer of het apparaat op de uitstand staat. Stop vier alkalinebatterijen (1,5V AA/LR6) in het apparaat. <p>Gebruik</p> <ul style="list-style-type: none"> Plaats het apparaat op een vlakke ondergrond. Stel het gewenste niveau in met de schakelaar. Zet het apparaat aan. Strijk zachtjes, zonder druk te zetten, over het strakgespannen kledingstuk en pas het niveau naar behoefte aan. <p><i>Let op: Het doorzichtige gedeelte van het apparaat waar het stof en de pluïjes in terechtkomen, mag maximaal $\frac{3}{4}$ vol zijn.</i></p> <ul style="list-style-type: none"> Zet de ontpluizer uit. <p>Na gebruik</p> <ul style="list-style-type: none"> Leeg het apparaat. Maak het raster schoon met de bijbehorende borstel. Maak de binnenkant van het raster en de kap schoon op de volgende manier: <ul style="list-style-type: none"> Verwijder de ring van de kop door het naar buiten te draaien. Haal het plastic gedeelte met raster eruit met een plat gereedschap. Verwijder voorzichtig de pluïjes met de borstel. Maak de plastic gedeeltes schoon met een droge doek. <p>Waarschuwing: gebruik de ontpluizer niet op vochtige kleding, gebreide kleding, kleding met een onregelmatig weefsel of kleding van fijne stoffen zoals linnen en zijde.</p>
--	--

Figure 2. ST fabric shaver and Cindy's TT.

However, Cindy maintains the important warning not to use the fabric shaver on wet or delicate clothes in the same position as it was featured in the ST, at the very end of the TT. Log data indicated that Cindy scrolled upwards in her TT after having translated the warning. She confirmed during the retrospective interview that she had been unhappy with the placement of this warning. She had wanted to put it in the second part

just before “*strijk zachtjes [...] over het kledingstuk* [slide gently [...] across the garment]”. However, she decided against it, because a warning was already present after that sentence. She placed the warning at the very end, but she hoped that, by putting the warning in bold, the reader would be sufficiently alarmed.

Third, Cindy has adopted quite a free translation strategy when drafting the TT. When we look at the formulation of the TT sentences, one cannot escape the impression that Cindy has read the ST and rephrased it in her own words. This leads to a more compact and natural sounding TT, but while doing so, Cindy omits valuable ST information in the process. For example, “*se cerrará el compartimento presionando la tapa y deslizándola hacia abajo*” (second sentence in first ST paragraph) is not featured at all in the TT.¹⁸ When asked about this in the interview, Cindy stated: “I just left it out. I thought well, if you can open it, then you would be able to close it as well”. The information about the batteries’ polarity indications (i.e., the final phrase of the first sentence of the first ST paragraph) is also omitted for the same reason: “That is the same in all devices, so I found it to be very logical that you look at those [indications]. But I don’t think that it is ever mentioned, in a camera or something else, all devices with batteries. I just don’t find it necessary [to mention it], really.” Overall, it seems that the TT is less detailed and precise than the ST. The number of unnecessary omissions of ST information, as registered in the analytic translation assessment, corroborates this for Cindy and the two other participant of the more extreme part of the experimental group. The lack of precise terminology is also striking. This could perhaps also be a result of avoidance of redundancy: specific components are substituted by more general terms (empty the device instead of empty the fabric storage container). The interview reveals another reason: Cindy has trouble searching for and locating the right terminology.

4.2.2 Liesbeth

Figure 3 shows the fabric shaver ST (left) and Liesbeth’s TT (right). Liesbeth translated this ST as the first task of the immediate posttest. Since a retrospective interview was conducted after the second task only, Liesbeth’s interview did not concern the translation of the fabric shaver ST. We will nonetheless refer to elements from this interview when they provide additional insight.

¹⁸ English translation: ‘Close the compartment by pressing down the lid and sliding it downwards’.

<p>Funcionamiento</p> <p>Hay que insertar 4 pilas alcalinas (4 x 1,5V AA/LR6) en el compartimento de las pilas siguiendo las indicaciones de polaridad.</p> <p>Se cerrará el compartimento presionando la tapa y deslizando hacia abajo.</p> <p>Antes de insertar las pilas, debe asegurarse que el interruptor de funcionamiento del aparato está en posición de apagado.</p> <p>Ponga la prenda sobre una superficie lisa.</p> <p>Seleccionar el nivel de apurado deslizando el selector regulador de niveles de apurado.</p> <p>Situar el interruptor de funcionamiento en posición de encendido.</p> <p>Deslice suavemente, sin presionar, el quitapelusas sobre la prenda estirada adecuando el selector de apurado a cada necesidad. La pelusa y fibras se recogerán en el depósito transparente. El depósito de pelusas no debe llenarse más de sus $\frac{3}{4}$ partes.</p> <p>Apague el quitapelusas situando el interruptor en posición de apagado.</p> <p>Mantener el quitapelusas</p> <p>Le recomendamos vaciar el depósito de pelusas después de su uso. Extraiga el depósito de pelusas deslizando hacia abajo y vacíelo.</p> <p>Debe limpiar la rejilla con la ayuda del cepillo que se adjunta.</p> <p>Para limpiar la parte interna de la rejilla y el cabezal de cuchillas proceda de la siguiente manera:</p> <p>Retire el anillo regulador de apurado deslizando hacia fuera hasta retirarlo del aparato, extraiga la pieza plástica con rejilla ayudándose de una herramienta de superficie plana, limpie las pelusas cuidadosamente con el cepillo para no dañar la zona de cuchillas, y limpie las partes plásticas con un paño seco.</p> <p>No utilizar sobre prendas húmedas, de textura irregular o delicadas como hilo, seda y punto fino.</p>	<p>Werking</p> <p>Opgelet: Gebruik dit apparaat niet op natte kledij, kledij met een oneffen textuur of delicate stoffen zoals linnen, zijde en fijne wol.</p> <p>Voordat u de batterijen plaatst, zorgt u ervoor dat de gebruiksschakelaar in de uit-positie staat.</p> <p>Plaats vier alkaline batterijen (4 x 1,5V AA/LR6) in het apparaat volgens de polariteitsaanwijzing.</p> <p>Sluit de ruimte met de batterijen door op het deksel te drukken en het naar beneden te schuiven.</p> <p>Plaats het kledingstuk op een egaal oppervlak.</p> <p>Selecteer het zuiverheidsniveau door de regelschakelaar met de verschillende niveau's te verschuiven.</p> <p>Plaats de gebruiksschakelaar in de aan-positie.</p> <p>Schuif de ontpluizer zachtjes, zonder te drukken, over het gladgestreken kledingstuk en pas de zuiverheidsschakelaar aan wanneer het nodig is. De pluïsjes en de vezels worden opgenomen in de doorschijnende bak die slechts voor $\frac{3}{4}$ gevuld mag worden.</p> <p>Zet de ontpluizer uit door de gebruiksschakelaar in de uit-positie te plaatsen.</p> <p>Onderhoud</p> <p>Men raadt u aan om de bak met pluïsjes te legen na het gebruik.</p> <p>Maak de bak met pluïsjes los door deze naar beneden te schuiven en maak hem leeg.</p> <p>Maak de ventilator schoon met behulp van de borstel die bij het apparaat is bijgevoegd.</p> <p>Om het interne deel van de ventilator en de kop van de mesjes schoon te maken, gaat u verder op de volgende manier:</p> <p>Verwijder de ring van de regelschakelaar door die naar buiten te schuiven.</p> <p>Verwijder het plastic deel met de ventilator met behulp van een gereedschap met een plat oppervlak.</p> <p>Verwijder de pluïsjes voorzichtig met de borstel om het deel met de mesjes niet te beschadigen</p> <p>Maak de plastic delen schoon met een droge doek.</p>
---	--

Figure 3. ST fabric shaver and Liesbeth's TT.

The contrast with Cindy's TT is evident: Liesbeth's TT follows the ST form and content far more closely than Cindy's TT does. Liesbeth does not manifest an increased awareness of TT formatting given the lack of bullet points, bold or italics. However, there is a subtle trace of transediting observable in this respect: Liesbeth has put the instructions on how to clear the components of the fabric shaver (i.e., the last four TT sentences) on different lines to create a visually more structured instruction.

The writing training seems to have influenced Liesbeth's translation of the rich points, but no other ST features. The titles have been made consistent, but they include nouns instead of action verbs. This is striking, because Liesbeth used action verbs when translating the titles of the refrigerator ST in the second task of the immediate posttest. When we asked about these titles in the retrospective interview, she only referred to the need for consistent titles. In other words, it appears that Liesbeth was not conscious of the action-driven nature of titles. On the contrary, Liesbeth pays explicit attention to chronological information structure at the macro-textual level. She has moved the warning not to use the fabric shaver on wet or delicate clothes to the very beginning of the TT. In addition, she has restructured the steps to place the batteries by mentioning the instruction to make sure that the operating switch is in the off position before inserting the batteries first. Liesbeth stressed the importance of information structure explicitly when she described her thought process about a similar translation problem posed by the refrigerator ST. Surprisingly enough, she does not seem to observe similar problems below sentence level. Transediting is also observable in Liesbeth's translation of illocutionary indicators. She generally translates the Spanish illocutionary indicators with Dutch imperatives, except in two instances. In those instances, a subordinate clause precedes the main clause in which the instruction is included: e.g., in "*Antes de insertar las pilas, debe asegurarse que el interruptor de funcionamiento del aparato está en posición de apagado*". This sentence order may have caused Liesbeth to use the indicative in third person singular (i.e., *zorgt u ervoor*) instead of an imperative, since the latter would have obstructed the natural flow of the sentence. However, in this particular case, the subordinate and main clause do not form a chronologically coherent sentence and ought to be switched around. This will allow a natural use of the imperative mood as well as a correct chronological representation of the actions to be carried out.

With regard to the TT formulation in general, Liesbeth has followed the ST rather strictly, both in sentence structure and word choice.

Only some minor ST deviations in the form of additions or omissions can be observed. For example, Liesbeth introduces an explicitation in the translation of the ST sentence “*Debe limpiar la rejilla con la ayuda del cepillo que se adjunta*”¹⁹ by stating that the brush is provided alongside the device (“*bij het apparaat*”–with the device). Another example concerns the ST sentences “*La pelusa y fibras se recogerán en el depósito transparente*” and “*El depósito de pelusas no debe llenarse más de sus $\frac{3}{4}$ partes*”.²⁰ Liesbeth combines these two sentences in her translation by omitting the subject of the second sentence that served as the prepositional phrase of the first: “*De pluïsjes en de vezels worden opgenomen in de doorschijnende bak die slechts voor $\frac{3}{4}$ gevuld mag worden*”.²¹ It is important to note that these TT formulation choices can also be observed in TTs drafted by participants of the control group. They seem to be representative of personal stylistic preferences rather than the effect of a particular treatment.

4.2.3 Sanne

Figure 4 shows the fabric shaver ST (left) and Sanne’s TT (right). Sanne translated the fabric shaver ST as the first task of the immediate posttest: the retrospective interview discussed the ST about the refrigerator.

Sanne’s TT follows the ST very closely. There are no notable ST deviations in structure or in formulation. No sentences have been repositioned, combined or abbreviated. The terminology of the ST is also respected. A small number of personal stylistic choices can be observed. For example, Sanne translates the relative ST clause “*que se adjunta*” (as in “*el cepillo que se adjunta*” with the adjective “*bijgevoegde*” (“included”). No additions and omissions are observable in Sanne’s TT. The retrospective interview manifested that Sanne has been focused primarily on linguistic issues, because she expressed several times that the TT should sound natural in the TL. She seemed to be aware of several genre-related issues that featured in the theory session, such as consistency of titles and chronological information structure. However, for some reason, which she could not clearly explain, this information did not influence her to deviate from the ST.

19 English translation: ‘Clean the grill with the included brush’.

20 English translations: ‘The fuzz and fibers are collected in the transparent container’; ‘the transparent container should never be filled for more than $\frac{3}{4}$ of its capacity’.

21 English translation: ‘The fuzz and fibers are collected in the transparent storage box which may be filled for only $\frac{3}{4}$ ’.

<p>Funcionamiento</p> <p>Hay que insertar 4 pilas alcalinas (4 x 1,5V AA/LR6) en el compartimento de las pilas siguiendo las indicaciones de polaridad.</p> <p>Se cerrará el compartimento presionando la tapa y deslizándola hacia abajo.</p> <p>Antes de insertar las pilas, debe asegurarse que el interruptor de funcionamiento del aparato está en posición de apagado.</p> <p>Ponga la prenda sobre una superficie lisa.</p> <p>Seleccionar el nivel de apurado deslizando el selector regulador de niveles de apurado.</p> <p>Situar el interruptor de funcionamiento en posición de encendido.</p> <p>Deslice suavemente, sin presionar, el quitapelusas sobre la prenda estirada adecuando el selector de apurado a cada necesidad. La pelusa y fibras se recogerán en el depósito transparente. El depósito de pelusas no debe llenarse más de sus $\frac{3}{4}$ partes.</p> <p>Apague el quitapelusas situando el interruptor en posición de apagado.</p>	<p>Werkwijze</p> <p>Steek 4 alkalinebatterijen (4 x 1,5V AA/LR6) in het batterijvak volgens de polariteitsaanwijzingen.</p> <p>Sluit het vak door op het dekstel te duwen en het naar beneden te schuiven.</p> <p>Voordat u de batterijen er insteekt, wees er zeker van dat de aan-uitknop van het apparaat op uit staat.</p> <p>Leg het kledingstuk op een gladde oppervlakte.</p> <p>Kies het zuiveringsniveau door de schakelaar om het zuiveringsniveau te regelen in te duwen.</p> <p>Zet de aan-uitknop op aan.</p> <p>Schuif de ontpluizer, zonder te duwen, lichtjes over het gladgestreken kledingstuk door de zuiveringsknop aan te passen aan elke vereiste.</p> <p>De pluisjes en de vezels worden opgeborgen in de doorzichtige bergruimte. De opslagplaats van de pluisjes mag niet meer dan drie vierde gevuld zijn.</p> <p>Zet de onpluizer uit door de knop op uit te zetten.</p>
<p>Mantener el quitapelusas</p> <p>Le recomendamos vaciar el depósito de pelusas después de su uso. Extraiga el depósito de pelusas deslizándolo hacia abajo y vacíelo. Debe limpiar la rejilla con la ayuda del cepillo que se adjunta.</p> <p>Para limpiar la parte interna de la rejilla y el cabezal de cuchillas proceda de la siguiente manera:</p> <p>Retire el anillo regulador de apurado deslizándolo hacia fuera hasta retirarlo del aparato, extraiga la pieza plástica con rejilla ayudándose de una herramienta de superficie plana, limpie las pelusas cuidadosamente con el cepillo para no dañar la zona de cuchillas, y limpie las partes plásticas con un paño seco.</p> <p>No utilizar sobre prendas húmedas, de textura irregular o delicadas como hilo, seda y punto fino.</p>	<p>Ontpluizer onderhouden</p> <p>Er wordt aanbevolen om de opslagplaats van de pluisjes na gebruik leeg te maken. Haal de opslagplaats van de pluisjes eruit door het naar beneden te drukken en maak het leeg.</p> <p>Reinig het rooster met behulp van de bijgevoegde borstel.</p> <p>Om het inwendige deel van het rooster en de messenkop te reinigen, doe als volgt:</p> <p>Haal de ring van de zuiveringsregelaar eruit door deze naar buiten te duwen tot deze uit het apparaat kan worden genomen. Haal het plastic deel met het rooster erin eruit met behulp van een stuk gereedschap met een vlakke oppervlakte. Borstel de pluisjes voorzichtig weg met de borstel om de messenzone niet te beschadigen en reinig de plastic delen met een droge doek.</p> <p>Niet gebruiken op natte kledingstukken en kledingstukken met oneffen of fijne textuur zoals linnen, zijde en kledingstukken gemaakt met fijne steken.</p>

Figure 4. ST fabric shaver and Same's TT.

4.3 Effect of writing training on the translation quality

In this section, we will present the results of the between-group analysis to verify whether writing training leads to a better overall translation quality. We will also report the results of the within-group analysis to assess possible learning effects for each condition with regard to translation quality.

Based on the average holistic scores (max. 10 points), the experimental group scored .23 better in the immediate posttest and .70 better in the delayed posttest than the control group. We also analyzed the overall analytic error assessments as a complementary measure, since the inter-rater reliability of the holistic evaluations was relatively low (see Section 3.2.4 of this chapter). In the immediate and delayed posttests, the experimental group committed on average 7.19 and 6.05 fewer errors respectively than the control group. Table 3 contains the descriptive statistical data for both the experimental group ($n=9$) and the control group ($n=8$).

Table 3. Descriptive data of holistic and overall analytic translation quality for both conditions

		Experimental group		Control group	
		Mean	SD	Mean	SD
Holistic score	Pretest	5.58	0.86	5.59	0.93
	Immediate posttest	5.81	0.76	5.58	0.54
	Delayed posttest	6.01	0.96	5.31	0.61
Overall analytic score	Pretest	49.28	11.55	50.19	10.70
	Immediate posttest	29.69	8.48	36.88	7.11
	Delayed posttest	29.39	8.42	35.44	7.16

The between-group analysis corroborated that the writing training indeed influenced translation quality. On the basis of the holistic scores, the experimental group ($Mdn=6.00$) significantly outperformed the control group ($Mdn=5.25$) in the delayed posttest ($U=17.5$, $z=-1.792$, $p=.038$, $r=-.435$). The overall analytic scores also confirmed a significant better translation quality for the experimental group, albeit in this case only for the immediate posttest: the experimental group ($Mdn=29.25$) committed

significantly fewer errors than the control group ($Mdn=34.63$, $U=15.0$, $z=-2.021$, $p=.023$, $r=-.490$).

If we zoom in on the four error categories, the following observations can be made. On average, the experimental group committed more content errors (*category A*) than the control group in the posttests: 9.42 (4.19) vs. 8.84 (2.28) in the immediate posttest, and 11.78 (5.29) vs. 8.25 (4.11) in the delayed posttest. The opposite was true for style errors (*category B*): 6.86 (2.27) vs. 7.50 (2.30) in the immediate posttest and 5.28 (2.61) vs. 7.06 (4.00) in the delayed posttest. With regard to *category-D* errors (linguistic correctness), the results diverged slightly. In the immediate posttest, the experimental group (5.81 (4.43)) committed fewer errors on average than the control group (7.16 (5.35)). However, this changed in the delayed posttest: 5.00 (4.55) vs. 4.75 (2.85). The only error category that yielded a statistically significant difference between the two conditions in the two posttests was *category C*: errors against TL genre conventions. In the immediate posttest, the experimental group ($Mdn=7.5$) committed significantly fewer errors with regard to genre conventions than the control group ($Mdn=13.00$), $z=-3.322$, $p=.000$, $r=-.806$. The same was true for the delayed posttest ($Mdn=6.0$ vs. 15.5), $z=-2.889$, $p=.001$, $r=-.701$. In other words, the writing training proved to have a significantly beneficial influence on errors against TL genre conventions only.

The within-group analysis of the overall analytic scores showed that the total number of errors decreased significantly from the pretest to the posttests in the experimental group as well as in the control group (see Table 4). In other words, there is a statistically significant learning effect from the pretest to the two posttests in both conditions. This learning effect is retained from immediate to the delayed posttest, as no significant difference between the data of the two posttests could be observed. Analyses at the level of the individual participants show that 4 out of 8 participants of the control group committed slightly more errors in the delayed posttest than in the immediate posttest. This was also true for 4 out of 9 participants of the experimental group. The other participants of both conditions consistently improved their translation performance throughout the experimental sessions, showing a systematic decline in total number of errors.

Table 4. *Within-group analysis of overall analytic scores*

	Experimental group			Control group		
	Z	p	r	Z	p	r
Pretest – immediate posttest	-2.668	.002	-.889	-2.383	.008	-.843
Pretest – delayed posttest	-2.886	.002	-.889	-2.521	.004	-.891
Immediate posttest – delayed posttest	-.059	.488	-.014	-.280	.410	-.070

The within-group analysis of the four error categories refines these findings since the learning effects are not all observable in every category or in both posttests alike. A learning effect from pretest to immediate posttest was found for *category-A* errors in both conditions. A learning effect from pretest to delayed posttest could be observed for *category-B* and *category-D* errors in both conditions. In contrast to the experimental group's learning effect for *category-C* errors in both posttests, the control group did not register a significant decrease in this category.

We will discuss the evolution in translation errors for each condition separately, starting with the experimental group. Figure 5 shows the evolution in translation errors over the course of the experiment. The experimental group committed significantly fewer content errors (*category A*) in the immediate posttest ($Mdn=9.00$) than in the pretest ($Mdn=16.00$), $z=-2.194$, $p=.014$, $r=-.731$. This learning effect from pretest to immediate posttest was retained in the delayed posttest: As shown in Figure 5, the experimental group showed a small increase in *category-A* (content) errors in the delayed posttest, albeit not a significant increase.²² No significant learning effect could be observed when comparing pretest data with delayed posttest data. With regard to style errors (*category B*), the experimental group committed increasingly fewer errors, but the only significant learning effect occurred from pretest to delayed posttest: $Mdn=9.00$ pretest vs. 4.50 delayed posttest, $z=-2.246$, $p=.012$, $r=-.749$. The same learning effect could be found regarding the *category-D* errors (linguistic correctness): the experimental group significantly improved its score in the delayed posttest ($Mdn=3.50$) in comparison to the pretest ($Mdn=8.00$), $z=-2.257$, $p=.012$, $r=-.752$. Another significant and large learning effect could be

²² Six out of nine participants of the experimental group committed more content errors in the delayed posttest than in the immediate posttest.

observed with respect to the errors against genre conventions (*category C*) in both posttests. The experimental group committed significantly fewer errors in the immediate posttest ($Mdn=7.5$) than in the pretest ($Mdn=17.5$), $z=-2.670$, $p=.002$, $r=-.89$. The same applied for the comparison between pretest and delayed posttest ($Mdn=6.0$), $z=-2.666$, $p=.002$, $r=-.889$.

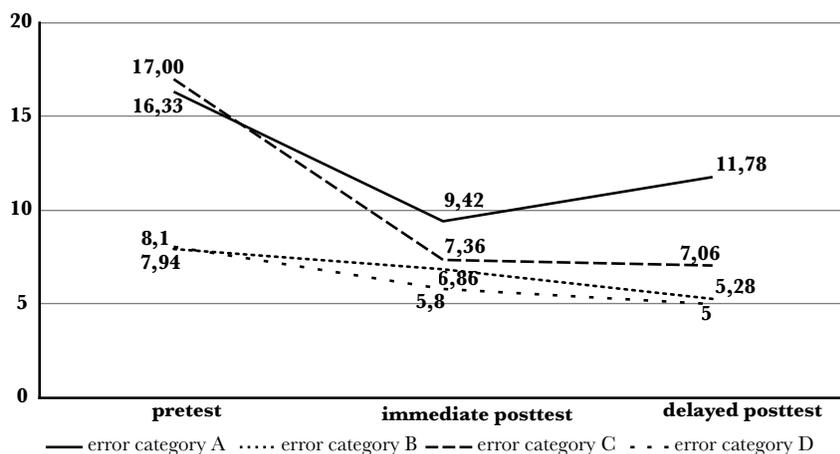


Figure 5. Evolution in (average) translation errors committed by the experimental group.

Figure 6 shows the evolution in translation errors of the control group. A learning effect could be observed in all error categories, except for *category C*. The participants committed significantly fewer content errors (*category A*) in the immediate posttest ($Mdn=8.63$) than in the pretest ($Mdn=14.25$), $z=-2.380$, $p=.008$, $r=-.841$. No significant learning effect could be observed from pretest to delayed posttest. The opposite is true for *category B*: the only significant learning effect that could be observed occurred from pretest ($Mdn=8.50$) to delayed posttest ($Mdn=6.25$), $z=-2.106$, $p=.016$, $r=-.745$. The same observation can be made with regard to the error *category D*: the errors against linguistic correctness decreased significantly, but only from pretest ($Mdn=8.50$) to delayed posttest ($Mdn=5.25$), $z=-2.117$, $p=.023$, $r=-.748$.

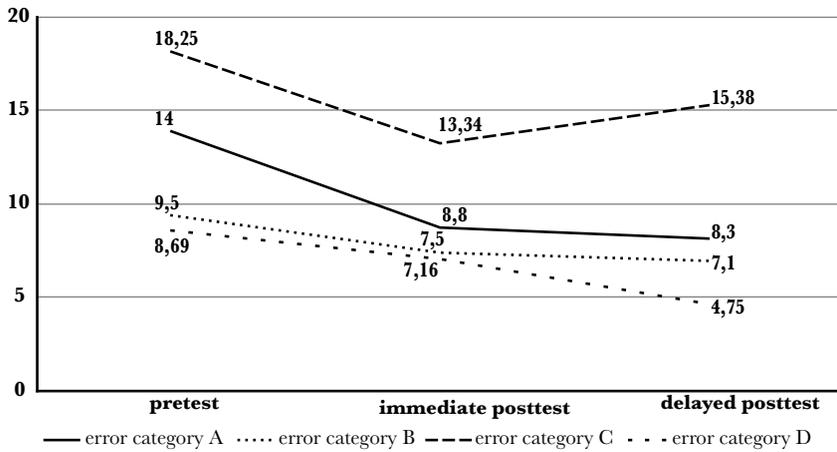


Figure 6. Evolution in (average) translation errors committed by the control group.

5. Discussion and conclusions

In the present study, we aimed to gain initial insights into how writing training influences the translation product. We conducted a quasi-experimental study among undergraduate level translation students, some of whom received genre-specific writing training. To assess this effect, we examined the transediting observable in the translation products as well as the translation quality.

Our first hypothesis, i.e., that writing training in the TL will lead to an increased focus on and compliance with TL genre norms and conventions, which result in more transediting visible in the translation product, was confirmed. The experimental group transedited significantly more rich points than the control group after the treatment, in three out of four categories: *Titles (consistency)*, *Information structure (macro-level)* and *Illocutionary indicators*. Moreover, the experimental group started to restructure and reformat the TT after the treatment, by means of bullet points, bold, italics and explicit warnings. Writing training did not appear to have a large effect on TT formulation that was not specifically related to TL genre conventions. The exceptions are some unnecessary ST omissions that could be observed in the three more ‘extreme’ participants of the experimental group.

The confirmation of this first hypothesis leads to a number of interrelated interpretations. First, the writing training leads to an increase of transediting of genre-specific features only. TT formulation in general

was only slightly affected among a few participants of the experimental group. On the basis of product data alone, it is difficult if not impossible to determine whether the significant increase in transediting of genre-related issues is the result of an increased awareness of acceptability criteria in the target culture, of less ST interference or of both. An increased awareness of acceptability criteria seems to be likely given the transediting visible in the TTs as well as the decrease in *category-C* errors (text conventions) in the immediate and delayed posttests. This may point to a difference in genre knowledge that the two groups acquired during the treatment. Process data, particularly the retrospective interviews, may provide more insight into whether differences in genre knowledge are (partly) responsible for the difference in transediting between the two groups. The increase in transediting may also have been the result of less ST interference: writing training might have given the participants a mental representation of what a TT should look like, which would enable them to focus less on the ST form. However, the product data cannot confirm that writing training leads to less ST interference. The unnecessary ST omissions in the TT's of three participants of the experimental group may suggest so. However, the error assessment does not yield conclusive results, since there were no significant differences between the two groups in *category-A* and *category-B* errors. On average, the participants of the experimental group committed more content errors (*category A*) than the control group, although not significantly more. Within-group analysis shows that content errors decreased significantly from pretest to immediate posttest in the experimental group, but increased again in the delayed posttest. Furthermore, no direct significant effect of the writing training on style errors (*category B*) was found, either. Further research triangulating product and process data will be necessary to clarify this issue.

Second, the writing training leads to a significant increase of transediting, but there seems to be only a partial knowledge transfer from the writing training to the translation task. The transediting observable in the translation products of the experimental group did not relate to all rich point categories under scrutiny. This partial knowledge transfer may have multiple explanations. The experimental group may have internalized only part of the knowledge gained from the writing training. This seems logical given the limited amount of writing training they received (i.e., four hours). It could also be that in the training sessions, some issues did not stand out as much to the students as others. Another reason may be that the students were not able to employ all internalized writing knowledge

in the translation task, perhaps due to cognitive overload. A combined product-process based analysis of the data of this experiment will be warranted to further examine this knowledge transfer from writing training to translation performance in detail.

Third, writing training appears to influence primarily transediting of non-linguistic, macro-textual genre features in the TT. This interpretation can be deduced from the experimental group's transediting of *Titles* and *Information structure*. The transediting of these rich points differed significantly from the control group's, but only when it concerned TT cohesion and coherence: *consistent Titles*, but not *action-driven*; chronological *Information structure* above sentence level, but not below. Moreover, the introduction of bullet points, bold and italics manifests this increased focus on non-linguistic, macro-textual items. The writing training in general did not significantly alter the transediting of linguistic, micro-textual genre features such as action-driven titles, microstructure and terminology, or TT formulation in general. However, this line of reasoning cannot explain the significant increase in transediting of illocutionary indicators. Perhaps, the consistent use of the imperative form for each and every instruction in Dutch (independent of the verbal form used in the ST) makes it easier to control this feature in the TT. Nonetheless, it is curious to see that transediting of macro-textual features is influenced, because focus on macro-textual features is characteristic for professional translators. Novice translators usually pay more attention to the micro-textual level (see Göpferich 2008, pp. 168–173, for an overview of findings of this type by Gerloff, 1988; Jääskeläinen, 1999; and Englund Dimitrova, 2005). The data from this experiment suggest that the writing training helps translation students to jump to that next level of taking into account the bigger picture of the TT. However, by doing so, these students seem to forget to keep paying attention to the micro-textual level. This is also demonstrated by the unnecessary ST omissions by some participants of the experimental group. Again, process data may shed light on whether the lack of transediting of linguistic, micro-textual genre features is caused by a lack of awareness of these features, cognitive overload or a lack of knowledge transfer from the writing training to the translation context.

The second hypothesis was formulated as follows: Writing training in the TL will lead to a better quality of the translation product. Based on the holistic score, we can affirm that writing training leads to a significantly better overall translation quality in the delayed posttest. The overall analytic scores, as expressed by the total number of errors, yield similar

results, but in the immediate posttest only. In terms of translation errors, this effect is corroborated with regard to genre errors only, which the experimental group committed significantly less after the writing training. In view of this discrepancy in results regarding overall translation quality, we consider it unwarranted to fully confirm the second hypothesis, even though the writing training does significantly influence genre errors.

In light of the analysis of the effect of writing training on translation quality, we duly recognize that translation assessment has always been a thorny subject among translation scholars. Despite the importance of evaluating translation performance, there is still a lack of empirical research on valid and reliable assessment approaches (Angelelli & Jacobsen, 2009). The difficulty of developing objective methods, which measure the construct of translation competence in an appropriate, meaningful and consistent manner (Angelelli, 2009) is a complaint often voiced by translation trainers and scholars alike. The aim of the present study was not directly translation assessment. The use of holistic and analytic methods was intended to assess the pedagogic efficacy of writing training for translation students. Although we cannot ignore the problematic reliability observed in the holistic scoring, assessing the influence of writing training without applying some kind of quality measures would paint only a partial picture.

The inconclusive results with regard to the effect of writing training on the overall translation quality allow various interpretations. First, translation performance is believed to require the effective coordination of many knowledge types, skills, aptitudes and attitudes that constitute translation competence (PACTE, 2007; Göpferich, 2008). Following this line of thought, an improvement in one subcompetence (such as writing competence) can but does not necessarily lead to a structural, overall improvement of translation performance as measured by product quality. In that light, it is rather promising that the experimental group scores significantly better than the control group in one out of two posttests (immediate or delayed posttest, dependent on the assessment method that is used as a criterion). Second, it seems that an increase in content errors has counteracted the decrease in genre errors in the delayed posttest, which may have prevented a significant effect of writing training on the overall translation quality (i.e., deduced from the overall analytic score) in the delayed posttest. The question remains why this happened in the delayed posttest and not in the immediate posttest. From the evolution in *category-C* errors as well as the transediting of rich points, it appears

that the experimental group's knowledge of acceptability criteria in the TL (particularly genre conventions) is still present in the delayed posttest. Perhaps retrieving and tapping into that knowledge required more cognitive effort in the delayed posttest than in the immediate posttest due to the time lapse between the treatment and the delayed posttest. This would imply that less cognitive effort was available for a refined interpretation and transfer of the ST content, leading to more *category-A* errors. Another explanation might be the complexity of the ST content. When a ST is difficult to interpret due to technical complexity or highly specialized terminology, translators are more likely to commit content errors than when the ST is relatively easy to understand. When all error categories are weighted equally in the overall analytic score and content errors increase, the decrease in genre errors will not outweigh the increase in content errors. Analysis of the questionnaires could not confirm that the students indeed perceived the ST of the delayed posttest to be more difficult to interpret and therefore it cannot be confirmed that ST complexity influences the effect of writing training on overall translation quality.

Based on the results summarized above, we may conclude that writing training does indeed have an effect on the translation product of translation students. However, we are aware of the limitations of this study, such as the small sample size, its genre specificity and the short timespan between the immediate and the delayed posttest. The controlled design may also give rise to some criticism, although we deem a controlled design necessary to eliminate as much data noise as possible before examining the interaction between writing training and translation performance in a less controlled research environment. This exploratory study is the first step of many to gain a better understanding how writing training and writing competence are related to translation competence and performance. There is a clear need for further research in this area, especially studies in which process and product data are analyzed in conjunction.

Acknowledgements

We are most grateful for the collaboration of Prof. Joyce Karreman, assistant professor at the University of Twente, who specializes in document design, instructive texts and human-centred design. She was responsible for the second session of the writing training. We would also like to thank Charlotte Klima for co-assessing the translation products, and Luk Verlonje for co-assessing the writing assignments. Special thanks go to the translation students who participated in this experiment.

Appendix 1: Source text pretest (gas cooker)

Instalación

Debe instalarse la cocina en un lugar que tenga ventilación suficiente, evitando las corrientes de aire.

Debe fijarse la conducción del gas, que puede ser de tubo de plástico o caucho sintético, a la boquilla situada en la parte posterior de la cocina, siendo necesario colocar una abrazadera que sujete la goma a la boquilla.

¿Cómo utilizar la cocina?

Antes de colocar las ollas, encender el quemador. Acercar la llama al cuerpo del quemador. Empuje el mando de control totalmente hacia adentro y hágale girar en el sentido contrario al de las agujas del reloj hasta el máximo.

Cuando el quemador esté encendido, mantenga oprimido el mando del quemador durante aproximadamente 5 segundos, hasta que el dispositivo de seguridad mantenga automáticamente encendida la llama. El dispositivo de seguridad del aparato impide la salida de gas en caso de extinción de la llama o no encendido de los quemadores. Ajuste la llama según lo requerido.

Para cortar el suministro de gas, hay que girar el mando hacia la derecha hasta alcanzar la posición “!”. Antes de quitar las ollas del fuego, debe apagar la llama.

Para conseguir un menor consumo de gas y un mayor rendimiento, es aconsejable emplear ollas de un diámetro adecuado al quemador a utilizar, evitando que la llama sobresalga del fondo de las mismas.

Si después de algunas veces no consigue encender el quemador, debe controlar que los casquillos y los orificios de donde salen las llamas estén colocados en su sitio correctamente.

Appendix 2: Source text 1 immediate posttest (fabric shaver)**Funcionamiento**

Hay que insertar 4 pilas alcalinas (4 x 1,5V AA/LR6) en el compartimento de las pilas siguiendo las indicaciones de polaridad.

Se cerrará el compartimento presionando la tapa y deslizándola hacia abajo.

Antes de insertar las pilas, debe asegurarse que el interruptor de funcionamiento del aparato está en posición de apagado.

Ponga la prenda sobre una superficie lisa.

Seleccionar el nivel de apurado deslizando el selector regulador de niveles de apurado.

Situar el interruptor de funcionamiento en posición de encendido.

Deslice suavemente, sin presionar, el quitapelusas sobre la prenda estirada adecuando el selector de apurado a cada necesidad. La pelusa y fibras se recogerán en el depósito transparente. El depósito de pelusas no debe llenarse más de sus $\frac{3}{4}$ partes.

Apague el quitapelusas situando el interruptor en posición de apagado.

Mantener el quitapelusas

Le recomendamos vaciar el depósito de pelusas después de su uso. Extraiga el depósito de pelusas deslizándolo hacia abajo y vacíelo.

Debe limpiar la rejilla con la ayuda del cepillo que se adjunta.

Para limpiar la parte interna de la rejilla y el cabezal de cuchillas proceda de la siguiente manera:

Retire el anillo regulador de apurado deslizándolo hacia fuera hasta retirarlo del aparato, extraiga la pieza plástica con rejilla ayudándose de una herramienta de superficie plana, limpie las pelusas cuidadosamente con el cepillo para no dañar la zona de cuchillas, y limpie las partes plásticas con un paño seco.

No utilizar sobre prendas húmedas, de textura irregular o delicadas como hilo, seda y punto fino.

Appendix 3: Source text 2 immediate posttest (refrigerator)

Instalar el frigorífico

Antes de enchufar, cerciorarse de que la tensión de la toma de corriente coincida con la del frigorífico, indicada en la placa de características.

Coloque el frigorífico lejos de toda fuente de calor. Debe existir una buena circulación de aire en la parte posterior.

Compruebe que el mando del termostato del refrigerador esté en la posición 0 y el del compartimento congelador en la posición 1.

Conectar el frigorífico a una buena toma de tierra. Al conectarlo se iluminará el piloto verde situado en el panel de mandos.

Empleo del frigorífico

La selección de temperatura se realizará mediante los mandos: la posición 1 es mínimo frío y la 7 máximo frío. Poniendo los mandos en la posición 0 se para el funcionamiento del frigorífico y del compartimento congelador. El congelador puede funcionar independientemente: debe colocarse el mando del termostato del frigorífico en posición 0 y el termostato del compartimento congelador en la posición requerida.

Importante: No situar nunca el mando en la posición 1, durante la utilización del compartimento congelador solo. Esta posición, sólo para este uso exclusivo, equivale a la de paro y el frigorífico no funcionará.

Limpieza

Limpie periódicamente el interior con una solución de bicarbonato de sodio, el mueble con jabón neutro y agua, el condensador y motorcompresor con un cepillo o aspirador. Para su limpieza, desconectarlo de la red.

Antes de usar el frigorífico, debe lavarse su interior con agua templada con el fin de eliminar el característico olor a nuevo.

Appendix 4: Source text delayed posttest (turnspit oven)

¿Cómo instalar el horno?

Se realizará la nivelación mediante cuatro patas regulables que tiene en la parte inferior.

¿Cómo funciona el horno?

Sitúe el mando del termostato en el punto que indique la temperatura necesaria para el asado, coloque el mando del conmutador para que funcione la resistencia adecuada y gire después el temporizador en el sentido de las agujas del reloj hasta la posición deseada.

El asador rotativo va provisto de un motor giratorio, un gancho de soporte y un espadín con una empuñadura de baquelita. Para su utilización debe procederse como sigue:

- a) Cuelgue el gancho en el alojamiento situado en la parte superior del horno. Introduzca la punta del espadín en el alojamiento que tiene el motor giratorio situado en la parte trasera del horno. La otra parte se apoyará en el gancho.
- b) Gire el conmutador para que accione el motor giratorio y la resistencia del grill. Seleccione la temperatura y el tiempo de asado.
- c) Una vez realizado el asado llevar el conmutador y el termostato a la posición cero.

Antes de realizar el asado, debe desenroscar el mango del espadín para poder cerrar la puerta del horno.

Limpieza

La limpieza debe realizarse con una esponja o estropajo que no raye utilizando agua jabonosa o algún detergente suave. No limpiar cuando el aparato esté todavía muy caliente. Es conveniente limpiar periódicamente el espadín sumergiéndolo en agua jabonosa, frotándolo con estropajo; antes de volver a colocarlo debe secarse.

Appendix 5: Overview of rich points

Rich points		Pretest Gas cooker
TITLES	Object and action verb	*Instalación
	Consistency	*Instalación *¿Cómo utilizar la cocina?
INFORMATION STRUCTURE	Chronological order of information in sentence	*Antes de colocar las ollas, encender *Antes de quitar las ollas del fuego, debe apagar
	Chronological order of information in text	*Para cortar el suministro de gas, hay que girar el mando hacia la derecha hasta alcanzar la posición “!”. Antes de quitar las ollas del fuego, debe bajar la llama o apagarla. *Si después de algunas veces no consigue encender el quemador, debe controlar que los casquillos y los orificios de donde salen las llamas estén colocados en su sitio correctamente.
ILLOCUTIONARY INDICATORS	Instructions	*Debe instalarse *Debe fijarse *Encender *Acercar *Debe controlar *Hay que girar *Debe bajar
TERMINOLOGY	Consistency in terminology	*aparato

Rich points		Immediate posttest Fabric shaver
TITLES	Object and action verb	*Funcionamiento
	Consistency	*Funcionamiento *Mantener el quitapelusas
INFORMATION STRUCTURE	Chronological order of information in sentence	*Antes de insertar las pilas, debe asegurarse *Le recomendamos vaciar el depósito de pelusas después de su uso.
	Chronological order of information in text	*Antes de insertar las pilas, debe asegurarse que el interruptor de funcionamiento del aparato está en posición de apagado. *No utilizar sobre prendas húmedas, de textura irregular o delicadas como hilo, seda y punto fino.
ILLOCUTIONARY INDICATORS	Instructions	*Hay que insertar *Se cerrará el compartimento *Debe asegurarse que *Seleccionar *Situar *Debe limpiar la rejilla *No utilizar
TERMINOLOGY	Consistency in terminology	*la zona de cuchillas

Rich points		Immediate posttest Refrigerator
TITLES	Object and action verb	*Limpieza
	Consistency	*Instalar el frigorífico *Empleo del frigorífico *Limpieza
INFORMATION STRUCTURE	Chronological order of information in sentence	*Antes de enchufar, cerciorarse *Antes de usar el frigorífico, debe lavarse
	Chronological order of information in text	*Para su limpieza, desconectarlo de la red. *Antes de usar el frigorífico, debe lavarse su interior con agua templada con el fin de eliminar el característico olor a nuevo.
ILLOCUTIONARY INDICATORS	Instructions	*Cerciorarse *Conectar *Se realizará *Debe colocarse *No situar nunca *Desconectarlo *Debe lavarse
TERMINOLOGY	Consistency in terminology	*congelador

Rich points		Delayed posttest Turnspit oven
TITLES	Object and action verb	*Limpieza
	Consistency	*¿Cómo instalar el horno? *¿Cómo funciona el horno? *Limpieza
INFORMATION STRUCTURE	Chronological order of information in sentence	*Antes de realizar el asado, debe desenroscar *Antes de volver a colocarlo debe secarse
	Chronological order of information in text	*Antes de realizar el asado, debe desenroscar el mango del espadín para poder cerrar la puerta del horno *No limpiar cuando el aparato esté todavía muy caliente
ILLOCUTIONARY INDICATORS	Instructions	*Se realizará *Debe procederse *Llevar *Debe desenroscar *debe realizarse *No limpiar *Debe secarse
TERMINOLOGY	Consistency in terminology	*aparato

Appendix 6: Writing tasks pretest

During the pretest, the participants were asked to complete three writing tasks. These had been selected from a writing course module of the Master in Multilingual Professional Communication at the University of Antwerp. The tasks focused respectively on (a) cohesion and coherence; (b) readability; (c) usability. These tasks aimed to assess the writing competence of the participants.

The first task (A) focused on cohesion and coherence: the participants had to put 9 sentences in a logical order and subsequently make a cohesive text of these 9 sentences. The second task (B) assessed the participants' ability to create a readable text. They were presented with one very long sentence, which they had to make as readable and understandable as possible for the general public. For the third task, they had to rewrite an excerpt from a computer manual. The rewritten text ought to adhere to criteria of accessibility, readability, usability and cohesiveness.

A. Plaats de onderstaande zinnen in de meest logische volgorde. Verwerk de losse zinnen tot een samenhangende tekst.

1. Wie na enkele jaren in Washington naar België terugkeert, vindt onmiddellijk een baan op hoog niveau.
2. De Belgische bestuurder J.d.G. verwonderde zich over het geringe aantal Belgen dat bij de bank werkzaam is.
3. De Wereldbank is de belangrijkste internationale instelling inzake ontwikkelingshulp.
4. Ondervertegenwoordiging in de Wereldbank speelt in het nadeel van ons bedrijfsleven.
5. Vorige week bracht een afvaardiging van het Vlaams Economisch Verbond een bezoek aan de Wereldbank.
6. Het hoofdkwartier van de Wereldbank ligt in Washington.
7. Een benoeming bij de Wereldbank is een van de beste referenties die een jong academicus zich kan voorstellen.
8. Het VEV wil dringend wat gaan doen aan de ondervertegenwoordiging van België in de Wereldbank.
9. De afvaardiging van het VEV had in de Wereldbank een gesprek met de Belgische bestuurder, J.d.G.

B. Maak de volgende tekst zo leesbaar en begrijpelijk mogelijk voor een laaggeschoold publiek.

Professor X, de ook in het buitenland bekende Nederlandse econoom, die zich de laatste decennia vooral heeft toegelegd op het bestuderen van de mogelijkheden om tot meer inkomensegalisatie te komen, attendeerde ons in een boeiend exposé op het feit dat ook binnen groepen met eenzelfde opleiding sterke inkomensverschillen bestaan, waaruit volgens hem naast andere dingen kan worden geconcludeerd dat verschillen in talent door het onderwijs helemaal niet geëlimineerd kunnen worden.

C. Herschrijf onderstaand tekstfragment, dat uit een computerhandleiding komt, tot een toegankelijke en samenhangende tekst.

De problemen waarop u bij de installatie van de computer en het in gebruik nemen ervan stoot, hoeven niet uniek te zijn. In de handleiding vindt u een aantal oplossingen. Controleer of u de computer niet op de verkeerde wijze hebt aangesloten. De in deze handleiding beschreven en opgeloste problemen zullen door uzelf verholpen kunnen worden. Als het probleem zich blijft voordoen, kan u beter een beroep doen op een deskundig iemand die daartoe in staat is.

Appendix 7: Questionnaires used in immediate and delayed posttest

Questions TRANSLATION OF USER MANUAL			
A. I found it difficult to interpret the source text.	Completely disagree	0 0 0 0 0 0 0	Completely agree
	Specific problems	.....
B. I found it difficult to find the appropriate words in Dutch.	Completely disagree	0 0 0 0 0 0 0	Completely agree
	Specific problems	.....
C. I found it difficult to assess the target text requirements.	Completely disagree	0 0 0 0 0 0 0	Completely agree
	Specific problems	.....
D. It was very boring to translate the source text in Dutch.	Completely disagree	0 0 0 0 0 0 0	Completely agree
E. Translating this source text was easy.	Completely disagree	0 0 0 0 0 0 0	Completely agree
F. In general, I am content with my translation.	Completely disagree	0 0 0 0 0 0 0	Completely agree
Questions TRANSLATION PROCESS			
I. Please provide a short description of how you went about the translation task (i.e., the steps you have taken in the translation process).		.....
II. Which sentences/paragraphs in the source text did you not fully understand? What was the problem exactly?		.....
III. Which resources did you use to solve problems during the translation process (documentation, dictionaries, common sense, personal experience, etc.)?		.....

Additional questions posed after the first task of immediate posttest

Have you translated a user manual before?	Never	0 0 0 0 0 0 0	Often
Do you read user manuals?	Never	0 0 0 0 0 0 0	Often

How many fingers do you use while typing?

..... fingers

Do you type blind?

0 I never/very rarely look at the keyboard when I am typing regular characters.

0 I regularly look at the keyboard when I am typing regular characters.

Which keyboard lay-out do you use most frequently?

0 Azerty

0 Qwerty

0 Other:

Do you use the spelling and grammar checker when you draft a translation in Word?

0 Always

0 Regularly

0 Sometimes

0 Never

How often do you write texts in Dutch (genre does not matter) in your spare time?

0 weekly

0 monthly

0 once in a while

0 never

How often do you read texts in Dutch (genre does not matter) in your spare time?

0 weekly

0 monthly

0 once in a while

0 never

How often do you read texts in Spanish (genre does not matter) in your spare time?

0 weekly

0 monthly

0 once in a while

0 never

Appendix 8: Analytic translation quality assessment scheme

Criteria	Factor	Nr. of errors	Error score
CONTENT			
A1. The TT contains ST interpretation errors or translation errors that affect the understanding of the TT considerably or even make it impossible.	2		
A2. Essential ST information is absent in the TT.	2		
A3. The TT contains translation errors, but they do not hinder or change the understanding of the TT invasively.	1		
A4. The TT has not been adapted to the TT in terms of content; e.g., it features concepts that are irrelevant for the TT audience.	2		
A5. Elements that are not present in the ST are added to the TT, which leads to a qualitatively poorer TT.	1		
STYLE			
B1. The TT has been formulated in an unclear and unnecessarily wordy manner.	2		
B2. The TT is not idiomatic.	1		
B3. The TT has been formulated inconsistently in terms of word choice.	1		
B4. An incorrect usage of time can be observed.	1		
GENRE CONVENTIONS			
C1. The instructions have not been formulated in an active manner.	2		
C2. The chronological order (within a sentence and within the text) of information is not correct or safe.	2		
C3. The instructions consist each of too large a number of steps per sentence.	1		
C4. The title conventions have not been respected.	1		
GRAMMATICAL AND ORTOGRAPHICAL CORRECTNESS			
D1. The TT contains grammatical errors, e.g., congruency errors, wrong articles and prepositions.	2		
D2. The TT contains errors in orthography and punctuation.	1		
D3. The TT contains non-standard linguistic variation.	1		
TOTAL ERROR SCORE			

4

The effect of writing training on transediting in translation, analysed from a combined product-process perspective

Abstract

A number of scholars have advocated the use of writing training in translator education, but the supposedly beneficial effect of writing training on translation performance has not been object of extensive empirical research until date. This chapter reports on a quasi-experimental study of the effect of writing training on the translation product and process of undergraduate translation students. A classic pretest-posttest experimental design was used, in which the experimental group was trained in writing instructive texts in their mother tongue (Dutch) and the control group received placebo training. Over the course of the experiment, both groups translated four Spanish user manuals into Dutch. The source texts contained a number of items that could not be translated literally into the target language, either due to faulty phrasing in the source text or because of the different text conventions in the target language, and consequently required transediting (Stetting, 1989). Product data and process data were analysed to examine the effect of writing training on transediting. The results show that the experimental group transedited significantly more rich points and did so more correctly. Especially transediting of macro-textual features was significantly influenced. This suggests that writing training helps translation students to adopt a more global strategy for the translation of the rich points. However, cognitive overload and source text interference seems to prevent them from transediting features below sentence level, such as chronological micro-level information structure, consistent terminology and action-driven titles. When transediting was carried out, this was in the majority of cases introduced as a first translation solution. The writing training also led to an increase in revision of titles and macro-level information structure, which suggests more reflection about these translation problems. The participants of the experimental group also manifested a more detailed understanding of the acceptability norms of user manuals than the control group.

This chapter is based on Schrijver, I., Van Vaerenbergh, L., Leijten, M., & Van Waes, L. (in press). The impact of writing training on transediting in translation, analysed from a process perspective. *Perspectives: Studies in Translatology*.

1. Introduction

Translation can be considered a form of text production (Dam-Jensen & Heine, 2013). Translators have to *produce* a text in the target language (TL) in which the message of the source text (ST) is re-expressed. The text-productive aspect of translation has received increasingly more interest and gained importance following the shift from an equivalence-based to a functionalist understanding of translation. Vermeer's (1987, p. 29, our emphasis) functionalist definition of the act of translating ("To translate means to *produce a text* in a target setting for a target purpose and target addressees in target circumstances") clearly emphasizes the purposeful and text-productive nature of translating. This new perspective opened up a broad spectrum of possible translations in which the source text-target text relationship can vary from strict to nearly absent, dependent on the function of the translation in the target culture (TC). The type of source text-target text relationship will not change the text-productive nature of the act of translating. However, it is likely to influence the nature of the text production carried out during the translation process, and its visibility. When the function of the translation requires strict equivalence, text production will be limited to mere reproduction of the ST and will remain relatively 'limited'. However, when the desired equivalence moves from strict to more dynamic, the text-productive aspect of translation manifests itself more clearly. Think for example about those instances when the translator has to manipulate or edit the ST to produce a target text (TT) that is understandable and acceptable in the TC. This occurs, for example, when a certain concept does not exist in the TL and needs additional explanation; when text conventions in the TL differ from those in the ST; when the TT audience differs from the ST audience (in age or education); or when the ST is poorly written. These are just a few examples, but they attempt to illustrate how the type of text production necessary to draft an acceptable TT can vary and may move from ST-inspired text production to a more creative type of text production inspired by TL norms as well as needs and norms of the TC.

Following this line of thought, it is evident that translators should have, among others, text-productive competence in the TL. As shown in Chapter 1, the models of translation competence (PACTE, 2007; Göpferich, 2009) attest to this view, but no detailed definition of the translator's text-productive competence can be found in the literature on translation competence. It is generally understood to encompass transcription skills and linguistic or communicative competence, i.e., lexical, grammatical,

pragmatic and textual knowledge. The depth and breadth of text-productive competence remain undisclosed in the translation-competence models. However, these are likely to vary according to the equivalence required in the translation task, as suggested above. As we have seen, the text production that is being carried out in the translation process may go beyond ST-dependent text production (translation) and may in fact include acts characteristic of writing (and adaptation). It is therefore likely that a translator's text-productive competence might resemble or even intersect with those necessary for writing and adaptation. As such, it will integrate both declarative and procedural knowledge.

Text-productive competence is not an issue that has received much attention in the literature on translator education either. The mother language competence of translation students, and more specifically their text-productive competence, is usually taken for granted (Kelly, 2005). This might explain why training in monolingual text-production, hereinafter called writing training, is not a universal feature of translation studies programmes (Göpferich, 2004). However, this may change in the foreseeable future, since a growing number of scholars highlight the importance of text-productive competence for translators and advocate the integration of writing training in translator education (e.g., Meyer & Russell, 1988; Jakobsen, 1994; Göpferich, 2004; Doloughan & Rogers, 2006; Merkle, 2010; Byrne, 2010). Writing training is believed to have a beneficial impact on translation students' awareness of acceptability norms in the TL (Meyer & Russell, 1988; Jakobsen, 1994). It may also positively affect the students' translator self-concept as a text designer instead of a text reproducer (see also Gross, 2003, p. 91), which could lead them to move away from ST-inspired text production onto a more creative type of text production inspired by TL norms as well as needs and norms of the TC. Moreover, writing training will better prepare translation students for the changing reality of the translation profession, in which increasingly more activities go beyond the confines of 'translation proper' and concern communication in a larger sense (Byrne, 2010).

The presumed beneficial impact of writing training on translators' text-productive competence and their translation performance has not been object of extensive empirical research. The lack of empirical exploration of this issue might be explained by the complexity of isolating the influence of text-productive competence on translation performance from other factors, since translation performance builds on the coordination of a whole range of knowledge types, skills and attitudes

(PACTE, 2007; Göpferich, 2009). Another challenge is to pinpoint how text-productive competence manifests itself in the translation process. The borderline between the drafting of the TT and other steps in the translation process, such as ST comprehension and transfer of the verbal ST message into a preverbal TT message, is rather fuzzy and often problematic to determine (Carl & Dragsted, 2013). In the previous chapter, we have presented an experimental framework that enabled us to study if, and how, writing training influences translation performance. This framework is characterised by a controlled intervention study, in which the experimental group received (genre-specific) writing training and the control group placebo training. Moreover, the experimental design allowed us to zoom in on the text-productive aspect of translation, since the STs used in the experiments presented mainly text-productive problems that required the use of transediting. Transediting is a concept introduced by Stetting (1989) and it implies acts of ST rewriting, sometimes ST re-ordering. It entails “the conscious or automatized cognitive route to solve a problem caused by either poor ST quality or differing function, audience, conventions and/or valid text norms in the target culture” (Schrijver, Van Vaerenbergh & Van Waes, 2012, p. 6).

In Chapter 3, we have discussed the effect of writing training on transediting in the translation product. In this chapter, we will re-analyse these data by reflecting on the process component as well. In the final section of this chapter, we will examine how these findings can be interpreted in light of two cognitive and constructivist perspectives on knowledge acquisition in instructional design.

2. Research questions

This study seeks to answer the following main research question: Does writing training have a positive effect on transediting in the translation product and process? In this context, a positive effect is interpreted as an increase in the amount of transediting on the one hand and improvement of the quality of transediting on the other. Assuming a priori that writing training will influence transediting positively, we have formulated two additional secondary research questions:

- Does writing training influence transediting on both a macro-textual (i.e., above sentence level) and micro-textual level (i.e., at or below sentence level)?

- Does writing training change the moment when transediting is carried out, i.e., as a first translation solution or later on in the translation process?

3. Method¹

To answer the research question above, we set up a controlled intervention study, in which we gave writing training to the experimental group and placebo training to the control group.

3.1 Participants

Seventeen students participated in this experiment. These participants were native speakers of Dutch and third-year students of a Bachelor programme in applied linguistics with a specialization in translation. The participants were uniformly distributed over the experimental group ($n=9$) and control group ($n=8$) on the basis of the mean of three scores: (1) the pretest translation task, (2) the mean of the three writing tasks, and (3) the mark for the general translation course Spanish-Dutch in the second (i.e., previous) year of the bachelor studies. A two-tailed Mann-Whitney U-test showed no significant differences between the two groups, not with regard to the mean of all three tests together or the mean of each test separately. Moreover, no significant differences between the two groups were found in the pretest data for the main aspects under scrutiny in this study: (1) the amount of transediting of rich points, (2) the translation quality of those rich points. The participants' experience with similar translation tasks or writing of user manuals previous or during the experiment was monitored through questionnaires. Time on task was equal for the two groups, as was the amount of words from instruction manuals provided in the material used during the treatment sessions.

3.2 Design and procedure

Figure 1 gives an overview of the classic pretest-posttest design, consisting of a pretest, treatment, immediate posttest (consisting of 2 tasks) and delayed posttest.

¹ For motives of brevity, we will only mention the most important elements related to the method, which has been described in detail in Chapter 3.

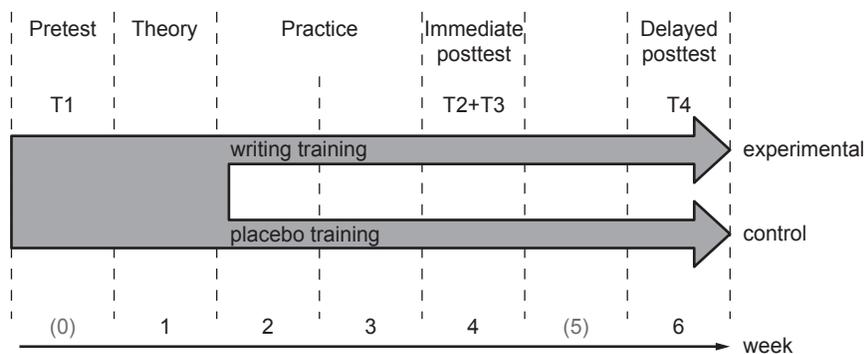


Figure 1. Experimental design (designed by Mariëlle Leijten).

The experimental sessions took place over a period of six weeks and entailed five hours of training. In the pretest and posttests, the participants were asked to translate a Spanish user manual of a household appliance of approximately 250 words into Dutch, using MSWord, in compliance with the quality requirements of a user manual in Dutch. Between the pretest and posttests, the participants received three treatment sessions: one theory session (1 hour) and two practice sessions (2 hours each). Since declarative genre knowledge is believed to be essential in translation (cf. Montalt Resurrecció et al., 2008), as well as in writing (cf. Tardy, 2006), we wanted to ensure that the two groups possessed similar basic declarative genre knowledge. They therefore received the same theory session on the main pragmatic and linguistic characteristics of instructive texts, their structure and content parts.

The treatment for the two groups differed in the practice sessions alone: writing training vs. non-writing training. The aim was to analyse two groups of translation students that only differed in writing practice and experience, whereas their translation experience and competence would be comparable. The practice sessions for the experimental and control group were characterized by a writing, monolingual context and a translational, multilingual context respectively. The experimental group was trained how to edit and compose instructive texts in Dutch. Rewriting and writing exercises were used to teach the participants which social functions user manuals have and how information design, readability and usability influence the composition process. Special attention was paid to titles, information structure, illocutionary indicators and terminology.

These are the problems represented in the rich points of the translation tasks, which allowed us to check the supposed transferability of knowledge gained in writing training into a translation context (*viz.*, translation product and process). The control group received two practice sessions that did not involve writing, but which allowed them to interact with instructive texts without increasing their experience in translating this text genre or enhancing their writing skills. In the first session, they were trained in finding relevant scientific articles on the translation of instructive texts in abstract databases of Translation Studies journals. In addition, they had to read and give an oral synthesis in Dutch of two theoretical Spanish articles (Gamero Pérez, 2000; 2001), in which Spanish and German user manuals are compared with regard to structure, typical phrasing and the use of discourse markers. These articles were of a descriptive nature and did not contain any explicit instructions or recommendations concerning the translation of these features. In the second session, the control group was taught how to create a terminology database for a selection of key words of a Spanish instruction manual by using the program Trados Multiterm.

3.3 Materials

The text genre used in this study was a user manual. The STs used in this study were selected from a corpus of original Spanish instruction manuals composed by Murcia Bielsa (1999).² These texts concerned the following devices or appliances: gas cooker (pretest), fabric shaver and refrigerator (task 1 and 2 of the immediate posttest respectively), and turnspit oven (delayed posttest).³ The STs contained a number of rich points, which required transediting, since they could not be translated literally in the TL as a result of inadequate and/or faulty phrasing in Spanish or due to different text conventions in Dutch. The purpose of these rich points was twofold: (1) they allowed for a more systematic and controlled analysis of text formulation problems in the translation process, and (2) they were an attempt to untangle the steps of transfer and text production in specific instances of the translation process.

Each ST contained a total of 14 rich points. To select these rich points, we took into account the textual norms of user manuals in Dutch (Steehouder, 2008) and the conventions explained by Byrne (2012). Four

² The exception was the manual of the fabric shaver from the Spanish brand Solac, found on the company's website. See Appendix 1-4 in Chapter 3 for the source texts.

³ The task order in the immediate posttest was randomly assigned ensuring an even distribution between the participants who started with task 1 and those with task 2.

categories of rich points were established (the number of rich points pertaining to each category is mentioned between brackets, as well as an example of the required transediting in italics):

- *Titles* (2): titles must be formulated in such a way that the readers can easily locate the information that they need. This can be best achieved by formulating titles in:
 - an *action-driven* manner, i.e., by using an object and an action verb in Dutch (1): *Instalación* [Installation] -> *De koelkast installeren* [To install the refrigerator];
 - in a *consistent* manner throughout the text (1): *Instalar el frigorífico* [To install the refrigerator] and *Limpieza* [Cleaning] -> *De koelkast installeren* [To install the refrigerator] and *De koelkast schoonmaken* [To clean the refrigerator];
- *Information structure* (4): the order in which instructions are given in the TT must be logical and chronological. This applies to two levels:
 - *micro-level*, i.e., at and below sentence level (2): *Antes de colocar las ollas, encender el quemador* [Before placing the pots, you should light the burner]-> *Steek de brander aan voordat u de pannen op het fornuis zet* [Light the burner before you place the pots on the stove];
 - *macro-level*, i.e., above sentence level (2): the warning “*Para su limpieza, desconectarlo de la red*” should come before or at least at the beginning of the various instructional steps of how to clean the refrigerator, and not at the very end;
- *Illocutionary indicators* (7): the linguistic form to express instructions must be in compliance with the textual conventions in the TL, i.e., the imperative form in Dutch. *Debe lavarse el interior con agua templada* [The interior must be washed with tepid water] -> *Maak de binnenkant schoon met lauw water* [Clean the interior with tepid water];
- *Terminology* (1): identical concepts must be represented by the same terms throughout the text, since lexical variation is not acceptable in user manuals. *Congelador* [Freezer] and *compartimento congelador* [Freezer compartment] -> *Diepvriesvak* [Freezer compartment].⁴

These rich point categories and their subcategories concern aspects pertaining to the micro-textual and macro-textual level. Action-driven titles, micro-level information structure, illocutionary indicators and terminology concern aspects that are situated at or below sentence level, whereas consistency in titles and macro-level information structure

⁴ For an overview of the ST features that were selected as rich points, see Appendix 5 of Chapter 3.

transcend the sentence level. We used this differentiation to examine the effect of writing training on the transediting of micro- and macro-textual features, both in the translation product and the translation process.

3.4 Data collection

For the stipulated research purpose, it was important to use data collection methods that would yield no or minimal intrusion of the translation processes. Moreover, it was important that despite the controlled setting of the experiments and their interventionist nature, the translation tasks were as ecologically valid as possible. For these reasons, the following data collection methods were used: computer keystroke logging (Inputlog), screen capturing (CamStudio and Morae), questionnaires and cued retrospective interviews.

The use of data collection methods differed slightly in the pretest and posttests. In the pretest, the participants' translation processes were registered using only computer keystroke logging and screen capturing, to avoid carry-over effects. In the posttests, these data collection methods were complemented by questionnaires, which the participants were asked to fill out immediately after having finished the translation task. These questionnaires contained general questions concerning aspects such as the difficulty of the ST interpretation and TT formulation, the participant's work method and motivation, her/his satisfaction with the final product etc.⁵ In the second task of the immediate posttest, a cued retrospective interview was conducted after the participant had filled in the questionnaire to obtain additional qualitative data on the translation process. These interviews took place in the second task of the immediate posttest alone, for practical reasons of operationalization and to avoid carry-over effects. During the cued retrospective interviews, we used the replay of the screen captures as a reminder and retrieval cue for the participant's memory (Hansen, 2006). The retrospective interviews were semi-structured, always focusing on only a selection of rich points in addition to other interesting instances in the translation process (e.g., pauses, instances of transediting other than rich points, revisions, etc.).⁶

5 See Appendix 7 of Chapter 3.

6 It is important to observe that, given the off-line nature of the retrospective interviews, the participants' verbalizations only reflected their underlying cognitive processes in an indirect manner since they retrieved this information from their long-term memory. This might decrease the validity of these data, but the prompted nature of the interview served to remedy this.

3.5 Data analysis

The primary aim of this study was to verify whether writing training has a positive effect on transediting. For this purpose, we compared the results of the two groups for the rich point categories (see Section 3.3 of this chapter) in the pretest and the posttest. Since two posttests were conducted and one of those posttests (i.e., the immediate posttest) consisted of two tasks, we analyzed the posttest data at the following levels of detail:

- Posttest as one data set⁷
- Immediate posttest and delayed posttest as two data sets⁸
- Task 1 of the immediate posttest, task 2 of the immediate posttest and the delayed posttest as three data sets
- Individual performances

The results reported on in this chapter will concern the level of analysis first mentioned. We will refer to the other levels of analysis, only when these data yield different results or provide additional insights.

The data collection methods used in this study provided both product and process data. The product data were obtained from the final translation products, whereas the log files, screen captures and cued retrospective interviews yielded the process data. To keep the data-analysis as structured as possible, we first examined the product data and subsequently analysed the process data.

3.5.1 Product analyses

We analysed all translation products and checked for each rich point whether it had been transedited and whether the translation solution complied with Dutch textual conventions of user manuals, as stipulated in Steehouder (2008). To verify whether there were significant differences in transediting (i.e., amount and quality) between the experimental group and control group, we carried out a between-group analysis (Mann-Whitney U-test, one-tailed). Moreover, a within-group analysis (Wilcoxon signed-rank test, one-tailed) was used to examine the learning effect, i.e., a significant change in the transediting of the rich points from the pretest

7 For this dataset, we used the mean of the immediate posttest and the delayed posttest.

8 For the immediate posttest, the mean of the two tasks was used, since the task order did not prove to have a statistically significant effect on the transediting and translation quality of the rich points.

to the posttest, for each group.⁹ Non-parametrical statistical analyses were used in this study given the small and unequal number of participants. Moreover, the sampling of the distribution of the data (of the rich points categories and the quality parameters) was not always normally distributed.

To confirm that writing training had a positive effect on transediting, we established that all of the following three criteria must be met: (1) there has to be a significant difference between the two groups in the posttest; (2) this significant difference has to be observable in at least one of the two posttests (i.e., immediate or delayed posttest); (3) this significant difference should be met with a learning effect for the experimental group in the respective rich point category from pretest to posttest.

3.5.2 Process analyses

From the product data, we obtained the final translation solution for each rich point. We analysed the keystroke logging data (and the screen captures, in case of uncertainty) to gain insight into how this final translation solution had been reached and whether any traces of transediting were present in the translation process. When we encountered a transediting trace for a particular rich point in the process data, we analysed whether this constituted the first translation solution (i.e., immediate transediting) or not (i.e., delayed transediting). Furthermore, we examined whether that transediting trace had been revised at a later stage in the translation process. Moreover, we assessed whether it entailed a correct transediting (see Section 3.5.1 of this chapter, for quality assessment criteria). Figure 2 shows the coding system that we designed for this process analysis of transediting.

⁹ When we analysed the immediate posttest and delayed posttest as two separate data sets, we made the following comparisons to assess the learning effect: pretest-immediate posttest, and pretest-delayed posttest.

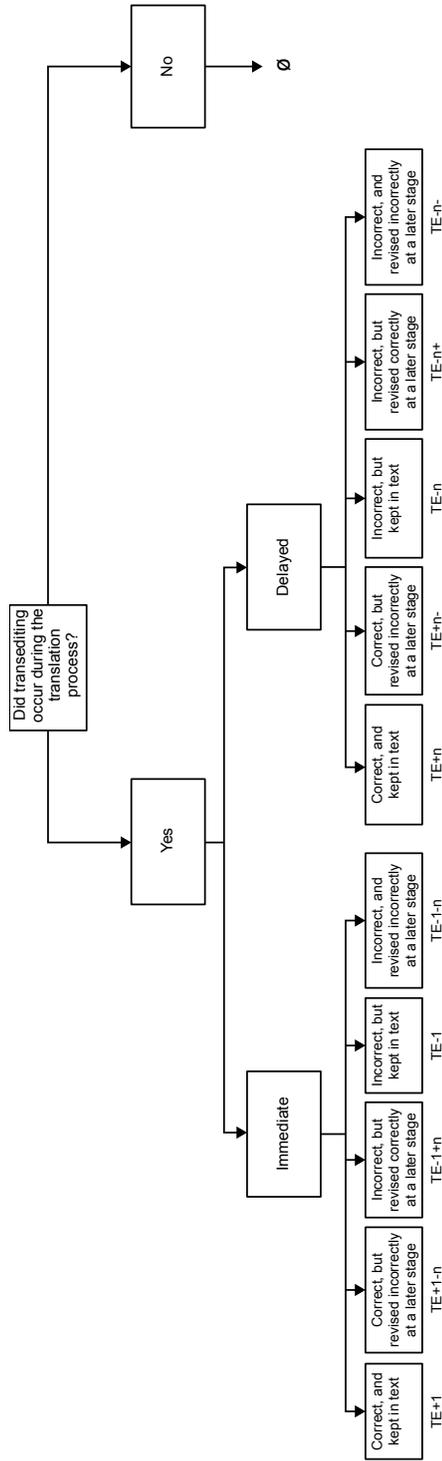


Figure 2. Transediting coding system (designed by Mariëtte Leijten).

This system allowed us to assign one of the following coding labels to each rich point:

Immediate transediting:

- correct transediting introduced as first translation solution and kept as such in the target text (TE+1);
- correct transediting introduced as a first translation solution, but revised incorrectly later on in the process (TE+1-n);
- incorrect transediting introduced as a first translation solution, but revised correctly later on in the process (TE-1+n);
- incorrect transediting introduced as a first translation solution and kept as such in the target text (TE-1);
- incorrect transediting introduced as a first translation solution and revised incorrectly later on in the process (TE-1-n);

Delayed transediting:

- correct transediting not introduced as a first translation solution for that particular rich point, but later on in the process and kept as such in the target text (TE+n);
- correct transediting not introduced as a first solution, but that was revised again incorrectly later on in the process (TE+n-);
- incorrect transediting not introduced as a first translation solution and kept as such in the target text (TE-n);
- incorrect transediting not introduced as a first translation solution and revised again incorrectly later on in the process (TE-n-).
- incorrect transediting not introduced as a first translation solution but revised again correctly later on in the process (TE-n+).¹⁰

No transediting at all (\emptyset).

For the data analysis, the absolute data of the various coding categories were transformed into relative data (i.e., relative to the number of transedited rich points). The sum of the percentages related to coding labels TE+1, TE+1-n, TE-1+n, TE-1, and TE-1-n sheds light on how frequently transediting was carried out immediately. Those pertaining to coding labels TE+n, TE+n-, TE-n and TE-n- and TE-n+ will address the frequency of delayed transediting. To examine the success rate of transediting (regardless of their immediate or delayed nature), we have divided the sum of TE+1, TE-1+n, TE+n and TE-n+ by the total

¹⁰ The coding categories TE+1-n and TE-n+ were not represented in the data of this study.

number of transediting traces and multiplied it by 100. The success rate of immediate transediting was calculated as follows: the sum of TE+1 and TE+1-n, divided among all instances of immediate transediting. A similar method was used for the success rate of delayed transediting: the sum of TE+n, TE+n- and TE-n+, divided among all instances of delayed transediting. Since these relative data were so small in frequency, they did not allow for statistical comparison between the experimental group and control group. However, their descriptive analysis complements the product analysis and yields insights into the moment of transediting, the revision related to transediting and the quality of transediting.

The answers to the questionnaires were statistically analysed, but these will not be addressed in the results. The cued retrospective interviews, which were transcribed and analyzed, provided more insight into the reasoning behind the use of transediting and possible lack thereof.

4. Results

In the following sections, we will discuss the effect of writing training on the transediting of the selected rich points by reviewing both product and process data.

4.1 Product data

4.1.1 Amount of transediting

Tabel 1 contains the descriptive statistical data for both the experimental group ($n=9$) and the control group ($n=8$) concerning the amount of transediting. In the posttest, the experimental group transedited on average more rich points in each category than the control group.

The between-group analysis revealed a significant difference between the experimental group and the control group in the posttest, in three out of four rich point categories: *Titles*, *Information structure* and *Illocutionary indicators*. The experimental group ($Mdn=1.50$) transedited more *Titles* than the control group ($Mdn=0.00$), $U=8.0$, $p=.002$, $r=-.67$. The participants of the experimental group transedited significantly more to obtain *action-driven titles* ($Mdn=.50$ vs $Mdn=.00$, $U=18.5$, $p=.034$, $r=-.48$) and *consistent titles* ($Mdn=1.00$ vs. 0.00 , $U=8.0$, $p=.002$, $r=-.69$).

Table 1. Descriptive data of the transediting of rich points by both groups

		Experimental group		Control group	
		Mean	SD	Mean	SD
Titles (max. 2)	Pretest	.44	.53	.25	.46
	Posttest	1.33	.65	.31	.46
Action-driven	Pretest	.00	.00	.00	.00
	Posttest	.47	.48	.06	.18
Consistency	Pretest	.44	.53	.25	.46
	Posttest	.86	.22	.25	.38
Information structure (max. 4)	Pretest	.89	.78	.50	.76
	Posttest	2.56	.82	1.06	.65
Micro-level	Pretest	.89	.78	.50	.76
	Posttest	1.36	.52	1.00	.63
Macro-level	Pretest	.00	.00	.00	.00
	Posttest	1.19	.54	.06	.18
Illocutionary indicators (max. 7)	Pretest	5.22	1.20	5.13	1.46
	Posttest	6.69	.33	5.47	.70
Terminology (max. 1)	Pretest	.56	.53	.25	.46
	Posttest	.53	.40	.44	.37

The experimental group ($Mdn=2.75$) also transedited the *Information structure* significantly more than the control group ($Mdn=1.00$), $U=5.5$, $p=.001$, $r=-.72$. However, within this rich point category, only transediting of *macro-level structure* yielded significant results: $Mdn=1.25$ vs. 0.00 , $U=4.5$, $p=.000$, $r=-.77$. The individual results revealed that eight out of nine participants of the experimental group showed increased transediting of *macro information structure*, whereas this was only the case for two out of nine participants when it concerned *micro information structure* (as three out of nine had already transedited this feature in the pretest). *Illocutionary indicators* also were transedited significantly more by the experimental group ($Mdn=6.75$) than by the control group ($Mdn=5.5$), $U=4.0$, $p=.001$, $r=-.76$. No significant difference was found regarding the transediting of

Terminology. Similar results as those reported above were obtained when the immediate and delayed posttest were treated as two data sets. The only exception was the *action-driven formulation of titles*, which did not prove to be significantly different between the two groups in the immediate posttest nor in the delayed posttest.

The within-group analysis (Wilcoxon signed rank test, one-tailed) did not show any significant learning effects from pretest to posttest for the control group. The opposite was true for the experimental group, which manifested a significant learning effect in three rich point categories. The participants of the experimental group transedited significantly more *Titles* in the posttest ($Mdn=1.50$) than in the pretest ($Mdn=0.00$), $z=-2.035$, $p<.05$, $r=-.48$. This significant increase could be observed in the rich point subcategory *Action-driven formulation*: $Mdn=0.00$ pretest vs 0.50 posttest, $z=-2.060$, $p<.05$, $r=-.49$. The same observation was true for *consistency of titles*: $Mdn=0.00$ pretest vs 1.00 posttest, $z=-1.811$, $p<.05$, $r=-.43$. Transediting of rich points pertaining to the category *Information structure* also increased significantly from pretest ($Mdn=1.00$) to posttest ($Mdn=2.75$), $z=-2.670$, $p<.01$, $r=-.63$. This learning effect was visible in both subcategories. The experimental group transedited *micro-level information structure* significantly more in the posttest ($Mdn=1.50$) than in the pretest ($Mdn=1.00$), $z=-1.757$, $p<.05$, $r=-.41$. Moreover, there was also a significant increase of transediting of *macro-level information structure*: $Mdn=.00$ pretest vs 1.25 posttest, $z=-2.539$, $p<.01$, $r=-.60$. Transediting of *Illocutionary indicators* also significantly increased after the treatment: ($Mdn=5.00$ pretest vs 6.75 posttest), $z=-2.552$, $p<.05$, $r=-.60$. No significant change could be observed for *Terminology*. When the posttest data were analyzed as two data sets, the following exceptions to the results reported above were observed. First, no significant learning effect could be observed for transediting of *micro-level information structure* when the immediate and delayed posttest were analysed separately (i.e., pretest-immediate posttest and pretest-delayed posttest). Second, a significant learning effect was confirmed for the rich point category *Titles*, but at subcategory level no significant changes could be observed.

Summarizing, writing training significantly increases the amount of transediting of *Titles* for *consistency*, of *macro-level information structure* and of *Illocutionary indicators*.

4.1.2 Translation quality of rich points

An increase in transediting of rich points does not necessarily automatically imply an increase in the translation quality of these rich points. Table 2 shows that the experimental group translated in the posttest on average more rich points correctly than the control group did, in three out of four rich point categories. The exception was the rich point category *Terminology*.

Table 2. Descriptive data of the translation quality of rich points by both groups

		Experimental group		Control group	
		Mean	SD	Mean	SD
Titles (max. 2)	Pretest	.00	.00	.00	.00
	Posttest	.92	.33	.25	.38
Action-driven	Pretest	.00	.00	.00	.00
	Posttest	.47	.48	.06	.18
Consistency	Pretest	.44	.53	.25	.46
	Posttest	.86	.22	.25	.38
Information structure (max. 4)	Pretest	.89	.78	.38	.74
	Posttest	2.17	.64	1.00	.60
Micro-level	Pretest	.89	.78	.38	.74
	Posttest	1.33	.50	.94	.56
Macro-level	Pretest	.00	.00	.00	.00
	Posttest	.83	.40	.06	.18
Illocutionary indicators (max. 7)	Pretest	2.44	1.67	2.50	2.56
	Posttest	5.39	.86	3.44	1.16
Terminology (max. 1)	Pretest	.22	.44	.13	.35
	Posttest	.28	.29	.34	.35

The between-group analysis showed that the writing training had a significantly positive effect on the translation quality of the rich points pertaining to *Titles (consistency)*, *Information structure (micro-level and macro-level)* and *Illocutionary indicators*. The experimental group ($Mdn=1.0$) translated significantly more rich points correctly than the control group ($Mdn=0.0$)

for the category *Titles* in the posttest, $U=7.5$, $p=.002$, $r=-.68$). Within this rich point category, only *consistency* in *Titles* yielded significant results: $Mdn=0.75$ (experimental group) vs $Mdn=0.00$, $U=8.5$, $p=.002$, $r=-.67$ (control group). Translation of the *Information structure* was also significantly better in the experimental group ($Mdn=2.50$) than in the control group ($Mdn=1.00$), $U=7.0$, $p=.002$, $r=-.68$. This was true for both *micro-level Information structure* ($Mdn=1.50$ vs 1.00 , $U=18.0$, $p=.045$, $r=-.43$) and *macro-level Information structure* ($Mdn=1.00$ vs. 0.00 , $U=5.0$, $p=.001$, $r=-.77$). The experimental group ($Mdn=5.75$) also translated significantly more rich points of *Illocutionary indicators* correctly than the control group ($Mdn=3.38$) after the treatment ($U=6.0$, $p=.001$, $r=-.70$). No significant difference was found with regard to translation quality of *Terminology*.

When we analyzed the immediate posttest and delayed posttest separately, similar results were found. However, there were two exceptions. First, the experimental group ($Mdn=6.00$) significantly outperformed the control group ($Mdn=3.00$) with regard to *Illocutionary indicators* in the delayed posttest ($U=7.5$, $z=-2.778$, $p<.01$, $r=-.674$), but not in the immediate posttest. A more detailed analysis at task level showed that this result can be contributed to differences in item nature between the two tasks of the immediate posttest: in case of the fabric shaver ST, only two items were transedited by all participants of both groups, whereas this was true for four items of the refrigerator ST. These items all concerned the infinitive form, which was more frequently present in the refrigerator ST. This explains that, when taking the mean of these two tasks, no significant difference could be observed between the two groups with regard to the transediting of *Illocutionary indicators* in the immediate posttest. Second, the significant difference between the two groups concerning the translation quality of *macro-level information structure* could only be observed in the immediate posttest: $Mdn=1.00$ experimental group vs $Mdn=0.00$ control group, $U=4.0$, $z=-3.383$, $p<.01$, $r=-.820$. On the contrary, the translation quality of the *micro information structure* was only significantly better in the delayed posttest: $Mdn=2.00$ experimental group vs. $Mdn=1.00$ control group, $U=18.0$, $z=-1.850$, $p<.05$, $r=-.449$.

The within-group analysis showed no significant changes in case of the control group, and thus no learning effect could be detected. A significant learning effect could be observed for the experimental group for the translation quality of *Titles (consistency)*, *Information structure (macro-level)* and *Illocutionary indicators*. Participants of the experimental group translated significantly more rich points pertaining to the category *Titles* correctly in

the posttest ($Mdn=1.00$) than in the pretest ($Mdn=0.00$), $z=-2.680$, $p<.01$, $r=-.63$. However, at subcategory level, *consistency* was the only rich point subcategory that yielded significant results: $Mdn=0.00$ pretest vs. 0.50 posttest, $z=-2.271$, $p<.05$, $r=-.50$. The experimental group also translated the rich points pertaining to *Information structure* significantly more correctly in the posttest ($Mdn=2.50$) than in the pretest ($Mdn=1.00$), $z=-2.670$, $p<.01$, $r=-.63$. In this rich point category, the translation quality of *macro information structure* manifested a significant change from pretest ($Mdn=0.00$) to posttest ($Mdn=1.00$), $z=-2.539$, $p<.01$, $r=-.60$. There was also a significant increase in translation quality of the *Illocutionary indicators* from pretest ($Mdn=2.00$) to posttest ($Mdn=5.75$), $z=-2.668$, $p<.01$, $r=-.63$. This increase in quality was visible among all nine participants. No significant change could be observed for *Terminology* for the experimental group: no participant improved his or her transediting of *Terminology* systematically after the pretest. The analysis of the posttest data as two data sets yielded similar results as those reported above.

Summarizing, writing training has a significantly positive effect on the translation quality of the rich points pertaining to *Titles (consistency)*, *Information structure (micro-level and macro-level)* and *Illocutionary indicators*. If we combine these findings with the results on the amount of transediting, we can observe that the beneficial impact of writing training primarily concerns the transediting of *Titles for consistency*, *macro-level information structure* and *Illocutionary indicators*.

4.2 Process data

For the process analysis of transediting, we have examined the log files and screen captures for quantitative data and the cued retrospective interviews for qualitative data.

4.2.1 Moment of transediting

For the log file analysis, we differentiated between traces of immediate (imm) and delayed (del) transediting and no (\emptyset) traces of transediting at all. Table 3 gives an overview of the relative data of these traces for the two groups.¹¹

¹¹ Totals may not equal 100% because of rounding.

Table 3. *Relative data on transediting traces*

		Experimental group			Control group		
		imm	del	∅	imm	del	∅
Titles	Pretest	17	11	72	13	0	88
	Posttest	46	22	32	16	2	83
Action-driven	Pretest	0	0	100	0	0	100
	Posttest	33	17	50	9	0	91
Consistency	Pretest	33	22	44	25	0	75
	Posttest	58	28	14	22	3	75
Information structure	Pretest	11	17	72	6	6	88
	Posttest	34	31	35	14	13	73
Micro-level	Pretest	22	33	44	13	13	75
	Posttest	44	26	29	28	23	49
Macro-level	Pretest	0	0	100	0	0	100
	Posttest	24	36	40	0	3	97
Illocutionary indicators	Pretest	75	3	22	70	7	23
	Posttest	93	4	3	76	4	21
Terminology	Pretest	56	0	44	25	0	75
	Posttest	50	3	47	44	0	56

These process data provide new insights into transediting that the product data in Chapter 3 could not offer, viz., the moment of transediting and certain patterns of transediting. From Table 3, we can deduce that if transediting was chosen as a translation solution, this was in general mostly carried out immediately, that is, as a first translation solution. This general preference for immediate transediting seems to apply to both the experimental and the control group. Yet, if we zoom in on the rich points categories, we can observe that some types of rich points seem to be more prone to immediate transediting than others. The transediting of *Illocutionary indicators* and *Terminology* was generally carried out immediately by the two groups. More importantly, this approach did not change (much) throughout the experiment since the analysis of the posttest data as two data sets confirm this general picture.

The preference for immediate transediting is less clear-cut for the categories *Titles* and *Information structure*. This is especially true for the experimental group. When we approached the posttest as one data set, these participants seemed to have the following preference: immediate

transediting for *Titles* (*action-driven* and *consistency*) and *micro-level information structure*, delayed transediting for *macro-level information structure*. However, analysis of the immediate and delayed posttest data showed much more variation, also among individual participants. No clear preference could be observed for the transediting of *Titles* and *micro-level information structure* in the immediate posttest, but only in the delayed posttest (viz., for immediate transediting). Transediting of *macro-level information structure* was preferably carried out immediately in the immediate posttest, but this preference changed to delayed transediting in the delayed posttest. The control group was in comparison rather consistent in its approach of transediting *Titles* and *Information structure*. *Titles* were almost exclusively transedited for consistency and this is primarily done immediately. Transediting of *Information structure* concerned mainly the *micro-level*, but no clear preference of a particular transediting approach could be ascertained. The analyses of the immediate and delayed posttest as well as individual analyses confirm these observations.

4.2.2 Recursivity in translation of rich points

The (slight) difference in transediting approach between the two groups also shows a distinct degree of recursivity, i.e., how many times the participants revised their translation of the rich points. The coding labels TE+1-n, TE-1+n, TE-1-n, TE+n, TE+n-, TE-n- and TE-n+ are all examples of recursivity (see Figure 2). An increase in the relative frequency of all these coding labels among all translation solutions implies an increase in recursivity in the translation of the rich points. Table 4 shows how the relative number of revised translation solutions (revisions) evolves from pretest to posttest, as well as the success rate of these revisions (sum of TE-1+n, TE+n and TE-n+, divided by all examples of recursivity and multiplied by 100).

As shown in Table 4, the increase in recursivity is most striking among the participants of the experimental group, and especially in the rich point categories *Titles* and *Information structure*.

Table 4. Evolution in recursivity in the translation of rich points by the two groups (relative data)

		Experimental group		Control group	
		Revisions	Success rate	Revisions	Success rate
Titles	Pretest	11	0	0	N/A
	Posttest	33	75	11	86
Action-driven	Pretest	0	N/A	0	N/A
	Posttest	19	57	9	67
Consistency	Pretest	22	0	0	N/A
	Posttest	47	82	13	100
Information structure	Pretest	19	71	6	50
	Posttest	40	79	14	94
Micro-level	Pretest	39	71	13	50
	Posttest	35	92	25	94
Macro-level	Pretest	0	N/A	0	N/A
	Posttest	44	69	3	100
Illocutionary indicators	Pretest	13	50	18	70
	Posttest	19	85	9	76
Terminology	Pretest	0	N/A	13	100
	Posttest	6	100	0	N/A

If we differentiate between immediate and delayed posttest, and take into account the individual results, the following observations can be made. Within the experimental group, recursivity increases from pretest to delayed posttest (except for *micro-level information structure*), with a peak at the immediate posttest. Moreover, this increase is observable across all participants and nearly all rich-point categories. There is one exception: the revision behaviour in the creation of *action-driven titles* is characteristic of only one out of nine participants. The control group also manifested an increased recursivity, but only in the translation of *Titles* and *Information structure* and with much lower relative data than the experimental group. Furthermore, individual analyses show that this trend is not representative of every participant of the control group. For example, one participant is primarily responsible for the rise in recursivity for the translation of *consistent titles*, and the same is true for *micro-level information structure*.

The success rate of these revised translation solutions increased steadily throughout the experiment for the two groups. In other words,

the increased recursivity proved to be beneficial for both groups. However, a more refined look at the immediate and delayed posttest shows that there are two exceptions to this general trend, which both concern the experimental group. First, there is a considerable drop in success rate for the revision of *macro-level information structure* from the immediate to the delayed posttest: from 100% to 38%. The individual analyses show that two participants alone are responsible for this decline in revision quality. Second, the success rate for revision of the rich point subcategory *consistency* in *Titles* also decreases from immediate to delayed posttest, to 75%.

4.2.3 Success rate of transediting

The process data of transediting, and in particular the coding system, has allowed us to analyse how successful the transediting was that had been carried out during the translation process. Table 5 gives an overview of the absolute numbers of transediting traces (columns abs) and the relative frequency of successful transediting (columns rel) in the pretest and the posttest.

We can observe that the success rate of transediting increases considerably from pretest to posttest in both groups across all rich point categories. However, the absolute values of the experimental group are much higher than those of the control group. Therefore, we can only state with certainty that throughout the experiment, the experimental group transedited not only considerably more but also better, whereas the control group transedited only better.

The coding system allowed us to assess the success rates of immediate and delayed transediting. These data reflect the same patterns as shown in Table 5: both groups are becoming increasingly better at these two transediting approaches from pretest to posttest. However, a comparison between the two groups and between the two transediting approaches is difficult or even unwarranted for several reasons.

Table 5. *Success rate of transediting of rich points in the translation process*

		Experimental group		Control group	
		abs	rel	abs	rel
Titles	Pretest	5.00	0.00	2.00	0.00
	Posttest	12.25	67.35	2.75	72.73
Action-driven	Pretest	0.00	N/A	0.00	N/A
	Posttest	4.50	27.78	0.75	66.67
Consistency	Pretest	5.00	0.00	2.00	0.00
	Posttest	7.75	90.32	2.00	75.00
Information structure	Pretest	10.00	80.00	4.00	50.00
	Posttest	23.50	82.98	8.75	91.43
Micro-level	Pretest	10.00	80.00	4.00	50.00
	Posttest	12.75	94.12	8.25	90.91
Macro-level	Pretest	0.00	N/A	0.00	N/A
	Posttest	10.75	69.77	0.50	100.00
Illocutionary indicators	Pretest	49.00	44.90	43.00	46.51
	Posttest	61.00	79.51	44.50	62.36
Terminology	Pretest	5.00	40.00	2.00	50.00
	Posttest	4.75	52.63	3.50	78.57

First, such a comparison is based on even fewer data than the already small absolute values shown in Table 5. Second, the absolute values are unequally distributed across immediate and delayed transediting, as well as across the two groups. Instead, we consider it more interesting to focus on exceptions to the general patterns of increasing success rate of transediting and the preferred approach of immediate transediting. First, we will address those cases in which the success rate of immediate transediting decreases or is relatively low in the posttests. Second, we will examine whether the less frequently used approach, i.e., delayed transediting, is detrimental to transediting quality. Third, we will zoom in on the success rates of the two transediting approaches in those rich point categories where no clear preference for a particular transediting approach could be observed.

Both groups are becoming increasingly better at immediate transediting from pretest to posttest. However, there are three minor exceptions to this pattern, all registered in the data of the experimental group. First, the experimental group registered a slight drop in quality of immediate transediting for micro-level information structure in the

posttest (from 100% in the pretest to 94% in the posttest). Second, the low success rate of immediate transediting of action-driven titles in the posttest is more striking: 8%. In contrast, delayed transediting of this rich point, albeit less frequent in occurrence, has a much higher success rate (viz., 67% in the posttest). Third, another rich point category in which the experimental group scores relatively low is terminology: a slight increase in success rate can be observed, from 40% to 50% from pretest to posttest.

As we have seen in Section 4.2.1, immediate transediting is the approach preferred by the two groups, especially for the transediting of *Illocutionary indicators* and *Terminology*. Analysis of the success rate of delayed transediting for all rich point categories in both groups shows that delayed transediting is not detrimental for transediting quality. The lowest success rate of delayed transediting in the posttest was registered in the experimental group and concerned the rich point category of *Illocutionary indicators*: 56%. All other success rates were well above this percentage.

Section 4.2.1 also reported that no clear preference for a particular transediting approach was discernible regarding the rich point categories *Titles* and *Information structure*. For the experimental group, a specific pattern could be observed for *Titles*: transediting *Titles* for *consistency* was more successful if done immediately, whether transediting for a more *action-driven formulation* had a higher success rate if not carried out as a first translation solution. With regard to *micro-level information structure*, it did not make much difference for the experimental group whether they transedited this type of rich point immediately or later on in the translation process (94% vs. 95% respectively). This was not so much the case for transediting of *macro information structure*: 82% and 62% were the success rates of immediate and delayed transediting respectively. Moreover, the change in transediting approach from immediate to delayed posttest (going from immediate to delayed transediting) did not prove to be beneficial for the experimental group: the success rate of delayed transediting in the delayed posttest reached 38%, whereas immediate transediting was flawless. The control group showed no clear preference for a particular transediting approach when transediting *micro-level information structure*. This did not prove to be detrimental for transediting quality, as both transediting approaches had high success rates in the posttest: 89% vs. 93% of immediate and delayed transediting respectively.

4.2.4 Reasons for transediting

In the previous sections, we have reported on the amount and moment of transediting. The cued retrospective interviews provided valuable qualitative information on the reasons for transediting, and, consequently, on the transfer of the treatment to the translation task.¹² Below, we will summarize the most important verbalizations distinguishing between the various rich point categories.

Titles

The ST consisted of several content sections, each introduced by a title. Since it is important that readers can easily locate the information that they need, these titles ought to be formulated in an action-driven (using an object and action verb) and consistent manner, which was not the case in the STs in the present study.

During the interviews, the participants hardly addressed the need for action-driven titles, which is not surprising given the lack thereof in the product data and log files. This might suggest a lack of awareness of this feature. Only two participants (one from the experimental group and one from the control group) hinted indirectly to the presence of an object and an action verb in titles of user manuals. The participant of the control group merely mentioned it as one option out of many. Moreover, she could not explain why she had not used this formulation systematically in her translation. On the contrary, the participant of the experimental group was more decisive and stated that “this was a more personal approach (of the reader)” and “this is how the target audience is addressed in these texts”. The lack of an object in the title was addressed by two participants of the control group, who decided to leave the object out of the title for motives of redundancy: “We are still talking about the same thing (i.e., a refrigerator), so I thought that this might be redundant”.

Opposed to the lack of comments about action-driven formulation of titles, the retrospective interviews contained many references to consistent titles: six out of nine participants of the experimental group explicitly used consistency as a justification for their transediting, as well as three out of eight participants of the control group. There are a number of interesting aspects to observe with regard to the verbalizations about

¹² The stimulated retrospective interviews yielded more insight into the use of transediting than the questionnaires. These two data methods were used to be able to connect objective data registration (via keystroke logging) with subjective reflection (and perception). However, the latter has proven to be more difficult with the questionnaires than by means of the retrospection, which may be caused by the more open and abstract nature of the questions posed in the questionnaires.

consistency in titles. First, the experimental group seems to be more aware of the text conventions regarding consistent titles than the control group. This can be concluded on the basis of the verbalizations of six out of nine participants. It is striking that the other three participants had in fact formulated consistent titles in their translation products, but just did not mention this aspect. This could hint at automatized skills (Ericsson and Simon, 1984/1993), but, since these participants are all students and have very little experience in translating user manuals, it is unlikely that their processes are already fully automatized. In either case, it does seem that their knowledge of text conventions seems to be internalized enough as to observe discrepancies between the ST and the text norms in the TC and to solve these without much effort. This does not appear to be the case for the control group: the participants of the control group who did not mention consistency of titles during the interview simply did not transedit the titles. Moreover, one of the three participants of the control group who mentioned consistency of titles during the interview did not systematically implement this reasoning in her translation process. When she was asked about this discrepancy between her reasoning and the process data, she could not give any other explanation other than lack of attention. Second, none of the verbalizations regarding consistency of titles are level-3 verbalizations (Ericsson & Simon, 1984/1993): consistency in titles is merely presented as a norm and not explained, justified or criticised.¹³ It is possible that the participants deemed this elaboration redundant, since the interviewer had also been partly responsible for giving the treatment and therefore might have been thought to possess this knowledge. In addition to consistency and action-driven titles, the retrospective interviews shed more light on another set of criteria used in the transediting of titles: usability and text logic. Three participants of the experimental group had introduced an additional title in their translations and it is in their verbalizations that level-3 comments surface. All three stated that they had decided to break down a particular text segment, because they felt it contained too many steps for the reader to carry out. Moreover, they believed that the title as formulated in the ST did not cover adequately what the ST segment was about. In the ST about the fabric shaver, the first title indicated that there would be information on the usage of the device. However, the first few lines instructed the reader how to insert the batteries into the device. The participants did not consider this to be very

¹³ Level-3 verbalizations imply that participants not only describe their thoughts, but also interpret and explain them.

logical, which prompted them to introduce a title stating either what to do before usage or how to insert the batteries. In case of the ST about the refrigerator, a similar observation was made.

Information structure

The STs used in the present study contained four rich points related to illogical and non-chronological information structure, two of them at micro-level (i.e., at and below sentence level) and two at macro-level, i.e., above sentence level. Since non-chronological information structure can cause hazardous situations, it is important that translators correct this in the TT.

Conscious consideration of information structure became visible during the retrospective interviews. Five participants of the experimental group and five of the control group addressed the need for chronological order of information at a micro-textual level. Several motives were mentioned by the participants to contextualise this text convention, but interestingly enough the linguistic argument “it just doesn’t sound good, it sounds better if you turn the sentence around” was predominant among all participants regardless of condition. It is interesting to observe that the awareness of chronological information order was present among participants of the experimental group and the control group alike. Two participants of the control group even referred to the received treatment (i.e., theory session) as their knowledge source for creating a chronological and logical information sequence in user manuals. The participants of the experimental group did not refer to the treatment but used a more general perspective. Some even took their own experiences of reading user manuals as a point of reference. Despite their expressed awareness of the importance of information structure, the participants of the control group do not seem to be aware of or be able to apply this knowledge above sentence level. Critical analysis of the ST macrostructure was visible in the verbalisation of one participant only. Although this participant had found it strange that the directive to clean the refrigerator before usage was only mentioned in the final paragraph, she did not change the text order: “I just follow the [source text]... because it is mentioned like this [in the source text] as well... and I want to comply a bit with the source text”. Five participants of the experimental group referred to transediting on macro-textual level, justifying it with a variety of reasons: text logic (chronological order of information), accommodation to the users’ reading manners (reading and carrying out the instructions simultaneously) and safety (avoiding dangerous situations). During the interviews, it also

became clear why some participants of the experimental group did not implement this macro-textual convention in a systematic manner. These participants had introduced bullet points in the TT to highlight the various steps of an instruction. However, when faced with a warning that they felt had to be mentioned before the respective instruction, they did not know where to introduce it in the TT. They wanted it to stand out enough to be noticed as a warning (and not a directive), but they did not feel comfortable to place it before the bullet points. As a result, they kept the warning in the same position as featured in the ST but put it in bold or in italics. In the verbalizations, their ability to differentiate between instruction and information became evident as well as their awareness of the importance to explain to the users why a certain instruction must be carried out. However, they did not succeed in taking the next step of incorporating that into the text design.

Illocutionary indicators

The grammatical form to express instructions must be in compliance with the textual conventions in the TL, i.e., the imperative form in Dutch. The STs contained seven illocutionary indicators that were not formulated in the imperative form in Spanish and therefore could not be translated literally but had to be transedited.

Given the relatively high frequency of transediting of the illocutionary indicators in the translation products, it is surprising that this text feature is hardly addressed in the participants' verbalizations. There can be multiple reasons for this. However, the verbalizations suggest that some participants (mainly those pertaining to the control group) did not recognize these features as translation problems (in the sense of Nord, 1991), and others (from the experimental group) no longer considered these features to be problematic and had (nearly) automatized their processing. The participants of the control group do not mention illocutionary indicators when asked about the conventions of this text genre in the TC. In fact, if the verbal moods were brought about during the interviews, four participants of the control group conveyed that they actually did not know whether an imperative or an infinitive was the appropriate form. Moreover, two others expressed that they found the passive form to be "more serious and thus more appropriate for a user manual". The few participants of the experimental group who mentioned illocutionary indicators during their interviews decisively stated the imperative to be the appropriate form. Moreover, they mentioned consistency as a motive for using imperatives throughout the TT. The retrospective interviews

also provided more insight into the reasons why particular Spanish illocutionary indicators were not transedited with an imperative in Dutch. First, the “future tense in the passive voice” form (*se cerrará* and *se realizará*) was simply not recognized as an illocutionary indicator by the participants (of both groups) that were asked about it during the interviews. Even the participants who decided to transedit it, seemed to be unaware and merely stated that “this was really strange in Spanish as well, you cannot use a future tense in Dutch, plus [...] it is an action that you have to carry out, it will not happen by itself”. Hence, they considered this form to be the future tense of a reflexive verb (and not the passive voice), although the directive meaning of this particular form had been explicitly mentioned in the materials of the theory session. Second, the location of the illocutionary indicator within the sentence appeared to have influenced the decision to transedit, primarily among the participants of the experimental group. If the illocutionary indicator was preceded by a non-finite clause, they felt that the imperative would cause a rather unnatural wording in Dutch. One participant of the experimental group commented on the ST sentence *Para limpiar la parte interna [...], proceda de la siguiente manera*: “These verbs were really difficult to [translate]...because, well, Yes ‘to clean, do this as follows’, that sounded very strange to me [...] so I found it very difficult to combine *limpiar* and *proceder*”. Similar observations were made regarding ST sentences of the sort ‘before doing y, do x’. Hence, the ST sentence structure seemed to have overruled the participants’ genre knowledge and hindered them to come up with alternative formulations that would allow an imperative in Dutch, for example by using modal particles such as *dan*.

Terminology

It is important to use terminology consistently throughout user manuals, because synonyms for the same concept may cause confusion. In the STs used in this study, terminological precision and consistency was sometimes breached by the use of synonyms or hypernyms. In light of the translation brief, this had to be corrected in the Dutch TT.

In the analyses of the product data and log files, terminology has proven to be object of (very) little transediting. This aspect was almost completely absent from the verbalizations too. What is striking, however, is that nearly all participants (both of the experimental and control group) who addressed terminology stated that they had attempted to be consistent in word choice. Yet, they mentioned this only in relation to those terms that were repeated consistently throughout the ST (e.g., *posición* in the ST about the fabric shaver). The participants provided a different reasoning for

those ST instances where synonyms (*compartimento congelador* vs. *congelador*) or hyponyms (*aparato* vs. *quitapelusas*) were used: they decided to follow the ST, either because of uncertainty about the composition or functioning of the device, or simply because the ST contained lexical variation.

Other

The retrospective interviews also proved to be useful for obtaining information about TT formulation issues other than the rich points. When process excerpts showed omissions of ST terms or even clauses, nearly all participants (of both groups) justified their decisions by claiming that the ST was redundant due to similar terminology or content in the previous sentence: “I just left it (i.e., fabric in fabric reservoir) out because it is already mentioned in the previous sentence. I thought it was rather clear what it was about”. The participant in question did not seem to be aware that this omission led to inconsistent (and imprecise) wording in the TT. Another reason for omissions mentioned in the verbalizations was that the participants considered the ST content to be rather straightforward and therefore unnecessary to mention to the user. An example is the ST sentence *Hay que insertar 4 pilas alcalinas (4 x 1,5V AA/LR6) en el compartimento de las pilas siguiendo las indicaciones de polaridad*. One participant had decided to omit *siguiendo las indicaciones de polaridad* in the TT stating that this information is unnecessary, because “all devices have this [...] it is shown on all devices but is never mentioned anywhere, on a camera or something else, well everything with batteries”. From the verbalizations, we can also conclude that a number of ST omissions were caused by either the participants’ inability to understand the ST (e.g., *toma de tierra*) or simple carelessness.

Translation brief

In addition to the underlying motives of ST omissions, the retrospective interviews shed light on the major strategies used by the participants to meet the requirements of the translation brief. In the translation brief, it had been stipulated that the TT should comply with the quality requirements of a user manual in Dutch. The following quality criteria were mentioned in the translation brief: text conventions, comprehensibility, readability and consistency. During the interviews, several participants of both groups were asked to elaborate on what they had done specifically to achieve this. Most participants of the control group could not contribute any specific focal points other than those stated in the translation brief or they provided strategies that in fact went against the quality criteria, such as using passive

forms (as a substitute for the 1st person plural construction in Spanish). On the contrary, the participants of the experimental group cited several strategies: using short (preferably single-clause) sentences containing one instruction step; presenting the information in a chronological and logical manner; avoiding redundant formulations by using concise and clear wording; addressing the reader in a consistent manner (imperatives, as well as the consistent use of either *u* (i.e., formal equivalent of you) or *jjj* (i.e., informal equivalent of you) throughout the TT).

5. Discussion

In this study, we have examined the effect of writing training on transediting by exploring process data in relation to product data. This section contains a general discussion of the findings of this study, as well as an interpretation of these findings in light of cognitive and constructivist perspectives on knowledge acquisition in instructional design.

5.1 General discussion

We will use the research questions formulated in Section 2 of this chapter to structure the general discussion of the findings.

5.1.1 Effect of writing training on transediting

From the results reported in Section 4 of this chapter, we can conclude that writing training has indeed a positive effect on transediting. The experimental group transedited significantly more rich points than the control group, which also led to a significantly better translation of these rich points. Process data show that writing training yields a more detailed understanding of genre conventions in the TL, which seems to heighten translation students' awareness of these conventions and related acceptability norms during their translation process. The participants of the experimental group were not only more aware of the translation problems posed by the rich points than the control group. They were also more reflective about these issues, as has been manifested by the increase in recursivity. This provides some empirical evidence for the hypotheses formulated by Meyer and Russell (1988), Jakobsen (1994) and Göpferich (2004), who have advocated the use of writing training in translator education based on their own positive pedagogical experiences. Writing training also stimulates translation students to take into account more factors for the drafting of the TT than the content and linguistic transfer

of the ST alone. The retrospective interviews show that the participants of the experimental group consciously considered the function of the TT and its use by the target audience. The reading habits of the target audience, its needs and expectations frequently informed their decision to transedit. This behaviour is characteristic of experienced translators, who—in comparison to novice translators—adopt a more global approach during the translation process (cf. Hönig's (1995) macro-strategy and Jääskeläinen's (1993) global strategy). In addition, writing training cultivates translation students' critical assessment of the ST. The participants of the experimental group did not only review the ST more critically to observe discrepancies with the text conventions of the TC. They also appeared to evaluate more carefully the ST content in general, and its text logic in particular. This critical stance manifested itself in the transediting of information structure. Another example is the introduction of extra titles to improve the link between the title of a particular section and its content, and to foster usability (by limiting the number of steps).

5.1.2 Effect of writing training on transediting of micro-textual and macro-textual features

Writing training does not influence transediting on all textual levels, since only *consistency* in *Titles*, *macro-level information structure* and *Illocutionary indicators* yielded significant results. Transediting of most micro-textual features, such as *action-driven titles*, *micro information structure* and *Terminology*, was not or not significantly influenced. It is rather complicated—if not impossible—to find clear-cut indicators in the product and process data that explain why the writing training did not affect *all* rich point categories. Therefore, we will address a number of plausible explanations. First, the participants may have perceived some issues in the treatment more strongly than others (e.g., consistent titles instead of action-driven titles). Extreme care was taken during the design and instruction of the treatment to not emphasize certain aspects more than others, but it is very difficult to control participants' information processing. Second, the treatment only encompassed four hours of practical sessions, which might have been too limited for the participants to fully process the information they received. As Bransford, Brown and Cocking state, “learning cannot be rushed; the complex cognitive activity of information integration requires time” (1999, p. 46). Third, even if the participants had been able to internalize *all* information from the treatment, a number of factors may have prevented them to employ it all. Lack of transediting in the translation

product does not necessarily have to imply a lack of awareness of the translation problem posed by a particular rich point. The verbalizations point out cognitive overload (i.e., inability to juggle all cognitive demands surrounding a certain translation problem or just simple oversight). This would not be surprising since novice translators are characterised for having trouble interconnecting the relevant knowledge necessary for efficient and successful translation performance (Risku, 1998). More empirical research is needed to confirm this.

Yet, these reasons do not explain why writing training primarily altered the transediting of macro-textual features. This result is open to several, interrelated interpretations. First, a plausible explanation may be found in the abstract nature of the two rich point subcategories that are affected by the writing treatment: *consistency* in *Titles* and *macro-level information structure*. These rich points concern higher levels of abstraction, which are less bound by linguistic aspects. *Macro-level information structure* is related to issues of coherence and to the order in which content is given to the readers. *Consistency in titles* concerns TT cohesion. Studies have shown that abstract knowledge representation enhances transfer of knowledge to new situations (Bransford, Brown & Cocking, 1999, pp. 51–52), which, in this case, would constitute a transfer from a monolingual writing context to a multilingual translation context. However, this reasoning does not seem to apply to *Illocutionary indicators*, since they are linguistic and micro-textual elements. So, why are these rich points significantly impacted by the writing training, and the other micro-textual features (i.e., *Terminology*, *action driven*¹⁴ *Titles* and *micro-level information structure*) are not? *Illocutionary indicators* are for each and every instruction the same in Dutch: the imperative form. This implies a certain degree of consistency, which perhaps makes it easier

14 The lack of transediting for action-driven titles could in theory be (partly) caused by the ST order and the aim to create consistent titles. If the first title of the ST does not contain an object, it is likely that for consistency purposes the translator will not use an object in the second title in the TT either (even though the ST features one). The ST used in the pretest and the ST about the fabric shaver (immediate posttest) did not contain an object in the first title, but the ST about the refrigerator (immediate posttest) and the ST used in the delayed posttest did. Consequently, we ought to find a difference between these two sets of texts if the ST title order indeed influences the decision to use an action verb and object in titles. However, this is not the case: there are still more participants who create consistent titles without using the combination of an action verb and an object. The retrospective interviews confirm that there is indeed a major focus on consistency among the participants, but they also hint at a lack of awareness of the action-driven formulation of titles as a specific text convention of user manuals. This leaves unresolved the question why only consistency in titles was significantly altered by the writing training, and not the rich point subcategory of action-driven titles. It might be that the (unwanted and/or implicit) emphasis on certain aspects and/or the perception and conscious processing thereof by the participants also has exerted a great influence in this case.

to cognitively control this feature. The exclusive impact on issues related to higher levels of abstraction, which are less bound by linguistic aspects, may be linked to another issue: ST interference.

Second, ST interference is a factor that cannot be ignored in this discussion. According to Toury, “in translation, phenomena pertaining to the make-up of the source text tend to be transferred into the target text” (1995, p. 275). This ST interference may affect all levels of the TT in a negative way and “can be categorized as cultural, pragmatic, text-linguistic, semantic, syntactic or stylistic errors” (Hansen, 2010, p. 385). Yet, in the present study, the participants of the experimental group are able to control and avoid ST interference at macro-textual level only. This is striking: the focus on macro-textual features is characteristic for professional translators, whereas novice translators usually pay more attention to the micro-textual level (Göpferich, 2008). The data from this experiment suggest that writing training helps translation students to jump to that next level of taking into account the bigger picture of the TT. However, by doing so, these students seem to forget to keep paying attention to the micro-textual level. This is also demonstrated by the unnecessary ST omissions by some participants of the experimental group (see Chapter 3). It remains unclear why control of ST interference is more feasible at macro-textual level than at micro-textual level. One plausible explanation is that it might be cognitively easier to control ST interference for *macro-level information structure*, *consistent titles* and *Illocutionary indicators*, as fewer factors have to be juggled simultaneously. Restructuring information order above sentence level is less linguistically bound and primarily entails solving conflicting coherence. Moreover, *macro-level information structure* is most frequently restructured later on in the translation process (i.e., delayed transediting). The log files of those participants who transedited it immediately, show that they first selected the right location, paused (even up to 30 seconds) and then typed in their translation of the corresponding ST sentence. This means that it appears to be easier for the participants to separate the stage of changing text order from the stages of transfer of the verbal ST message into a preverbal and, subsequently, verbal TT message. In the case of *micro-level information structure*, there might be more issues at play at the same time: linguistic-structure of the main and subordinate clauses, and choice of the right illocutionary indicator—and coherence issues. These issues are likely to be solved simultaneously, in the stage of transferring the preverbal TT message into a verbal one. Furthermore, we can observe in the retrospective interviews that this translation problem

is primarily diagnosed as a linguistic problem and not as a problem in information structure. Flawed problem diagnosis may consequently hinder correct implementation of acquired genre knowledge. Transediting of *Titles for consistency* is likely to take up less cognitive effort than the creation of *action-driven titles*, since translators build on a previous translation solution—the translation of the first title—when transediting for consistency. As we have argued in the previous paragraph, transediting of *Illocutionary indicators* may require relatively little cognitive effort, because there is only one dominant form in Dutch. On the contrary, consistency in *Terminology* seems less controllable, because there is a priori no fixed answer. The translator does not only have to detect terminological variation in the ST, but must also make a choice between the synonyms used in the ST.

Third, many of the linguistic, micro-textual problems that are characteristic for the translation tasks of this study may perhaps not surface as frequently in writing. In the writing training, the experimental group carried out rewriting and writing exercises. In the rewriting exercises, they had to rewrite STs that contained—alongside non-linguistic flaws—a number of linguistic, micro-textual problems, such as non-engaging titles, non-chronological micro-level information structure and inconsistent terminology. These problems were addressed during the discussion of the participants' solutions. However, it remains unclear whether the participants consciously perceived those issues to be problematic when drafting the new text, since they used these STs primarily as information (content) sources to create new texts. In the writing exercises, the participants were trained to draft instructive texts from scratch by using bullet points or single-clause sentences to structure the emerging text. Consequently, micro-textual, linguistic problems such as the order of main and sub clauses, and illocutionary indicators placed at the end of a sentence, did not surface much. Inconsistent terminology was also not a major issue: if or precisely because writers start from a mental, non-linguistic construct, they are less likely to fall into the trap of lexical variation. This might explain why transediting of micro-textual elements was not affected by the writing training.

5.1.3 Effect of writing training on the moment of transediting

The present study yielded a number of interesting insights with regard to the moment of transediting. First, transediting is mostly carried out instantaneously, i.e., as the first translation solution visible in the log file. In other words, if participants are aware of the need for transediting of

a particular rich point, they tend to implement transediting immediately. Since these findings are based on keystroke logging data alone, we cannot exclude the possibility that other translation solutions (e.g., a literal translation) may have passed through the participants' minds prior to drafting, and that, consequently, immediate transediting has been the result of internal revision.

Second, some types of rich points seem more prone to immediate transediting than others: in this study, *Illocutionary indicators* and *Terminology* were almost always transedited immediately, whereas no clear preference could be ascertained for the transediting of *Titles* and *Information structure*. It appears that the choice of a particular transediting approach might be related to the grammatical hierarchy of the constituent that requires transediting. Transediting of *Illocutionary indicators* and *Terminology* usually concerns words or phrases, whereas transediting of *Information structure* and *Titles* usually affect clauses or even sentences. However, this interpretation cannot be confirmed by the current process data and needs further empirical exploration.

Third, the findings regarding the moment of transediting, in combination with the data on recursivity, suggests that some rich points are more consciously transedited than others. *Illocutionary indicators* are almost always transedited instantaneously without being revised (much) later on in the translation process. This suggests that the transediting of this type of rich point is almost automatically, as it takes place in the cognitive flow without any interruptions that may point to problem-solving activities. The rich points *Titles* and *Information structure* appear to be more consciously processed rather than automatically, as there is no clear preference discernible for immediate transediting without revision in the two groups or among the participants individually. Detailed pause analysis could shed more light on the difference in processing of these types of rich points, but was beyond the scope of this study.

Fourth, writing training does not seem to have influenced the moment of transediting much. The preference for immediate transediting of *Illocutionary indicators* and *Terminology* did not change after the treatment. The transediting of *Titles* and *Information structure* increased significantly after the writing training, but this implied a rise of immediate and delayed transediting alike. Much more striking is the rise in recursivity in the translation of rich points after the writing training, as well as the more frequent use of delayed transediting among participants of the experimental group than among those of the control group. Therefore,

writing training appears to have influenced the amount and quality of transediting, as well as the degree of reflection about transediting, but not so much the moment of transediting.

5.2 Discussion inspired by cognitive and constructivist perspectives on knowledge and learning

In the previous section, we have attempted to explain and contextualise the effect of writing training on the transediting of the experimental group. These interpretations were primarily based on the nature of the rich points, ST interference and cognitive overload. However, it is also interesting to address the significant difference in transediting between the two groups, since these may be caused by differences in knowledge acquisition and construction due to the different treatment. To explore the results from this angle, learning theories and instructional design models may provide an interesting theoretical framework. Given the limitations of this chapter, we will discuss exclusively on how two models of instructional design may help us to further interpret the findings of this study: Bloom's revised knowledge taxonomy and related cognitive processes by Anderson and Krathwohl (2001), and Biggs and Tang's (2011) SOLO taxonomy. These taxonomies have been influenced by cognitive and constructivist learning theories.

Anderson and Krathwohl's (2001) revision of Bloom's taxonomy provides a two-dimensional framework for educational objectives, describing the interrelationships between knowledge and cognitive processes. As shown in Figure 3, these two dimensions consist of various categories that are hierarchically ordered and grow more cognitively complex in the case of cognitive processes, and more abstract in the case of knowledge. In this continuum, there might exist certain overlap among the categories. In the knowledge dimension of their framework, Anderson and Krathwohl distinguish between *factual*, *conceptual*, *procedural* and *metacognitive knowledge*. The two former types of knowledge can be defined as subtypes of declarative knowledge, "knowing what", but they differ in their specificity and the manner in which they are organised. *Factual knowledge* refers to the knowledge of discrete, isolated 'bits of information', whereas *conceptual knowledge* implies "more complex organized knowledge forms" (2001, p. 42). *Procedural knowledge* is usually defined as "knowing how to do something": it comprises knowledge of procedures, sequences of steps, as well as the knowledge of when and where to use which procedure (2001, p. 52). *Metacognitive knowledge* is "knowledge about cognition in

general as well as awareness of and knowledge about one’s own cognition” (2001, p. 55). It includes in this taxonomy strategic knowledge, knowledge about cognitive tasks and self-knowledge. The cognitive process dimension of their framework is structured in the following processes: *Remember, Understand, Apply, Analyze, Evaluate* and *Create*. The first (remember) is most closely related to retention of knowledge, whereas the other five imply an increasingly more meaningful learning process aimed at knowledge transfer.

Cognitive process dimension						
Knowledge dimension	1. Remember	2. Understand	3. Apply	4. Analyze	5. Evaluate	6. Create
A. Factual knowledge						
B. Conceptual knowledge						
C. Procedural knowledge						
D. Metacognitive knowledge						

Figure 3. Anderson and Krathwohl’s (2001) revision of Bloom’s taxonomy.

A similar, yet slightly different, framework is Biggs and Tang’s (2011) SOLO taxonomy, which is also centred on learning outcomes.¹⁵ This taxonomy, visualized in Figure 4, emphasizes the complexity of the knowledge acquired by distinguishing between different levels of understanding (and consequently, performance). Briggs and Tang describe in the SOLO taxonomy how learners’ understanding of a certain topic can grow in complexity, “becoming more structured and articulated as it develops” (2011, p. 86). They perceive two stages of learning: (1) quantitative learning, “when the amount of detail in the student’s response increases”; (2) qualitative learning, “when that detail becomes integrated into a structural pattern” (p. 87). Quantitative stages of learning take place before the qualitative stages. This is visualized by means of five levels of understanding, which build on one another. These levels go from *prestructural, unistructural, multistructural, relational* to *extended abstract*. The *unistructural* and *multistructural* levels comprise quantitative learning (i.e., knowledge increases), whereas the *relational* and *extended abstract* levels imply

15 SOLO stands for “structure of the observed learning outcome” (Biggs & Tang, 2011, p. 87).

qualitative learning (i.e., understanding deepens). In what follows, we refer back to both models.

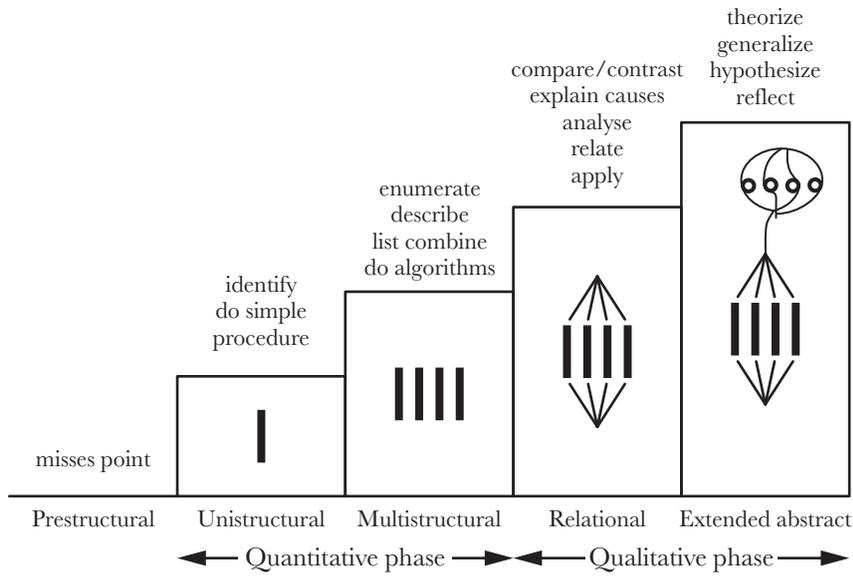


Figure 4. SOLO taxonomy (Biggs & Tang 2011, p. 91).

Genre knowledge

The first explanation for the impact of writing training on transediting may be found in the type of genre knowledge acquired from the treatment. Since both groups received the same theory session, they can be presumed to have the same *factual knowledge* of conventions of instructive texts. *Factual knowledge* is the knowledge of discrete, isolated content elements such as terminology, specific details and elements (Anderson & Krathwohl, 2001, pp. 42 & 45), which for the study under scrutiny are for example knowing what an instruction is or that illocutionary indicators are an important feature of a user manual. Both groups are also likely to have acquired some *conceptual knowledge*, i.e., “concepts, principles and “more general ‘mental models’, ‘schema’s’, or ‘theories’ (implicit or explicit)” (Anderson & Krathwohl, 2001, p. 42). Both groups received the same theory session and were exposed to an equal amount of genre material. Thus, they can be presumed to have acquired or possess the same, or at least similar, *conceptual genre knowledge*: knowledge of the main characteristics of user manuals, knowledge of concepts such as usability and readability, etc. One could argue that there might be a difference in the conceptual

knowledge of the two groups, because in the practical sessions the control group was exposed to Spanish user manuals and Spanish articles on this text genre, whereas the experimental group focused solely on Dutch materials. As a result, the control group would have a better knowledge of the Spanish conventions and the experimental group of the Dutch conventions. Indeed, the conceptual genre knowledge may be centred on a particular language system. However, this does not necessarily have to influence the translation product, because many guiding principles and concepts are language-independent, such as information structure and consistency (in terminology and titles). Furthermore, the theory session for both groups covered linguistic issues, such as illocutionary indicators, in the two languages. In fact, the retrospective interviews show that a number of participants of the control group have indeed retained some genre knowledge gained from the theory session, but without any significant effect on their translation products. The distinct nature of the learning activities carried out in the practical sessions might have played a bigger role in genre knowledge acquisition. The practical sessions for the experimental group were more practice-oriented and focused on how to compose an instructive text. The experimental group may thus additionally have acquired some (limited) *procedural knowledge*, i.e., knowledge of subject-specific procedures (Anderson & Krathwohl, 2001, p. 53), of how to write an instructive text. Summarizing, the two groups are likely to have acquired different types of knowledge: *factual* and *conceptual* for the control group vs. *factual*, *conceptual* and *procedural* for the experimental group. The translation task and STs used in the current study require a considerable amount of transediting, and consequently procedural knowledge of how to produce a user manual in Dutch that comply with the valid conventions. If the Spanish ST was (a) optimal and (b) would adhere to the same text conventions as in the Dutch TC, conceptual genre knowledge would go a long way. However, when text conventions in the SL and TL differ and transediting is required in light of the translation brief, having conceptual knowledge will no longer do. The translator must be able to have some procedural knowledge of how to write a user manual or at least being able to apply conceptual genre knowledge in a translational context.

Conceptual knowledge

The second explanation for the impact of writing training on transediting is related to the issue expressed in the previous sentence: the degree of conceptual knowledge acquired by the two groups. As said, the learning activities carried out by the experimental and control group were distinct:

editing and composing versus reading and summarizing. Consequently, the cognitive processes that these activities were aimed at are different. If we relate this to Figure 3 and the six categories of cognitive processes suggested by Anderson & Krathwohl (2001), the control group primarily focused on cognitive processes attributed to the first two levels called *Remember* and *Understand*: recognizing, recalling, interpreting, exemplifying, classifying, summarizing, inferring, comparing and explaining. The activities carried out by the experimental group primarily entailed cognitive processes related to the higher levels of *Apply*, *Analyze* and *Evaluate*: implementing, organizing, checking and critiquing. Given this discrepancy, it is likely that the degree of conceptual knowledge acquired, or the level of understanding of user manuals, is distinct as well. This intersects with Figure 4 and Briggs and Tang's (2011) theory about how the complexity of a learner's understanding of a certain topic can increase. Considering the learning activities, it is likely that the participants of the control group have achieved a *multistructural understanding* of user manuals: they know the various conventions of user manuals and the relevant concepts related to this genre, but treat these independently and not as a coherent, integrated system. Given the applied nature of the treatment, the experimental group may rather have acquired a *relational understanding* of the text genre, since these participants had to integrate their knowledge of various genre characteristics and conventions into one system to be able to compose a user manual from scratch. Summarizing, the two groups may not only differ in the type of knowledge acquired (*factual* and *conceptual* vs. *factual*, *conceptual* and *procedural* for the control and experimental group respectively), but also in the degree of conceptual knowledge acquired. These differences may partly explain why the two groups perform differently in the translation task, because the level of understanding of a particular topic (i.e., genre conventions) also affects the way in which knowledge can be used.

Knowledge use

The third explanation concerns the use of the acquired knowledge. Let us suppose that the control group acquired what Briggs and Tang (2001) call a *multistructural understanding* of genre conventions in Spanish and Dutch. A *multistructural understanding* implies that no systematic links are being made between the different components of a particular topic (e.g., usability related to illocutionary indicators, information structure and action-driven approach of readers) nor that these components are being contrasted or compared to knowledge of components of a similar topic (e.g., relating Spanish conventions to Dutch conventions). This might in part explain

why no transediting takes place, because these participants will simply not recognize the discrepancies between the ST and the TT conventions in the translation task. This indeed seems to be the case for many of the participants of the control group, as demonstrated by the triangulation of product data and verbalizations. However, some participants stated in the retrospective interviews that they had recognized certain (but not all) discrepancies between the ST and the text conventions in Dutch. However, when they were asked why this recognition did not lead to transediting, they could not really explain. The reason might be found in the fact they are not able to apply their conceptual knowledge. As said, having only conceptual genre knowledge did not suffice for the translation tasks used in the present study. The participants did not only have “to remember what they have learned, but also to make sense of, and be able to use what they have learned” (Anderson & Krathwohl, 2001, p. 63). Retention of knowledge was not enough, the knowledge also had to be transferred to and implemented in a new situation: the translation task. Anderson and Krathwohl (2001, pp. 64–66) state that the cognitive processes attributed to the first level of *Remember* promote knowledge retention, whereas those associated with the higher levels (*Apply, Analyze, Evaluate* and *Create*) facilitate knowledge construction and transfer of knowledge. The control group did only engage in cognitive processes that encourage knowledge retention. The retrospective interviews actually confirm (some) retention of factual and conceptual genre knowledge¹⁶: a number of participants of the control group explicitly enumerated chronological structure, readability and illocutionary indicators as quality criteria specific for user manuals (i.e., *multistructural understanding*). However, these participants’ level of understanding and the learning activities undertaken in acquiring conceptual knowledge do not seem to allow for appliance of their knowledge nor for transfer to a new situation: the translation task. The experimental group seems to succeed in transferring the acquired knowledge from the monolingual, writing context to the translation context and applying their knowledge. This can be deduced from the significantly increased amount of transediting after the treatment, but also appears to be confirmed by the reasoning these participants use for their transediting. Whether this transediting is inspired primarily by the implementation of conceptual knowledge alone or also of procedural knowledge remains unclear. If we follow Anderson and Krathwohl’s taxonomy, it might be both. They state

16 Only two participants of the control group did not exhibit any signs of knowledge retention. This lack of knowledge retention can perhaps be explained by their individual learning styles.

that the cognitive process of *Apply* “involves using procedures to perform exercises or solve problems” and is thus “closely linked with procedural knowledge” (Anderson and Krathwohl, 2001, p. 77). In the description of the cognitive process labelled *Apply*, they distinguish between *executing* (for a familiar task) and *implementing* (for a unfamiliar problem) and subsequently state that for implementing, “understand[ing] conceptual knowledge is a prerequisite to being able to apply procedural knowledge” (idem). Interestingly, within procedural knowledge, Anderson and Krathwohl (2001, pp. 53–55) also make a distinction in *knowledge of procedures* (resulting in a fixed answer) and *knowledge of techniques or methods* (not resulting in a fixed answer). The latter of which is more closely linked to or even “manufactured out of” conceptual knowledge (Anderson & Krathwohl, 2001, p. 79). If we translate this to the context of the present study, this distinction may be linked to the transediting of the illocutionary indicators and information structure. The former always concern imperatives in Dutch, a fixed answer; the latter depend largely on the text topic and the instructions given, which imply a more open answer and thus a technique crystallized out of conceptual knowledge.

6. Conclusion and suggestions for further research

The present study has shown that writing training has a positive effect on the amount and quality of transediting in the translation product and process of undergraduate translation students, when this transediting concerned *consistency* in *Titles*, *macro-level information structure* and *Illocutionary indicators*. When these findings are interpreted in light of cognitive and constructivist perspectives on knowledge and learning, the hypothesis can be formulated that writing training leads to the acquisition of a new type of knowledge and a different degree of understanding: procedural genre knowledge and a more relational understanding of conceptual genre knowledge. These may allow translation students to (a) implement a more global approach while translating a specific text genre and (b) review the ST more critically in consideration of the needs and expectations of the TT readers. The writing training of the present study did not succeed to ban out ST interference, especially not in those instances when several text production problems presented themselves simultaneously and cognitive demands were high.

The study reported on in this chapter was exploratory in nature and focused on a specific aspect of the text productive aspect of translation, namely transediting, of a specific text genre, user manuals. Moreover,

this chapter did not address the question whether writing training has a beneficial influence on overall translation quality (for this discussion, see Chapter 3). Despite these limitations, the experimental design has proven to be a good starting point to unravel what may constitute the text-productive competence of translators and how its use manifests itself in the translation process. The results of this study hint specifically at the importance of procedural genre knowledge (i.e., how to *write* a specific text genre) for translators when ST and TT conventions do not coincide and dynamic equivalence is required. Moreover, the findings suggest that it is important to take into account the depth and breath of knowledge (i.e., level of understanding) when we address the various components of the translator's text-productive competence. Finally, they indicate that the text-productive competence of translators is not exclusively restricted to the TL, but also includes or is dependent on the capacity to compare ST and TL conventions critically to avoid ST interference.

The findings of the present study open up a number of research avenues to further assess the effect of writing training on translation performance, as well as its usefulness for translator education. First, replication on a larger scale, by using not only more participants but also participants with different source languages, will help determine the generalizability of the present findings. Second, the extent to which writing knowledge can and will be transferred to a translation context may differ according to the text type or genre addressed in the writing training. It might therefore be fruitful to open up the research of the effect of writing training to, for example, informative or persuasive texts. Third, it is also important to assess writing training in comparison to other types of learning activities to clarify the role of procedural knowledge within the translator's text-productive competence. For example, contrastive text analysis can also encourage a more relational understanding of genre conventions. A combination of writing training and contrastive text analysis might perhaps extend the impact of writing training to all rich point categories, by enforcing attention for linguistic micro-level aspects and control of ST interference. Fourth, it would be interesting to examine the effect of writing training in participants with differing levels of translation competence. Since cognitive overload may hinder complete transfer of writing knowledge to the translation context, it would be interesting to see how professional translators tackle similar translation problems to those posed by the STs in the present study. They are—due to their experience—likely to have a higher text-productive subcompetence

and a larger working-memory capacity than the participants used in the present study.

Acknowledgements

We are most grateful for the collaboration of Prof. Joyce Karreman, who was responsible for the second session of the writing training. We would also like to thank dr. Amos van Gelderen, senior researcher at the SCO-Kohnstamm Institute of the University of Amsterdam, for exchanging ideas about factors that influence transfer. A special thanks goes to Prof. Jan Engberg, full professor at the department of Business Communication of Aarhus University, for introducing us to the model proposed by Biggs & Tang. We are also indebted to Michaël Steehouder, for giving feedback on the experimental design in the early stages of the research.

5

The effect of writing training on the translation performance of professional translators: A case study

Abstract

This chapter reports on the effect of writing training on the translation process and product of professional translators. A classic pretest-posttest quasi-experimental design was used, in which five professional translators were trained in writing instructive texts in their mother tongue (Dutch). In the pretest and posttest, these translators were asked to translate a Spanish user manual of a household appliance into Dutch. The transfer of writing training elements to the translation task was examined by means of product and process analysis. These analyses showed that overall the professionals managed to integrate a large amount of writing training elements into their translation process. However, the type and amount of writing training elements incorporated differed considerably among the professionals, as did the quality of their translation products. On the basis of this qualitative study, it seems that a lack of sufficient retainment and internalization of knowledge as well the translators' adaptiveness may play a role in the transfer. Cognitive overload might be another factor, even among professional translators, who are thought to have more cognitive resources available due to automaticity of some processes. Writing training nonetheless seems to improve the professionals' genre knowledge and target-audience awareness without having a disruptive effect on their translation process. Moreover, writing training leads to significantly fewer stylistic and genre-related translation errors and seems to deepen reflection, especially during the revision phase.

This chapter is based on Schrijver, I., Van Vaerenbergh, L., Leijten, M., & Van Waes, L. (in preparation). *Do professional translators benefit from writing training? A case description.*

1. Introduction

Should translators be able to write a text? This seemingly rhetorical question is a rather platitudinous way to start a chapter. However, it is important to state the obvious in an age when the perception of the essence of the translation profession sometimes becomes clouded by major technological advancements like machine translation. But, is it really a rhetorical question? Should translators indeed be able to write a text? A rough distillation of the translation process certainly hints in the direction of a confirmative answer, given the final step in the iterative and recursive sequence of source-text (ST) interpretation, transfer and target-text (TT) production. In the scholarly discipline of Translation Studies, the belief in the necessity of writing, or text-productive, skills for translators is shared among many academics. Most translation competence models, such as Kelly (2005), PACTE (2005) and Göpferich (2009), include text-productive competence in the target language (TL). This competence of knowing how to write a text is not only imperative for producing the TT, it can also come in handy to solve translation problems posed in and by the two previous steps of the sequence: ST interpretation and transfer. Newmark already expressed this intuitive belief nearly three decades ago by stating “All translation problems finally resolve themselves into problems of how to write well in the target language” (1988, 17). Research into parallel and sequential processing in translation by Carl and Dragsted (2012) has recently provided limited empirical evidence that translation problems, defined as re-reading of ST or TT passages, are mostly triggered by production problems instead of ST-interpretation problems. Professional translators and representatives of the translation market also generally acknowledge the importance of writing skills, as the following examples will demonstrate. In a survey conducted by the American Translators Association, many professional translators consider general and, to a lesser degree, technical writing skills as the most highly-ranked core skills of translators (ATA, 2011 reported in Koby & Melby, 2013). Moreover, fluent writing skills frequently feature in job advertisements for translation-related positions, as CTISC (1999) and Bowker (2004) have shown in their analyses of the Canadian professional translation market. The fact that translators cannot do without writing competence also becomes evident in the evolution of the translation profession, especially in the domain of technical communication. The European EN 15038 standard regarding translation service quality (2006) has pinpointed technical writing as one of the added value services that can additionally be offered by translation

service providers. In addition, Gneccchi et al. (2008) have shown that the roles of translators and technical communicators are increasingly converging in the North American and European market. In a follow-up survey, Gneccchi et al. (2011) confirmed these results, but also highlighted that, while the role of the translator in North-America is expanding by incorporating activities previously carried out by technical writers, many European translators in fact migrate into the technical communication profession.

If we answer the interrogative ‘Should translators be able to write a text?’ affirmatively, the following question ensues: Are translators able to write a text? The EMT model of competence states that one of the learning objectives of translation training programmes should be that graduates know “how to compose a document in accordance with the conventions of the genre and rhetorical standards” and “how to draft, rephrase, restructure, condense, and post-edit rapidly and well (in languages A and B)” (Gambier, 2009, p. 6). This model serves as a guideline for Master’s level translation training programmes. The question whether translators are able to write a text may therefore be rather impertinent, since it pulls into question the efficacy of the programmes that have educated the professional translators of today and will train those of tomorrow. This impertinent question is nonetheless pertinent due to the general lack of writing training in these programmes (Göpferich, 2004). Although undergraduate-level translator training usually includes L2 writing training in the foreign language acquisition courses, deliberate practice in writing in the mother tongue is generally absent. Writing training, either in the foreign and/or native languages, is even more difficult to find in Master’s level curricula. Merkle (2010) tries to explain this phenomenon by referring to Kelly’s (2005, p. 115) myth that the translation students’ language competence, and thus their writing competence, are generally taken for granted. Given this discrepancy between the learning objective related to writing competence and the educational means offered to acquire that competence, most translation graduates might not be able to successfully write a text, let alone a technical text. If we go back to the previously discussed expansion of tasks demanded from technical translators, the latter might be disastrous for graduates aspiring to specialize in that domain. Byrne points out that, to meet the quality standards required of technical translation nowadays, “a translator needs to be trained as a technical writer—someone who has been trained to understand issues such as usability, information design, instructional design and communication theory. Unfortunately, these are

not typically things which are taught to translators because they were never really a part of their job.” (2010, p. 25). Risku (2004) has shown that translators who migrated to technical writing and/or usability indeed felt not adequately prepared for target-group analysis, content selection and writing in their own words.

Let us assume for the sake of argument that the writing competence of recently graduated translators is not sufficient to meet the requirements of the translation market, the most logical thing to do would be to incorporate (more) general and technical writing training into the translation curricula. This is precisely what a fairly limited number of translator training programmes have done in recent years: e.g., the B.A in *Traduction et Rédaction* [translation and writing] programme at the Université du Québec en Outaouais (Merkle, 2010); the module Technical writing for translators in the MA in Translation Studies at the University of Portsmouth¹; the module *Français, rédaction technique* in the MA in Translation Studies at Institut Libre Marie Haps in Brussels². But the question is: what will this writing training for translators amount to? It will most likely enhance the writing competence of translators, but how will it influence their translation performance? Will it change the manner in which they organize their translation process? Will it positively influence the quality of their translation product? Few empirical studies have addressed these questions to date. Schrijver, Van Vaerenbergh, Leijten and Van Waes (2014, in press; in press; see Chapter 3 and 4) have shown that L1 genre-specific writing training led to a more critical stance towards ST coherence among BA-level translation students, as well as an increased focus on and compliance with TL genre conventions. However, the students’ transfer of the knowledge acquired during the writing training to their translation context was partial, since they applied this knowledge at the macro-textual level of the TT only. Moreover, the writing training appeared to have some beneficial effect on translation quality, because the number of genre-related translation errors decreased significantly. Schrijver, Van Vaerenbergh, Leijten and Van Waes (2014) point to cognitive overload as a possible explanation of these findings. Since the students who participated in this study were still in the process of acquiring translation competence, their working-memory capacity might have been

1 Source: Programme specification of the MA Translation Studies 2012 at the University of Portsmouth. Retrieved from <http://psd.docstore.port.ac.uk/C0680F.pdf>

2 Source: Programme specification of MA in Translation at Institut Marie Haps. Retrieved from <http://www.vinci.be/fr-be/mariehaps/Pages/ListeCours.aspx?formation=Master%20en%20traduction&cat=Long&lang=fr>

insufficient to tackle the problems posed by the translation task and at the same time relate all acquired writing knowledge to those problems and/or use it for problem-solving. This problem would manifest itself primarily at the micro-textual level (i.e., below sentence), where cognitive effort is highest due to the simultaneous occurrence of ST-interpretation and TT-production problems. This could explain why the writing training did not significantly influence the translation of micro-textual features and the overall translation quality.

This chapter follows that line of research, since it presents the results of a pseudo-experimental study of similar design among professional translators. The term ‘professional translator’ has been used in different ways in translation process research. In early process studies, it has been used as a contrast label to refer to advanced students of translation (vs. students in the early stages of training; e.g., Jääskeläinen & Tirkkonen-Condit, 1991). Nowadays, it usually refers to people who earn their living by translating, which form a rather heterogeneous group given the differences in qualifications, as well as length, intensity and type of work experience. The term ‘professional translator’ is also frequently used as equivalent to ‘expert translator’. However, as Jääskeläinen (2010, pp. 215–216) convincingly argues, professional translators can be but are not necessarily experts, that is, translators characterized by ‘consistently superior performance’ (2010, p. 216). In fact, professional translators do not necessarily produce higher-quality translations than translation students, as a number of process studies (e.g., Jääskeläinen, 1999) have shown. Jääskeläinen (2010, p. 218) therefore proposes the term ‘experienced professionals’ for those professional translators who do not meet the criterion of expertise. The heterogeneity of the group of professional translators is further heightened by the fact that some have specialised in particular fields or domains (e.g., legal translation, technical translation, etc.), while others are generalists. In this chapter, we will use the following definition of ‘professional translators’: ‘anyone who has a master’s degree in translation and for whom translating is their main source of income’. This definition allows us to explore the effect of writing training on those who meet the criteria of both translation qualifications and professional experience, but who do not necessarily exhibit expert behaviour. Having had formal translation training as well as professional experience, it is nonetheless likely that these participants have automatized certain translation processes (e.g., Jääskeläinen & Tirkkonen-Condit, 1991), which the undergraduate translation students in the previous study

by Schrijver, Van Vaerenbergh, Leijten and Van Waes (2014; in press) have not. Examples of these processes are ST interpretation, certain standard transfer operations such as avoiding false friends (Jääskeläinen, 2010). Due to this presumed automaticity of certain processes, more cognitive resources might be available for the transfer and use of acquired writing knowledge in the translation process. This might lead to a more extensive use of writing training information in the translation process. The degree of automaticity will be even higher among those professional translators who do exhibit ‘consistently superior performance’ in the translation of the text genre under scrutiny.

2. Research questions

As a sequel to a previous study on the effect of writing training on the translation performance of undergraduate translation students (see Chapter 3 and 4), we focus the present study on the extent to and manner in which professional translators apply information they acquired during writing training in a translation task. This exploratory follow-up study aims to formulate answers to the following research questions:

1. Which writing training elements do professional translators use in their translation process?
2. When do professional translators use these writing training elements in their translation process?
3. How does extensive use of writing training elements in the translation task change the translation process?

By comparing the results of this study with those reported in Chapter 3 and 4, we hope to shed light on whether translators with a higher level of competence are able to and indeed incorporate writing training information more extensively in their translation process.

3. Method

To examine if, what and how professional translators incorporate elements from writing training into their translation process and product, a controlled intervention study was conducted, which involved a classic pretest-posttest design. In this design, five professional translators received a two-and-a-half-hour training, in which they were taught how to write and edit instructive texts in their mother tongue (Dutch). This pseudo-experimental study greatly resembled the research design described in Chapter 3 and 4.

3.1 Participants

Five professional translators participated in this experiment, 3 female and 2 male ($n=5$; average age: 36.4 years; $SD=9.86$). Finding participants for the present study was not straightforward. We used the on-line registry of members of the Belgian Chamber of Translators and Interpreters to find candidate-participants.³ This search strategy only yielded two interested translators. Three other professional translators who fitted the criteria stipulated in footnote 3 were found using the professional network contacts of the primary researcher. Table 1 gives an overview of the personal and professional characteristics of these participants.⁴

Table 1. *Background information of participants*

Participant	Mother tongue	Professional translation experience	Source languages	Translation specialism
Angela	Dutch	17 years and 5 months	English German Spanish	economic texts medical translation technical translation
Brian	Dutch, French	5 years and 1 month	French Spanish	legal translation
Chris	Dutch	7 years and 7 months	German Modern Greek Spanish	legal translation touristic texts
Diane	Dutch	8 years	English French Spanish	economic texts legal translation technical translation
Ellen	Dutch, Spanish	8 years	English French German Modern Greek Spanish	economic texts

The participants were all native speakers of Dutch who held master's degrees in Translation. Two of them were bilingual, but both had coursed

3 This registry can be found on the following webpage: http://www.translators.be/index.php?option=com_content&task=view&id=78&Itemid=101&lang=nl&Itemid=101

We contacted those translators that complied with the following two criteria: (1) having Spanish (source language) and Dutch (target language) as working languages; (2) living in Antwerp or vicinity (to accommodate travel to the research facilities).

4 We have used fictional names to preserve the anonymity of the participants.

translation studies programmes in Flanders with Dutch being the L1 in this training. All had more than five years of experience as professional translators, four of them as freelance translators and one of them as an in-house translator of an insurance agency. The thematic domains and translation modalities they specialized in were diverse, but they all had in common that their experience with translating user manuals was limited. This can be explained by the lack of demand for translation of this text genre in the specific language combination Spanish-Dutch. The two translators who did designate technical translation as their translation specialization elaborated that the text genres they translated did not constitute user manuals.

3.2 Materials⁵

In this section, a detailed description of the materials will be provided. The STs used in this experiment are excerpts of two original Spanish user manuals of a fabric shaver and a turnspit oven respectively (Appendix 1 and 2). The fabric shaver ST was found on the Spanish company's website (Solac, 2013), whereas the turnspit oven ST was selected from a corpus of original Spanish user manuals composed by Murcia Bielsa (1999). These two STs had been used in the study reported on in Chapter 3 and 4. In that research project, undergraduate translation students were asked to translate four Spanish user manuals, of which they considered the fabric shaver and turnspit oven STs the most difficult to translate.⁶ Furthermore, no statistically significant result could be found between these two STs in terms of analytical translation errors and the students' general satisfaction with the translation product.⁷ The high yet similar degree of complexity

5 The description of Method in this chapter is largely based on similar sections in Chapter 3 and 4.

6 This has been deduced from the students' responses to the questionnaires, more specifically their agreement with statements nr. A, B and E (see Appendix 7, Chapter 3), which they had to fill out after completing each translation task in the posttest. The scores obtained for the fabric shaver ($n=17$) and turnspit oven ($n=16$) STs were most similar of these three texts and did not yield statistically significant results. For statement A (i.e., regarding interpretation difficulty of ST), the mean agreement was 4.00 (1.22) and 4.25 (1.44) for the fabric shaver and the turnspit oven ST respectively on the 7-point Likert scale. For statement B (i.e., regarding difficulty of TT formulation), these scores were 5.18 (.88) and 4.56 (1.09). For statement E (i.e., the complexity of the translation task), the scores were 4.82 (.81) and 4.94 (.93).

7 The average total number of translation errors was 30.06 (9.32) in the case of the fabric shaver ST and 32.24 (8.42) for the turnspit oven ST. The degree of the participants' satisfaction with their translation product was measured via their agreement with questionnaire statement F (Appendix 7, Chapter 3): 4.47 (1.07) and 4.44 (1.09).

of these STs has informed our decision to use them in the present study.⁸ During the experiment, the STs were preceded by a translation brief, which instructed the participants to translate the Spanish STs into Dutch in compliance with the quality requirements of user manuals in Dutch (e.g., text conventions, understandability, readability, consistency, etc.).

The STs contained a number of rich points, which the PACTE research group defines as “specific source-text segments that contain translation problems” (2011, p. 37). These problems can be of a linguistic, textual and extra-linguistic nature, but can also be related to ST intentionality, the translation brief and/or the TT reader. The fourteen rich points selected in the STs used for this study concerned primarily text-production problems, created by textual problems as well as problems relating to the translation brief and/or TT reader. A literal translation of these rich points would yield a lexically and syntactically acceptable TT, but would go against text conventions in the TL, as well as target readers’ expectations and needs. In other words, these rich points required transediting (Stetting, 1989; Schrijver, Van Vaerenbergh & Van Waes, 2012) to produce a TT in compliance with the translation brief stipulations. The fourteen rich points were located in various ST segments and concerned different textual features. They can be subdivided in the following types: titles, information structure, illocutionary indicators and terminology. These rich points have already been discussed in Chapter 3 and 4, but for reasons of clarity we will briefly repeat the most important observations.

Titles

The titles in STs represented two problems: (1) they were not consistently formulated, (2) not all of them were formulated from the user’s point of view. As shown in Appendix 1, the fabric shaver ST contained two content sections, titled *Funcionamiento* (‘Functioning’) and *Mantener el quitapelusas* (‘Maintaining the fabric shaver’). The turnspit oven ST, represented in Appendix 2, was subdivided into three sections, with the following titles: *¿Cómo instalar el horno?* (‘How to install the oven?’), *¿Cómo funciona el horno?* (‘How does the oven work?’), and *Limpieza* (‘Cleaning’). Steehouder (2008, p. 108) states that, given the selective and scanning manner in which users read instruction manuals, it is important to formulate titles in

8 In the study reported on in Chapter 3 and 4, the fabric shaver ST was used in the immediate posttest, whereas the text about the turnspit oven served as ST in the delayed posttest. Although the fabric shaver and turnspit oven STs have been used in the pretest and posttest respectively of the present study, the similarities in the ST content and rich point selection enables comparison of the findings of both studies.

such a way that users can easily and swiftly retrieve the information they seek. Consistency in titles will facilitate the reader's information search (Steehouder, 2008, p. 110).

Byrne (2010) highlights that titles should also tell readers what they will be able to do with the information of a particular content section. He recommends using verbs in headings or to phrase headings as questions to enforce the action-driven function of titles. Steehouder (2008, p. 110) states similar conventions for titles in Dutch user manuals: these ought to contain an action verb and an object in Dutch, since readers usually seek information related to a specific action that needs to be carried out on or with a particular object. Titles of content sections may take on one of three structures in Dutch: they may include

1. the action verb in the infinitive form: *De oven installeren*—'To install the oven';
2. the action verb in the nominal form: *Het installeren van de oven*—'Installing the oven'; or
3. a question: *Hoe installeert u de oven?*²—'How do you install the oven?'

Steehouder (2008, p. 110) recommends putting the object in first place in Dutch (e.g., *De oven installeren*—'To install the oven'). Steehouder uses the following example to explain the reasoning behind this recommendation: when users encounter a particular problem when they want to configure the starting time, they will likely search first for 'starting time' in the manual instead of 'configure' (2008, p. 110). If we take into consideration the criteria explained above, possible translation solutions for the ST titles are: *De ontpluizer gebruiken* ('To use the fabric shaver') and *De ontpluizer onderhouden* ('To maintain the fabric shaver'); *Hoe installeert u de oven?* ('How do you install the oven?'), *Hoe gebruikt u de oven?* ('How do you use the oven?'), and *Hoe maakt u de oven schoon?* ('How do you clean the oven?').

Information structure

The STs contained several coherence problems too. These were primarily caused by the non-chronological order in which information was given to the readers. Chronological information structure is fundamental in user manuals, especially given the reading habits of most users. As Byrne (2012, p. 181) explains: "Most people do not enjoy reading instructions and will only do so as a last resort. Of these people, a great number will perform each step described in instructions as they read them before moving on to the next step." Byrne (2012, p. 181) therefore advises the translator to

rearrange the order of individual steps in a set of instructions when the ST sequence is not logical or chronological. This is, for instance, the case in the section *Limpieza* (Cleaning) of the turnspit oven ST. The warning “*No limpiar cuando el aparato esté todavía caliente*” (‘Do not clean the oven when it is still warm’) should come before or at least at the beginning of the various instruction steps of how to clean a refrigerator, but is featured in the ST after the instruction on how to clean the oven. A similar case can be found in the fabric shaver ST, where the last sentence of the ST states: *No utilizar sobre prendas húmedas, de textura irregular o delicadas como hilo, seda y punto fino* (‘Do not use on moist clothes, clothes of irregular texture or delicate fabrics such as linen, silk and wool’). This warning must be given to the users before instructing them on how to use the fabric shaver. If this information is given at the very end of the text, it is possible that the users have already used the fabric shaver.

The importance of chronological information order does not only concern the macro-textual level (i.e., above sentence level), but also has to be applied at and below sentence level. For example, the fabric shaver ST features the following sentence: “*Antes de insertar las pilas, debe asegurarse que el interruptor de funcionamiento del aparato está en posición de apagado*” (‘Before inserting the batteries, you must ensure that the operating switch of the device is in the off position’). The preposition *antes* in the adverbial clause indicates that the action described in the main clause should be carried out *before* inserting the batteries. This particular sentence order is frequently used in Spanish user manuals. However, it is preferable to switch the subordinate and main clause around to give the information in the order in which the reader needs it (Göpferich, 2009, p. 45). This will avoid misunderstandings and dangerous situations. A similar sentence can be found in the turnspit oven ST: *Antes de realizar el asado, debe desenroscar el mango del espadín para poder cerrar la puerta del horno* (‘Before inserting the batteries, you must ensure that the operating switch of the device is in the off position’).

Illocutionary indicators

A problem that typically arises in the translation of instructive texts in general, and user manuals in particular, are the linguistic forms to express the instructions. In Spanish, the most frequently used illocutionary indicators are the infinitive (e.g., *limpiar*–‘to clean’), the imperative (*limpia* or *limpie*–‘clean’), the verb *deber* in personal or impersonal form (*debe limpiar*–‘you must clean’; *se debe limpiar/debe limpiarse/debe(rá) ser limpiado*–‘it must be cleaned’) and the future tense (*se limpiará*–‘it will be cleaned’) (Gamero

& Öster, 1999). However, the imperative (*reinig*–‘clean’) is the preferable form in Dutch, followed by the infinitive (*reinigen*–‘to clean’) and, only in certain circumstances, the passive voice (*wordt gereinigd*–‘is being cleaned’), as stated by Steehouder (2008, pp. 115–116). Byrne (2012, p. 146) and Göpferich (2009, p. 48) agree that in instructive texts, it is preferable to speak directly to the users, by using direct, active language instead of passive sentences that can be unnecessarily long and confusing. Following this line of thought, many of the Spanish illocutionary indicators in the fabric shaver and turnspit oven STs could not be translated literally and had to be transedited by an imperative to yield an acceptable Dutch TT.

Terminology

The fourth type of rich point concerned terminology. Steehouder highlights the importance of using terminology that is understandable for and familiar to the users (2008, p. 258). In addition, Byrne (2012, p. 145) warns translators to use terminology consistently throughout the instructive TT to enforce its communicative function, because synonyms for the same concept may cause confusion. In the STs used in this study, the reference to the household appliance or components was generally specific. However, this terminological precision and consistency was sometimes breached by the use of synonyms (e.g., *zona de cuchillas* (‘blade area’) for *cabezal de cuchillas* (‘shaving head’)); or hypernyms (e.g., *aparato* (‘device’ or ‘appliance’) for *quitapelusas* (‘fabric shaver’) or *horno* (‘oven’)). In light of the translation brief, this inconsistent terminology use had to be corrected in the Dutch TT.

3.3 Design and procedure

This study was organized as a 1 (condition: professionals) x 2 (time: pretest-posttest) within-subjects design. In this section, we will briefly describe the design and procedure of the experimental sessions.

3.3.1 Pretest

The participants took part individually in the pretest, which took place in the experiment room of the writing lab (Antwerpen Humanities Lab, AnHuLab) of the University of Antwerp (Belgium). They were asked to translate the Spanish fabric shaver ST into Dutch in MSWord within sixty minutes. This time limit had proved to be reasonable and adequate in the research project reported in Schrijver, Van Vaerenbergh, Leijten and Van Waes (2014; in press; Chapter 3 & 4). The ST and translation brief were provided on paper. The participants were allowed to use the Internet and

electronic dictionaries, such as a monolingual generic Dutch dictionary, several bilingual dictionaries such as Spanish–Dutch/Dutch–Spanish and English–Dutch/Dutch–English. The researcher was not present in the experiment room where the participants produced their translations. She observed the translation process on a computer in an adjacent observation room, which was connected with the computer in the experiment room. During this observation, she highlighted a number of interesting moments in the translation process (i.e., long pauses, revisions, translation of rich points, etc.) that she would replay and discuss with the participants after the translation task.

Process data of the translation task were collected using the keystroke logging software Inputlog (version 5.1) and the eyetracker Tobii (Tobii XT 300). These two data collection methods are unobtrusive and do not disturb or interfere in the problem-solving cognitive processes taking place during translating. Inputlog registers and stores all actions in a Windows environment (keystrokes and mouse movements such as typing, deleting and copying, clicking, scrolling and cursor navigation) during a particular task, as well as their distribution across time. As the program yields a fine-grained real-time log of all events in MSWord as well as in other Windows based programs, the creation of the TT can be studied in real-time. For a detailed description of the program, we refer to Leijten and Van Waes (2013), and the program's website: www.inputlog.net. Inputlog data were complemented with visual input about the participants' screen activity, eye movements and fixations provided by the eye tracker. Tobii XT 300 allows unrestrained head movements, as it is a desktop eye tracker with an in-built camera and infrared diodes. Although it can generate rich quantitative data about the participants' gaze patterns, fixations and pupil dilations, we have used the eye-tracking data for this study only as a complementary measure to obtain qualitative data about the translation process.⁹

In light of the research questions posed, it was essential to collect additional qualitative data on the translation process to be able to contextualize and interpret the quantitative data. Therefore, keystroke-logging data were complemented with eye-tracking data, questionnaires and cued retrospective interviews. The participants were asked immediately after having completed the translation task to fill out a 5-item Likert-scale questionnaire with general questions concerning aspects such as the difficulty of the ST interpretation and TT formulation, their motivation, their satisfaction with the final product (Appendix 4 contains an English

9 Eye-tracking was not used in the previous study, reported on in Chapter 3 and 4.

translation of this questionnaire). Furthermore, they had to generally describe how they had gone about the translation task, which problems they had encountered and why. Subsequently, a cued retrospective interview was conducted to obtain qualitative information about a number of interesting instances in the translation process that the researcher had observed, and more specifically on how the participants dealt with the rich points. The replay of the Tobii screen recording, including saccades and eye fixations, served as stimulated recall for the participant's memory (Hansen, 2006). During the retrospective interview, the researcher took great care to alternate questions concerning particular rich points with questions about other issues in order to not attract the participants' attention to the rich points.

3.3.2 Treatment

Three to seven weeks after the pretest (depending on when the participant had been able to participate in the pretest), the participants were given a joint, two-and-a-half-hour writing training.¹⁰ This training took place in the computer lab at the University of Antwerp and was given by the primary researcher. It was made explicitly clear, both in the electronic invitation to the training as well as at the beginning of the session, that the training was exclusively aimed at writing instructive texts in Dutch, and consequently, no link would be made with languages other than Dutch or with translation practice.

The writing training consisted in an interactive lecture, in which the instructor and participants discussed the main characteristics, components and functions of user manuals. Moreover, they explored how users read, interact with and employ these texts, and how writers take into consideration linguistic, pragmatic and rhetorical issues when drafting these texts. Given the limited duration of the training, four features were addressed: titles, sequence of instruction steps, outcome information and warnings in user manuals. Questions, brainstorming, editing and writing exercises were used to actively involve the participants in how they could strive for optimal content, structure, formulation and visual design of these four features. The theory and exercises used in the writing training were based on the course on writing instructive texts in Dutch, offered by the

¹⁰ In the previous study described in Chapter 3 and 4, the experimental group received four hours of writing training in two two-hour long practice sessions, as well as a one-hour long theory session on the characteristics of instructive texts. The duration of the writing training had to be abbreviated to meet the availability of the professional translators.

online writing center Calliope (De Meyer, Leijten, Opdenacker, Stals & Van Waes, 2010)¹¹, as well as on a lecture given by J. Karreman, assistant professor at the University of Twente (Enschede, Netherlands) specialised in document design and usability of instructive texts, which she had given during the writing training organized for the research project described in Chapters 3 and 4. Appendix 3 contains some example slides of the PowerPoint presentation that was used to structure the writing training. These example slides have been translated into English.

We will now briefly discuss how the participants explored the four main topics of the writing training: titles, sequence of instruction steps, outcome information and warnings. With regard to titles, the participants were asked to analyze, compare and improve two tables of content. In this exercise, peer feedback and group discussion were used to examine how writers accommodate the selective, scanning, and action-driven reading manner of users in the formulation of titles. The participants also explored how they could optimize the usability and readability of instructions by breaking down the instruction into action sequences of various steps and by formulating these steps from a reader's perspective using imperatives as well as unequivocal and consistent terminology. A number of excerpts of Dutch user manuals were used to stimulate the participants' critical reflection of possible pitfalls in the information order of action sequences and the combination of individual steps. Moreover, they were asked to write an instructive text on the basis of a linear, prose-like text. This exercise allowed for deliberate focus on information structure, action-driven formulation of instructions, specific and unambiguous formulation, as well as the visual design of instructions (i.e., using bullet points or action-reaction schematics). In relation to the action sequences, the participants were also taught how to integrate outcome information into the instructional steps. This type of information enables users to verify whether they have carried out the various steps correctly, but it will also serve as a motivation to continue reading. The importance of warnings in user manuals, their location in the texts either as a separate content section and/or as part of an action sequence, was discussed with the participants by means of a number of textual examples. To conclude the writing training, the participants were asked to write an instruction on the basis of a video clip that teaches viewers how to create a bamboo plant. This exercise integrated all previously addressed issues regarding titles,

¹¹ This online writing center has been developed at the department of Management - Professional Communication of the University of Antwerp.

sequence of instruction steps, outcome information and warnings. The instructor provided individual feedback on the participants' written texts and ended the writing training by synthesizing the primary pitfalls as well as good solutions in the writing exercise.

To systematically analyze the impact of writing training on the performance of the professional translators, the four main writing training elements were directly related to the rich points present in the STs (see Section 3.2 of this chapter). However, the texts reviewed, edited and written during the writing training did not concern devices that were object of the STs used in the experiment to avoid a one-on-one correspondence between the writing training and the translation tasks.

3.3.3 Posttest

After the writing training, the participants enjoyed a coffee break of approximately fifteen minutes. Subsequently, they participated in a posttest, which took place in the same computer lab where they had received the writing training. The setup of this posttest resembled that of the pretest: an instructive ST (turnspit oven, see Appendix 2) was used of similar length, difficulty, content and rich points, and the same translation brief was used. Moreover, the participants had the same electronic dictionaries and internet at their disposal as in the pretest. The time restriction of one hour was also maintained. They were not allowed to consult the writing training materials during their translation task.

The data collection methods used during the posttest entailed computer keystroke logging and questionnaires (see Appendix 5). The use of eye tracking and cued retrospective interviews was not possible, since all participants took part simultaneously in the posttest.

3.4 Data analysis

Since the aim of this study was to explore the professionals' transfer of writing training information to the translation task, the data analysis was first conducted on the product data and subsequently on the process data.

3.4.1 Product analysis

The product analysis consisted of two parts. The first part concerned the integration of writing training elements into the translation product. This was studied by means of (1) the rich points, and (2) a textual analysis of the translation products.

The rich points were directly related to the writing training (see Sections 3.2 and 3.3.2), because many of these translation problems could be solved by using information provided in the writing training, viz., chronological information order below and above sentence-level, illocutionary indicators, action-driven and consistent titles, consistent terminology. In other words, the correct translation of a rich point implicated the integration of writing training elements. The quality of the translation of every rich point was assessed on the basis of the conventions discussed in Section 3.2 of this chapter. The translations of the rich points were coded dichotomously, with correctly translated rich points being awarded a ‘1’ score and not correctly translated rich points ‘0’ score. The total number of correctly translated rich points in the pretest and posttest were compared at the level of rich point type to ascertain changes from pretest to posttest. Since the rich points did not cover all the elements discussed in the writing training (e.g., visual-design elements, outcome information, etc.), we also carried out a textual analysis of the TTs to find any salient ST deviations in both formulation and structure. These ST deviations observed in the TTs of the pretest and posttest were compared systematically for each participant to verify whether a potential change in general translation method (e.g., from literal translation to a more free approach) and changes in type of ST deviations (e.g., lexical, syntactical, textual deviations) had taken place after the writing training. We subsequently combined the results of these two analyses to establish patterns in the type of writing elements that the participants had transferred to their translation task.

The second part of the product analysis consisted in a holistic and analytic assessment of the translation products. Two trained raters, one being the primary researcher and the other an external rater, carried out this assessment. They had previously assessed the translation products in the study reported by on in Chapter 3 and 4. Moreover, the same assessment criteria were used. They first individually scored the translations holistically, giving them intuitively a score on a scale from 0 to 10. Subsequently, they analytically assessed the translations using an error-based scheme. This scheme comprised four error categories:

- *category A*: ST interpretation and TL formulation errors that hinder the understanding of the ST content by the target audience;
- *category B*: translation choices that violate idiomatic and stylistic preferences in the TL;

- *category C* examines the translator's textual competence and concerns errors contravening TL genre conventions;
- *category D* focuses on the linguistic competence in the TL and concerns language-system errors, such as grammar, spelling and punctuation errors.

As shown in Table 2, this assessment yielded overall a satisfactory inter-rater reliability ($>.77$, calculated using the Intra-Class Coefficient). The error *categories A* and *B* obtained a lower agreement in the pretest between the two raters ($<.50$).

Table 2. ICC of assessment methods (holistic scoring, overall analytic score and scores of four analytical error categories)

	Pretest	Posttest
Holistic	.891	.811
Analytic (total)	.995	.984
<i>category A</i>	.504	.892
<i>category B</i>	.471	.815
<i>category C</i>	.990	.949
<i>category D</i>	.774	.949

In contrast to the previous study (Chapter 3 and 4), we did not run any statistical tests on the data, given the limited number of participants ($n=5$) in this study.

3.4.2 Process analysis

The process analysis focused primarily on the integration of writing training elements in the translation process (as established by the product analysis). This entailed a quantitative and qualitative analysis. The former focused on the moment when the integration took place, whereas the latter explored the reasoning and motivation behind the (lack of) integration.

For the quantitative analysis, we analyzed the logging data for each of the correctly translated rich points in the posttest to verify if this had been the first translation solution visible in the log file¹², or whether it had been introduced later on in the translation process, i.e., as a revision¹³. A similar method was used for the integration of other writing training elements not represented by the rich points. For the qualitative analysis,

¹² This would constitute the coding label TE+1 used in Chapter 4.

¹³ This would constitute the coding label TE+n, TE-n+ or TE-1+n used in Chapter 4.

we used the questionnaires to examine the translators' own perception of the type of writing training elements they did and did not incorporate in the process. Since the questionnaires were filled out both in the pretest and posttest, these data were analyzed contrastively to reveal changes in task knowledge (i.e., knowledge of the characteristics of the commissioned TT) and general satisfaction with the translation process and product. For this purpose, we also analyzed the data provided by the retrospective interviews and eye tracker, which had been collected exclusively in the pretest. They allowed us to verify not only whether the professionals already showed awareness of certain translation problems before the writing training, but also whether the criteria of their problem-solving behavior regarding certain translation problems had changed.

In addition to these analyses, we also selected one translator to study how extensive incorporation of writing training changes the translation process (cf. third research question posed in Section 2 of this chapter). The findings of the product analysis regarding transediting were used to select the translator who incorporated most writing training elements into the translation task. For the description of the case study, we used the analysis files generated by Inputlog to gain a general impression of the influence of writing training on this professional's general process characteristics. In the logging data, we focused on the following parameters: total process, active writing and pause time (using the pause threshold of 2 seconds); the number of pauses and the mean pause length (using pause thresholds of 1, 2, 5 and 10 seconds); time spent in external sources and the Word file. Moreover, we used the process graph and revision matrix provided by Inputlog to observe potential changes in revision behavior.

4. Results

In this section, we will first present the findings using a top-down approach. Section 4.1 contains a general overview of the performance of the professional translators, compared to that of the undergraduate translation students in the previous study described in Chapters 3 and 4.¹⁴ In Section 4.2, we will address the main research questions by discussing in detail the use of writing training information in the translation task of the professional translators. In Section 4.3, we will present a case study of one of the professional translators, Diane, who incorporated nearly all writing

¹⁴ For this comparison, we have used the data pertaining to the pretest and immediate posttest of the study reported in Chapter 3.

training elements into her translation task. This will shed light on the third research question posed in Section 2 of this chapter.

4.1 General comparison of professionals and students

As shown in Table 3, the professional translators already translated 60% of the rich points correctly in the pretest (in comparison to 25% in the case of the translation students). This relatively successful performance of the professional translators mainly concerned items at micro-textual level, since the translation quality was highest among the rich points represented by illocutionary indicators, terminology and micro-information structure. In the posttest, the overall translation quality of the rich points amounted to 78% (compared to 64% for the translation students). Hence, the professional translators not only seemed to consolidate their performance at micro-textual level after the writing training, but also appeared to become slightly more aware of macro-textual features, such as consistently formulated titles and chronological macro-information structure.

Table 3. *Overview of relative frequency of correctly translated rich points by professional translators and translation students*

	Professionals		Students	
	Pretest	Posttest	Pretest	Posttest
Titles				
Action-driven	0	20	0	17
Consistency	20	60	0	78
Information structure				
Micro	80	90	44	61
Macro	0	50	0	56
Illocutionary indicators	69	71	35	65
Terminology	60	80	22	44
Total	60	78	25	64

Schrijver, Van Vaerenbergh, Leijten and Van Waes (2014, in press) reported that, in addition to the rich points, 41% of the translation students showed an increased awareness of text formatting and design after the writing training, as could be observed in their introduction of bullet points, different font styles and warning signs into the TTs produced

in the posttest. The textual analysis revealed a similar trend among three of the five professional translators (i.e., 60%).

In terms of translation product quality, the professional translators scored 27% better than the translation students on the holistic assessment in the pretest and 37% better on the overall analytic assessment (see Table 4 for absolute data). In the posttest, the professionals scored 22% and 33% better than the students on holistic and overall analytic assessment. In the pretest, the professionals committed mainly stylistic and genre-specific translation errors (i.e., *category-B* and *category-C* errors), whereas the translation students had particular difficulty with correct ST interpretation (i.e., *category-A* errors) and TT genre acceptability (i.e., *category-C* errors). The writing training seems to have had most effect on *category-B* and *category-C* errors, which the professionals committed far less in the posttest. Their overall analytic score also improved considerably in the posttest (i.e., decreasing greatly). The professionals committed slightly more content and language errors (*category-A* and *category-D* errors) after the writing training. Among the undergraduate translation students, the writing training proved to have a significant effect on *category-C* errors and the overall analytic score only (Schrijver, Van Vaerenbergh, Leijten & Van Waes, 2014).

Table 4. *Translation quality assessment*

	Professionals		Students	
	<i>Pretest</i>	<i>Posttest</i>	<i>Pretest</i>	<i>Posttest</i>
Holistic assessment¹	7.1	7.1	5.6	5.8
Analytic assessment²	31.2	19.9	49.3	29.7
Error <i>category A</i>	2.4	4.8	16.3	9.4
Error <i>category B</i>	13.7	3.9	7.9	6.9
Error <i>category C</i>	12.1	7.7	17	7.4
Error <i>category D</i>	3.0	3.5	8.1	5.8

Note 1. Representing a scale from 1 (minimum) to 10 (maximum).

Note 2. Representing the number of translation errors committed.

4.2 Type of writing training elements applied by the professionals

Section 4.1 has shown that the professional translators translated 60% of the rich points successfully in the pretest, primarily items focus at micro-textual level, and that they reached a 78% success rate in the posttest with an increased awareness of macro-textual features. In Section 4.2.1, we

will show how these general findings relate to the individual performances of the professional translators. Moreover, we will address in Section 4.2.2 when the professional translators incorporated writing training elements in their translation process. The quality of their translation products in the pretest and posttest will be reported in Section 4.2.3.

4.2.1 Type of writing training elements incorporated in the translation task

Table 5 shows that the general pattern of successful rich-point translation could be found in the pretest among four out of five translators. The exception was Angela, who translated only 21% of the rich points successfully. In the posttest, four out of five translators represented the pattern of improved success rate, Chris now being the exception.

The increased awareness for macro-textual features could not be observed in the TTs of all five professionals. The three professional translators who showed more awareness of text layout and design after the writing training were Brian, Diane and Ellen. All three introduced numerical enumerations into the posttest TT to structure the sequence of instructional steps. Diane and Ellen also placed Dutch warning signs (*Let op*–Beware) in bold into their TT. Brian did not use this strategy, but he too seemed to be aware of the different types of information in the TT. This can be deduced from his indentation of the translation of the Spanish sentence *La otra parte se apoyará en el gancho* (the other part [of the turnspit] will rest on the support hook; see Appendix 2 for more context information), which he put immediately in italics. During the writing training, the participants had learned how to use typographical markers to highlight outcome information to show readers the result of the actions.

Summarizing, we can deduce from Table 5 that the degree in which the professional translators individually applied information from the writing training into their translation task, varied. These findings based on the product data were further supported by data from the questionnaires and interviews, as will be described below.

Table 5. *Correctly translated rich points in the pretest and posttest (relative data)*

	Angela		Brian		Chris		Diane		Ellen	
	<i>Pretest</i>	<i>Posttest</i>	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Titles										
Action-driven	0	0	0	0	0	0	0	100	0	0
Consistency	0	0	0	100	0	0	100	100	0	100
Information structure										
Micro	50	100	100	100	100	100	100	100	50	50
Macro	0	0	0	100	0	50	0	100	0	0
Illocutionary indicators										
	29	71	86	86	71	43	86	86	71	71
Terminology										
	0	0	0	100	100	100	100	100	100	100
Total	21	50	57	86	57	50	71	93	50	57

User orientation

The writing training appears to have positively changed the translators' conscious attention for the TT readers and the function of the TT. This could be observed in the translators' agreement with the statement included in the questionnaire that the writing training had stimulated them to pay more attention to the target readers while translating (average agreement with statement nr. h, Appendix 5: 6.2 on a scale of 7 ($SD=.84$)). Moreover, four out of five translators stated that they had taken on the users' point of view in their translation task in response to question nr. III "Which elements from the writing training did you use in your translation task?".

Information structure

Based on the comparison of the TTs produced in the pretest and posttest as well as the rich-point translation, the previously described user perspective appears to have primarily stimulated the translators to take into account "the bigger picture" during the translation task. Most translation products in the posttest exhibited a clear visual content structure above sentence level, whereas the translators did not seem aware of these features in the pretest. Chris and Angela were the only translators who did not introduce white lines or numerical enumerations to obtain a better visual structure in the TT. In the questionnaire, Chris explained that he deliberately did

not integrate this writing information in the translation task, because he considered the ST to be sufficiently structured already. Angela, on the other hand, did not appear to find the ST visual structure problematic at all: in the questionnaire, she claimed to have put the specific instructions on separate lines to adhere to the quality requirements of Dutch user manuals, but her translation did not corroborate this claim.

As can be deduced from Table 5, three out of five translators also paid attention to the macro-level information structure of the TT, and more specifically to the chronological nature of the actions that the TT readers had to carry out. Contrary to these three translators, Angela and Ellen did not deviate from the ST on this aspect. Angela did not show any awareness of the translation problems posed by the non-chronological content structure above sentence level in the ST, not in the TT or in the questionnaire. Ellen, on the other hand, is likely to have noticed a certain translation problem, since she introduced Dutch warning signs (*Let op*–‘Beware’) in bold prior to the two TT sentences that caused textual incoherence. Another indicator is that she stated in the questionnaire that the ST was incoherent on some occasions. On the other hand, she also stated that there were no writing training elements that she had deliberately not used in her translation task. It therefore remains unclear why she did not change the location of these sentences in the TT. By introducing the warning signs in the TT, Ellen nonetheless clearly marked the various types of information (i.e., instructions, warnings, descriptions) in her TT. Diane also used this strategy, albeit in combination with macro-level restructuring of the ST.

The writing training did not influence translation of micro-level information structure much, since all translators already transedited this feature in the pretest. Interestingly, the questionnaires and retrospective interviews revealed that the transediting of this feature in the pretest was primarily inspired by linguistic motives rather than pragmatic criteria. The professional translators stated in the pretest questionnaire that they had strived for a concise and clear style in the TT. The interviews showed that this appears to have concerned mainly the sentence length and structure in Dutch: most translators split up the long Spanish sentences in several shorter ones in the TT and shifted around main and secondary clauses to create “more fluent” Dutch sentences that started with imperatives.

Illocutionary indicators

The writing training did not change the translators’ knowledge of the illocutionary indicators that are characteristic of Dutch user manuals. In

the pretest, all translators (except Angela) mentioned in the questionnaires and retrospective interviews that the consistent use of imperatives is an important quality requirement of Dutch user manuals, which they had taken into account while translating. However, their translation products in the pretest revealed that, although they translated most Spanish illocutionary indicators with Dutch imperatives, absolute consistency in their usage in the TT could not be observed. During the retrospective interview they attributed this discrepancy to mere oversight.

The product data shown in Table 5 reveal that the transediting of illocutionary indicators did not change much from pretest to posttest for three out of five translators. The translator who did benefit considerably from the writing training for this point, was Angela.¹⁵ This can also be deduced from a comparison of her pretest and posttest questionnaires. Although Angela did not mention imperatives at all in the pretest questionnaire or retrospective interview, she did state it to be a quality requirement of user manuals in the posttest.

Titles and terminology

What did not seem to transfer well from writing training to translation task was the formulation of titles, and more specifically the action-driven nature thereof. As shown in Table 5, only three out of five translators used consistently formulated titles in Dutch in the posttest. Two of them (Brian and Diane) mentioned this in the posttest questionnaires as being a writing training element they explicitly had used in their translation task. In the pretest questionnaire and retrospective interview, no translator but Diane had commented on the formulation of titles.

Only one of the translators (Diane) used an action verb and object for the titles in the posttest. Nonetheless, we can also observe some signs of transfer in the two translators who did not translate the titles in a consistent or action-driven manner (i.e., Angela and Chris). Curiously, they in fact translated the first two ST section headers with consistently formulated titles. Angela translated the interrogative ST titles *¿Cómo instalar el horno?* and *¿Cómo funciona el horno?* with *Installatie van de oven* ('Installation of the oven') and *Werking van de oven* ('Working of the oven'). However, she failed to use this translation strategy for the third section header *Limpieza*, which she translated literally *Reiniging* ('Cleaning'). Chris, on the other hand, even used the action-driven formulation that was taught during the writing training for the first two section headers in the TT: *De oven installeren* ('To

¹⁵ The questionnaire and log data did not reveal why Chris translated the illocutionary indicators less correctly in the posttest.

install the oven') and *De oven gebruiken* ('To use the oven'). However, he solely used a noun, *Onderhoud* ('Maintenance'), to formulate the third title in Dutch. It remains unclear what caused this inconsistent approach.

It is difficult to establish whether the writing training influenced the professionals' translation of terminology. Three out of four translators who translated the respective rich point correctly in the posttest had done so in the pretest as well. Moreover, these translators had also elaborated during the retrospective interviews in the pretest on having tried to use clear and consistent terminology throughout the TT. Yet, the decrease in translation errors attributed to inconsistent terminology (i.e., *B3* errors) from pretest to posttest seems to indicate that all professionals have consciously or unconsciously paid more attention to this feature.¹⁶ Chris and Ellen were nonetheless the only translators who explicitly mentioned consistent terminology use in their posttest questionnaires.

4.2.2 Moment of incorporation of writing training elements into the translation task

Despite the diversity in the type of writing training information that the five translators transferred to the translation, the manner in which they used it was quite similar. All translators stated in the posttest questionnaire that they had used information from the writing training in various phases of the translation process: while reading the ST, but also when formulating the TT and revising the translation (i.e., statements e, f and g in Appendix 5).¹⁷ This suggests that the incorporation of writing training elements was not carried out in a separate phase during the translation process, but formed integral part of the various phases that have been normally used to define the translation process.

The log file data showed that, if the translators incorporated writing training elements in the translation of the rich points, they did so immediately in more than 85% of the cases (see Table 6). Two professional translators did so always. No clear relation could be ascertained between delayed incorporation and specific writing training elements.¹⁸ Moreover,

16 From pretest to posttest, *B3* errors decreased 50% for Angela, 54% for Brian, 67% for Chris, 100% for Diane and 89% for Ellen. ICC for *B3* errors was .720 in the pretest and .889 in the posttest.

17 These constituted indirect questions, since the translators had to express their agreement with the statements. While the scores attributed to the statements differed between the five translators, each translator assigned the same score to each of the three statements.

18 This contrasts with the results found among the translation students. In Chapter 4, we reported that the translation students most frequently transedited the rich points immediately, but that this tendency could be less clearly observed for the transediting of titles and micro-level restructuring.

the professionals revised little in their translation of the rich points, as the recursivity rate comprised 14.3% in the pretest and 10% in the posttest.¹⁹

Table 6. *Relative frequency of immediate and delayed incorporation of writing training elements in the translation of rich points*

	Angela	Brian	Chris	Diane	Ellen
Immediate	86	92	100	85	100
Delayed	14	8	0	15	0

There were also a number of writing training elements that were not part of the rich point selection, for example the numerical enumerations and the Dutch warning *Let op*. Diane, Ellen and Brian introduced numerical enumerations into the TT. The former two did so immediately, but Brian waited to split up the first sentence of the second TT section until he had reached a first translation of the entire ST sentence. For the second action sequence, he did introduce the numerical enumeration immediately, though. Diane and Ellen also incorporated the Dutch warning *Let op* into their TTs, before producing the corresponding TT sentences. Brian's use of italics to highlight outcome information in the TT was an example of immediate incorporation of writing training information too.

4.2.3 Quality of translation products

Table 4 in Section 4.1 showed that the average holistic quality of the professionals' translation products was 7.1 in the pretest and posttest alike. As shown in Table 7, Angela and Ellen scored below this average on both test moments and Chris did so in the posttest. The individual results varied more with regard to the overall analytic assessment, which comprised an average of 31.2 translation errors in the pretest and 19.9 in the posttest. Angela and Ellen committed more errors on both occasions, Chris in the pretest and Brian in the posttest. In terms of the type of errors committed, the general pattern of stylistic and genre-specific difficulties in the pretest as well as the decrease of these errors (*categories B and C*) from pretest to posttest are observable across all translators. The increase in content (*category A*) and linguistic (*category D*) errors was reflected in Brian and Diane's (and Ellen's) performance.

¹⁹ An increase in recursivity was observed among the translation students, from 14% to 32% between pretest and posttest.

Table 7. *Holistic and analytic assessment of translation products in pretest*

	Angela		Brian		Chris		Diane		Ellen	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	<i>Pretest</i>	<i>Posttest</i>
Holistic¹	5.0	6.5	7.5	7.5	7.5	7.0	9.0	9.0	6.5	5.5
Analytic²	39.0	20.0	26.0	22.5	33.0	18.0	22.5	14.5	35.5	24.5
Error category A	1.5	4.0	0.0	7.5	3.5	3.0	1.5	4.0	5.5	5.5
Error category B	16.5	6.0	13.5	6.0	15.0	3.5	10.5	1.5	13.0	2.5
Error category C	17.0	10.0	10.5	3.5	11.0	10.0	9.0	4.0	13.0	11.0
Error category D	4.0	0.0	2.0	5.5	3.5	1.5	1.5	5.0	4.0	5.5

Note 1. Representing a scale from 1 (minimum) to 10 (maximum).

Note 2. Representing the number of translation errors committed.

4.3 Case study

To describe how a professional translator extensively transferred information from the writing training to her translation task, we will now present a case study. The participant selected for this case study was Diane, because as shown in Section 4.2 she not only applied most writing training elements in her translation task, but also scored highest on the holistic and analytic assessments in the pretest and posttest.

In this case study, we will first provide a detailed description of the translation method (i.e., global approach of how Diane translated the Spanish ST into Dutch) and translation strategies (i.e., how she solved particular translation problems posed by specific ST items) used in the pretest and posttest. Section 4.3.2 addresses which elements of the writing training Diane used in her translation task in the posttest. A global description of Diane's translation process in the pretest and posttest is provided in Section 4.3.3.

4.3.1 Translation method and strategies

The translation method adopted by Diane in the pretest and posttest was characterised by the conciseness of the TT formulation. In the pretest, Diane expressed during the retrospective interview that she had paid particular attention to the TT style. She stressed that it was extremely important to formulate the long, superfluous Spanish sentences as "condensely as possible" in Dutch and to use Dutch imperatives instead of the Spanish must-constructions. This general translation approach or method could be observed throughout Diane's translation process and

product. Diane followed the ST content and form sentence closely, but when she noticed that this would not lead to the concise translation she was aiming for, she almost immediately switched to a more free translation solution.

To illustrate this global approach, we will discuss three examples, of which the first two concern the pretest and the last the posttest. The first example describes how Diane translated and revised the ST sentence *Antes de insertar las pilas, debe asegurarse que el interruptor de funcionamiento del aparato está en posición del apagado*.²⁰ Table 8 contains the process data pertaining to this ST sentence. The log data give a detailed account of how the TT sentence has been produced, while the S-notation (i.e., a computer-based method for representing and analysing revisions in text production) shows the revisions made in the same TT segment.

Table 8. Example 1 pretest of Diane's translation method (pretest)²¹

Log data
{16568}[LSHIFT]Kijk voor het plaatsen van de batteij[BACK] [BACK]rijen na of {2636}de {11513} schakelaar van het apparaat uitgeschakeld is[Movement]{9704}[Movement][LEFT Click] [Movement]of [Movement][LEFT Click][Movement]{4586}[RSHIFT].{2277}[RETURN]
S-notation
Kijk voor het plaatsen van de batt[ei] ¹⁴ |₁₄ rijen na [of de schakelaar van] ¹⁵ |₁₆ {of } ¹⁶ het apparaat uitgeschakeld is |₁₅ .

The log data show that this TT sentence was produced in five production bursts.²² The first production burst followed a pause of 16.5 seconds. A lack of fixations in the eye-tracking data suggests that Diane read the ST during this long pause. Subsequently, Diane produced the beginning of the TT sentence, starting with the Dutch imperative *Kijk* ('Check')—which she used as an equivalent for the Spanish *debe* ('must') construction—and

²⁰ See Section 3.2. for the English translation.

²¹ In the provided log data, the following representations are used: LSHIFT and RSHIFT for left and right shift key respectively; BACK for backspace; Movement for mouse movement; LEFT Click for a click with the left mouse button; RETURN for a hard enter; DELETE for deletion; DOWN for down arrow key and RIGHT for right arrow key (Manual Inputlog, retrieved from <http://www.inputlog.net/docs/DescriptionInputlogMay2009.pdf>)

In the S-notation, the following symbols are used: [] represents a deletion, { } visualizes an insertion, and the numbers show the chronological order of revisions in the process.

²² A production burst is a stretch of text production in between two pauses. In the present study, we have used a pause threshold of 2 seconds.

the Dutch translation of the adverbial clause *Antes de insertar las pilas*. This translation, *Kijk voor het plaatsen van de batterijen na of* ('Check before placing the batteries whether'), implies a change in illocutionary indicator as well as a change in micro-level information structure. Next, there was a small pause of 2 seconds, followed by a short production burst (viz., the definite article *de* ('the')), and another long pause of more than 11 seconds. During this pause, the eye movements shifted from the top of the screen to the bottom and then back to the text. These two long pauses of more than 2 and 11 seconds may indicate cognitive activity, most likely caused by a translation problem in the remainder of the Dutch subordinate clause. The subsequent TT production burst did not constitute a literal translation. Instead, Diane decided to translate more freely yet maintaining all content segments of the ST: *of de schakelaar van het apparaat uitgeschakeld is* ('whether the switch of the device has been switched off'). This production burst was followed by a long pause of nearly 10 seconds. Eye-tracking data showed that Diane reread *of de schakelaar van het apparaat uitgeschakeld is* during the first 5 seconds of this pause, especially fixating on *schakelaar* and *uitgeschakeld*. In the last 5 seconds of this pause, no eye fixations could be observed, which suggests that Diane was rereading the corresponding ST segment. Subsequently, as shown by the S-notation revisions 15 and 16, she selected and deleted the TT segment *of de schakelaar van* ('whether the switch of') and added *of* ('whether'). This led to the more concise, final translation solution *Kijk voor het plaatsen van de batterijen na of het apparaat uitgeschakeld is*. During the retrospective interview, Diane explained that she had decided to take *de schakelaar van* ('the operating switch') out of *of de schakelaar van het apparaat uitgeschakeld is*, because she felt that having two words related to the verb *schakelen* ('to operate'), viz., *schakelaar* and *uitgeschakeld*, in a single clause would be too pompous. On the basis of the log file and retrospective interview, it cannot be ruled out that the translation solution for the ST sentence that first came to Diane's mind was indeed a literal translation. However, the immediate revision and condensation clearly shows Diane's general translation method.

The second example confirms Diane's focus on the characteristic, direct style of Dutch user manuals, but it refines the previous observations about her "compact" translation method. Table 9 shows how she translated the ST sentence *Debe limpiar la rejilla con la ayuda del cepillo que se adjunta* ('You must clean the grill with the help of the brush that is added').

Table 9. Example 2 of Diane's translation method (pretest)

Log data
[RETURN]{7816}[LSHIFT]Het root[BACK]stertje {7129}[Movement] [LEFT Click][Movement] [BACK][LSHIFT]Reinig h[Movement] [LEFT Click][Movement]met behulp van {3323}d[BACK]het [BACK] [BACK][BACK]et borsteltje [Movement][LEFT Click][Movement] [Movement][DELETE] [Movement][LEFT Click]{4103}dat bij het toestel zit[RSHIFT].[RETURN]
S-notation
{Reinig h} ⁵⁵|₅₆ {[H] ⁵⁴|₅₅ et roo[t] ⁵²|₅₃ {ster[tje] ⁶¹|₆₂ { } ⁶²|₆₃ {met behulp van [d] ⁵⁷|₅₈ {h[et] ⁵⁹|₆₀ {et borsteltje {dat bij h et toestel zit. }

Diane paused for nearly 8 seconds before typing in the first two words of the TT sentence: *Het roostertje* ('the grill'). During the retrospective interview, Diane explained that the first translation solution that she had in mind included the passive form (*Het roostertje moet gereinigd worden*—'The grill must be cleaned'), but that she had decided to revise it given the importance of using imperatives consistently throughout the TT. The log data confirm that she did not type in that passive form, but paused for 7 seconds and started the TT sentence with the Dutch imperative *Reinig* ('Clean'). The eye-tracking data revealed that Diane fixated on imperatives previously used in the TT right before this revision. In the next production bursts, she typed in the remainder of the TT sentence and deleted the diminutive form *-tje* of *roostertje* to avoid what she called "toddler language". This led to the final translation solution: *Reinig het rooster met behulp van het borsteltje dat bij het toestel zit* ('Clean the grill with the help of the brush that accompanies the device'). From this TT sentence, we can deduce that Diane's main concern was a straightforward, idiomatic TT, which in many cases—but not all—led to her condensing the ST form (but not its content) in the TL. The rather long conjunction *met behulp van* could have been condensed to *met* ('with'). Moreover, the adjectival clause *dat bij het toestel zit* ('that accompanies the device') comprises in fact an explicitation of the ST due to the addition of *het toestel*. It could have been translated by a simple adjective *bijgevoegde* ('added'—'the added brush'). The usage of the term *toestel* illustrates that Diane was not yet concerned with consistently used terminology in the pretest, since she had previously used the synonym *apparaat* and the hyponym *ontpluizer* ('fabric shaver') in the TT.

In the posttest, Diane adopted the same translation method and her translation was again characterised by a concise and ‘to-the-point’ formulation. The manner in which Diane came to more condensed translation solutions was equally diverse as in the pretest. However, literal translations being first translation solutions were less frequently observed. This might point to increased reflection. The third example illustrates these general observations by describing how Diane translated the first sentence of the second ST section entitled, viz., *Sitúe el mando del termostato en el punto que indique la temperatura necesaria para el asado, coloque el mando del conmutador para que funcione la resistencia adecuada y gire después el temporizador en el sentido de las agujas del reloj hasta la posición deseada.*²³ This ST sentence is extremely long and entails an action sequence of three steps. Table 10 shows how Diane translated the first main clause of this ST sentence.

Table 10. Example 3 (a) of Diane’s translation method (posttest)

Log data
{6125}1. {5828}[LSHIFT]Zet de temperatuur op de gews[BACK] enste[Movement] [Movement] [Double LEFT Click]thermo[BACK]staat [Movement][LEFT Click] temperatuur{2687}[Movement] [Double LEFT Click][DELETE][Movement][LEFT Click] die nodig is om te kunnen grillen {2188}[RSHIFT].[RETURN] 2.
S-notation
1. . ¹¹ Zet] ⁹⁰ |₉₁ {Stel } ⁹¹ |⁹²] ⁹³ |₉₄ {Draai } ¹⁰⁵ |₁₀₆ { [Zet] ¹⁰⁴ |₁₀₅ de bediening va n } ⁹⁴ |⁹⁵ de [temperatuur] ³ |⁶ {thermo[ç] ⁷ |⁸ staat [{in } ₉₂ |₉₃] ₉₅ |₉₆ {naar } ¹⁻⁰⁷ |¹⁰⁸ } ₈] ₆ |₇ op] ¹⁰⁶ |₁₀₇ de [gew[s] ⁴ |₄ enste |₅] ⁹ {gewenste } ⁸⁶ |⁸⁷ temperatuur |₉ [die nodig is] ₈₇ |⁸⁸ [om te kunnen [[gril{1} ⁴⁶ |⁴⁷] ₄₇ |⁴⁸ {grillen} ⁴⁸ |₄₈] ⁴⁹ |₄₉ |⁵⁰ {brade n } ₅₀] ₈₈ |⁸⁹ { } ₈₉ |₉₀ n. [2.] ¹⁰ |₁₀ |₁₁

After a brief pause of 6 seconds, Diane immediately split up the long sentence by introducing a numerical outline style, starting with the first step. The subsequent pause of nearly 6 seconds suggests reading and cognitive activity related to the first step of this action sequence. Diane translated this quite freely at first: *Zet de temperatuur op de gewenste* (‘Put the temperature in the desired’). This translation solution would have been an idiomatic condensation. However, the subsequent revision (nr. 5–9 in the S-notation) of *temperatuur* (‘temperature’) by *thermostaat* (‘thermostat’), as well

23 English literal translation: ‘Place the switch of the thermostat in the point that indicates the necessary temperature for the roasting, place the switch of the function switch so that the adequate resistance functions and then turn the timer clock-wise to the desired position.’

as the translation of the remainder of the sentence, show that Diane tried to incorporate the ST form in Dutch as much as possible, although she omitted superfluous elements such as *en el punto que indique*. The S-notation reveals that Diane reworked this particular TT segment later on in her translation process, trying to find a balance between ST loyalty and TT conciseness.²⁴ This led to the final translation: *Draai de bediening (sic) van de thermostaat naar de gewenste temperatuur* ('Turn the switch of the thermostat to the desired temperature').

For the translation of the second step of the action sequence, Diane looked up the meaning of the word *conmutador* in the Spanish-Dutch dictionary first. She then returned to the Word file she was producing the TT in and paused for little over 13 seconds (see Table 11).

Table 11. Log file segment example 3(b) of Diane's translation (posttest)

Log data
{13421}[LSHIFT]Kies de {2360}juiste {2953}weerstand met de keuzeknop{5844}[Movement]{8766}[LEFT Click][Movement][LEFT Click][Movement]temporizador [RETURN][Movement][LEFT Click][Movement][RETURN][LSHIFT]Draai {6406}de timer{2859} in wijzerzin {4750}tot de gewenste {3250}tj[s][BACK]d{11062}[Movement][LEFT Click][Movement].[DOWN][RIGHT][RIGHT] [RIGHT].{19562}[RETURN][RETURN]
S-notation
Kies ·[[de juis] ¹⁰⁰|₁₀₁ {juiste ·} ¹⁰¹] ¹⁰²|₁₀₂|₁₀₃ {gewenste ·} ¹⁰³|₁₀₄ te ·weerstand met de keuzeknop{·} ¹³ Draai de timer in wijzerzin tot de gewens{braad} ¹¹⁸|₁₁₉ te tj[s] ¹²|₁₂ d|₁₃ ·

The production burst that followed this long pause of 13 seconds entailed a correct and idiomatic representation of the ST content, which, however, does not resemble the ST form: *Kies de juiste weerstand met de keuzeknop* ('Choose the right resistance with the selector'). The subsequent pauses of 5.8 and 8.7 seconds suggest that Diane reread her translation and/or read the next ST clause *y gire después el temporizador en el sentido de las agujas del reloj hasta la posición deseada*.²⁵ Subsequently, she briefly looked up the meaning of the Spanish word *temporizador* in the Spanish-Dutch dictionary. When she returned to Word, Diane immediately typed in

²⁴ This can be deducted from the jump in revision numbers, from 10 to 46 to 86.

²⁵ English literal translation: 'and turn subsequently the timer clock-wise to the desired position'.

Draai ('Turn'). The following long pause of 6 seconds might seem strange, since she already found the meaning of *temporizador*, viz., timer. However, since Diane omitted the next ST word *después* ('subsequently') in her next production burst, it is likely that the pause was related to this ST word. The omission of *después* is a logical choice, since Diane had already split up the ST sentence in three separate, enumerated sentences, which made a translation of *después* in the TT redundant. The next production burst contained *in wijzerzin*²⁶ ('clockwise'), which is another example of Diane's "compact" translation method, since *en el sentido de las agujas del reloj* could have been translated literally into Dutch as well: *in de richting van de wijzers van de klok* ('in the direction of the dials of the clock'). In the last part of the TT sentence, we can observe a pause of 3.25 seconds right before Diane typed in *tijd* ('time'). This translation solution illustrates the "to-the-point" translation method that we referred to earlier: Diane forwent a literal, rather vague, translation of *hasta la posición deseada* (to the desired position) and opted for an explicitation by translating *posición* by *tijd* (time).

Particularly striking in Diane's translation process and product was that her free translation method did not change after the writing training. It was further consolidated by the incorporation of writing training elements into her translation task. The third example has shown that she introduced numerical enumeration style into her translation (e.g., represented by the numbers 1 and 2 in Table 10). In addition, Diane moved further away from the ST in terms of information structure in general, and title structure and terminology in particular, among others.

4.3.2 Use of writing training elements in the translation task

Diane stated in the questionnaire that she had applied the following information from the writing training during her translation process: the introduction of safety warnings, the subdivision of text into steps, the formulation of titles by means of an action verb. However, from her product and process data, we can deduce that Diane also applied other elements. In fact, her transfer of writing training elements to the translation task was nearly complete, as will be shown below.

Information structure

The writing training has clearly influenced Diane's critical reflection of the ST visual and content structure. In the pretest, she did not change the ST sentence order nor adapted the visual structure of the ST paragraphs

²⁶ *In wijzerzin* is the Flemish variant of the standard Dutch expression *met de wijzers van de klok mee* ('following the dials of the clock').

in the TT (e.g., by introducing hard enters to structure various steps in an action sequence). Diane also responded negatively during the retrospective interview to the question if she had encountered anything strange in the ST with regard to information structure and coherence. In the posttest, however, her answer to the same question was quite the opposite: in the questionnaire, she stated that she considered the continuous ST to be little accessible to the reader. Moreover, she found the chronology of the ST to be incorrect in some instances.

¿Cómo funciona el horno?	De oven gebruiken
<p>Sitúe el mando del termostato en el punto que indique la temperatura necesaria para el asado, coloque el mando del conmutador para que funcione la resistencia adecuada y gire después el temporizador en el sentido de las agujas del reloj hasta la posición deseada.</p>	<ol style="list-style-type: none"> 1. Draai de bediening van de thermostaat naar de gewenste temperatuur. 2. Kies de gewenste weerstand met de keuzeknop. 3. Draai de timer in wijzerzin tot de gewenste braadtijd.
<p>El asador rotativo va provisto de un motor giratorio, un gancho de soporte y un espadín con una empuñadura de baquelita. Para su utilización debe procederse como sigue:</p>	<p>Het draaispit bestaat uit een draaimotor, een steunhaak en een spies met handvat in bakeliet. U gebruikt het als volgt:</p>
<ol style="list-style-type: none"> A) Cuelgue el gancho en el alojamiento situado en la parte superior del horno. Introduzca la punta del espadín en el alojamiento que tiene el motor giratorio situado en la parte trasera del horno. La otra parte se apoyará en el gancho. B) Gire el conmutador para que accione el motor giratorio y la resistencia del grill. Seleccione la temperatura y el tiempo de asado. C) Una vez realizado el asado llevar el conmutador y el termostato a la posición cero. 	<ol style="list-style-type: none"> 1. Plaats de steunhaak in de opening die daarvoor voorzien is bovenin de oven. 2. Plaats de punt van de spies in de opening waarin zich de draaimotor bevindt, achterin de oven. Het andere uiteinde plaatst u op de steunhaak.
<p>Antes de realizar el asado, debe desenroscar el mango del espadín para poder cerrar la puerta del horno.</p>	<p>Let op: schroef het handvat van de spies los voor het braden, om de oven te kunnen sluiten.</p> <ol style="list-style-type: none"> 3. Draai aan de keuzeknop om de draaimotor en de weerstand van de grill aan te schakelen. 4. Kies de gewenste temperatuur en braadtijd. 5. Draai de keuzeknop en de thermostaat weer in de nulpositie zodra u klaar bent met braden.

Figure 1. Excerpt of ST section 2 and Diane's corresponding TT (posttest).

Diane's increased focus on the TT's visual structure became particularly evident in her translation of the second ST section *¿Cómo funciona el horno?* ('How does the oven work?'), as shown in Figure 1. This ST section

consisted of two parts: the first stated how to use the oven in general, without the turnspit, whereas the second part instructed the reader how to use the turnspit. The second part was, in contrast with the first part, already explicitly structured in the ST (by means of an A-B-C enumeration). Diane decided to introduce a numerical enumeration in the TT for the first part. This introduction was carried out immediately, as a first translation solution. Diane also restructured the ST list of steps described in the second part, going from a three-step to a five-step sequence by splitting steps A) and B) up into two steps each. This restructuring took place during the revision phase at the end of Diane's translation process.

Diane's critical reflection of the ST content structure can be deduced from the relocation of two ST sentences in the TT. She moved the last sentence of the second ST section (i.e., *Antes de realizar el asado [...] puerta del horno*—the instruction to unscrew the handle of the spit in order to close the oven door) upwards in the TT and placed it as a warning (*Let op*) in the second step of the second action sequence. Diane took this decision before she started typing in the corresponding TT sentence. Furthermore, she changed the information structure in her translation of the third ST section *Limpieza* ('Cleaning'), as can be observed in Figure 2.

Limpieza	De oven schoonmaken
La limpieza debe realizarse con una esponja o estropajo que no raye utilizando agua jabonosa o algún detergente suave. No limpiar cuando el aparato esté todavía muy caliente. Es conveniente limpiar periódicamente el espadín sumergiéndolo en agua jabonosa, frotándolo con estropajo; antes de volver a colocarlo debe secarse.	<p>Let op: reinig de oven nooit wanneer hij nog te warm is.</p> <p>Reinig de oven met een spons die geen krassen maakt en zeepsop of een mild detergent. Reinig de spies regelmatig door ze onder te dompelen in zeepsop en schoon te wrijven met een spons. Zorg ervoor dat ze weer droog is alvorens ze terug in de oven te plaatsen.</p>

Figure 2. Excerpt of ST section 3 and Diane's corresponding TT (posttest).

This ST section consisted of one paragraph containing three sentences. These entailed three content elements, viz., how to clean the oven, when not to clean the oven and how to clean the turnspit. Diane translated the second sentence containing the warning not to clean the oven while still hot (*No limpiar cuando el aparato esté todavía muy caliente*), by first adding a warning in Dutch *Let op* ('Beware') before typing in the translation of the ST. She also relocated this ST sentence in the TT. She did so in multiple

steps. Diane started introducing the third TT sentence (about how to clean the turnspit) right before the warning *Let op*. This action moved the second TT sentence to the bottom of the TT section. In the final revision phase, she eventually moved the warning to the beginning of the TT section (i.e., revision episode I in Figure 4). Previously, Diane had already moved upwards once in the TT to indent the warning *Let op* from the left margin (revision episode nr. 3 in Figure 4). Given Diane's focus on the visual structure of the TT, it perhaps seems strange that she did not introduce a numerical enumeration in the third TT section. However, she rightly decided not to, since these sentences do not constitute a sequence of steps that have to be carried out in a specific order.

With regard to chronological information order below sentence level, no clear changes can be observed between the pretest and posttest. Diane already paid attention to this issue, albeit for linguistic reasons rather than pragmatic motives, as shown by the first example in Section 4.3.1.

Titles

Action-driven, consistent titles constituted another element that had been addressed during the writing training. Diane applied this knowledge during her translation process, because she immediately formulated the TT titles in the same manner, without pausing for more than 2 seconds. Interestingly, Diane had already translated the ST titles consistently in the pretest: she translated *Funcionamiento* ('Operating') and *Mantener el quitapelusas* ('Maintaining the fabric shaver') by *Werking* ('Operating') and *Onderhoud* ('Maintenance'). During the retrospective interview, Diane argued that, in her opinion, TT formulation ought to be as compact as possible in user manuals. Moreover, she felt that the reader would already know that the TT concerned a fabric shaver, making the addition of *van de ontpluizer* ('of the fabric shaver') redundant. In the posttest questionnaire, Diane referred to clear and motivating titles as one of the quality requirements of Dutch user manuals that she took into account during her translation process. The reasoning behind the translation of the titles therefore seemed to have shifted from personal to more objective criteria.

Imperatives

The effect of the writing training on the transediting of illocutionary indicators remained limited. In the retrospective interview during the pretest, Diane already mentioned the consistent use of imperatives as the main quality requirement that she consciously paid attention to while drafting the TT. This also became visible in her (successful and

immediate) transediting of six out of seven rich points pertaining to the category of illocutionary indicators. In the posttest, she transedited all seven rich points, but, curiously, one of these incorrectly. Diane translated the Spanish passive must-construction as featured in *Para su utilización, debe procederse como sigue* ('For its usage, there must be proceeded as follows') with the Dutch present tense in third person singular *U gebruikt het als volgt* ('You use it as follows').²⁷ The expression *als volgt* seems to condition Diane in using the third person singular, since she also used a similar formulation (*gaat u als volgt te werk*-'you proceed as follows') in the pretest.

Consistent terminology

Diane commented during the retrospective interview in the pretest that consistency in terminology had motivated a number of translation solutions, for example for the Spanish word *el interruptor de funcionamiento*. This term is featured three times in the ST. The first time that it appears (i.e., *debe asegurarse que el interruptor de funcionamiento del aparato está en posición de apagado*), Diane omitted this term in the Dutch translation by using a paraphrase instead, which we previously discussed as example nr. 1 in Section 4.3.1: *Kijk [...] na of het apparaat uitgeschakeld is*. In the other two instances, Diane translated this term with the Dutch term *aan/uit-knop* ('on/off-switch'), precisely, as she explained in the interview, to obtain parallel sentences in the TT.

However, we can deduce from the following examples that, in the pretest, Diane's focus on terminology in the TT was primarily inspired by consistent terminology use in the ST. She did not fully reach terminological consistency and precision, when the ST contained hyperonyms and synonyms. This occurred for example in the translation of the ST terms *compartimento de las pilas* ('battery compartment') and *compartimento* ('compartment'), which she translated literally as *batterijcompartiment* and *compartiment*. Moreover, Diane interchangeably used the hyperonyms (and synonyms) *apparaat* and *toestel* ('device') alongside the Dutch term *ontpluizer* (fabric shaver) throughout the TT to refer to the device that was being described in the TT (even when the ST did not include this reference). Another example is the translation of the Spanish term *zona de cuchillas* (lit. 'zone of blades'). This term served as a synonym for the term *cabezal de cuchillas* (lit. 'head of blades') that was previously used in the ST. Diane translated both ST terms literally maintaining the ST's lexical variation in the TT. The log file shows that there was a long pause of 5.6 seconds

²⁷ Interestingly, Chris and Ellen made the same mistake.

right before the TT production of *messenzone* ('zone of blades'). The eye-tracking data revealed that during this time Diane looked through the final paragraph. This might suggest that Diane did encounter the ST term somewhat strange, but this did not make her abstain from a literal translation.

In the posttest, there was no inconsistent terminology to be found in Diane's translation at all. She consistently used the term *oven* ('oven') to refer to the household appliance described in the TT. She did not only do so in those instances when the ST featured *horno* ('oven') or the hyperonym *aparato* ('device'). Diane also used *oven* on several occasions to specify the object of a certain action, introducing explicitations not present in the ST. An example is Diane's translation of *Se realizará la nivelación* ('The levelling will be carried out'): *¿et de oven waterpas* ('Level the oven'). This is a clear improvement in comparison to her pretest, when Diane used a similar strategy albeit changing between the synonyms *apparaat* and *toestel*.

Diane also translated the terms designating the components of the oven and the turnspit, as well as their abbreviated forms, consistently in the posttest. For example, she translated both *gancho de soporte* ('support hook') and its hyperonym *gancho* ('hook') with the Dutch equivalent *steunhaak* ('support hook'). The log file data showed that these examples of consistent terminology use were all produced immediately and were not part of the revision phase. The log file also provided evidence that Diane had shifted from a ST-inspired focus on consistent terminology to a strategy motivated by the TT. Table 12 illustrates this by visualising how Diane translated the sentence *Seleccione la temperatura y el tiempo de asado* ('Select the temperature and the roasting time') into Dutch.

Table 12. Example Terminology use in Diane's TT (posttest)

Log data
[LSHIFT]Kies de gewenste temep[BACK][BACK]er[BACK][BACK]peratuur en kooktijd[RSHIFT].[RETURN]{4203}[Movement][LEFT Click][Movement]grill[BACK][BACK]ill [DOWN]{2016}[Movement][LEFT Click][Movement][Movement]braad[DOWN]
S-notation
Kies de gewenste tem[[ep] ³⁶|₃₆ er] ³⁷|₃₇ peratuur en ·[[kook] ³⁸|₃₉ {gr[ll] ⁴⁰|₄₁ {ill} ⁴¹] ⁴²|₄₂|₄₃ } ³⁹|₄₀ {braad} ⁴³ tijd. |₃₈

The translation of this ST sentence is rather literal, although Diane first chose the hyperonym *kooktijd* ('cooking time') as an equivalent for *tiempo*

de asado. She subsequently revised it with *grilltijd* ('grill time'), which she immediately changed for *braadtijd* ('roasting time') (revision nr. 38–43 in the S-notation). This use of *braadtijd* and the verb *braden* ('to roast') in the translation of the next ST sentence inspired later revisions in other parts of the TT. In the first related revision, Diane went back to the first sentence of the second TT section, which corresponded to the ST phrase [...] *la temperatura necesaria para el asado* ('the temperature necessary for the roast'), which she had translated with *de temperatuur die nodig is om te kunnen grillen*. The log data showed that Diane replaced the verb *grillen* ('to grill') in that TT sentence with the verb *braden* ('to roast'), which is the verb she used in the segment shown in Table 10. The second related revision was carried out in the revision phase. As shown in Section 4.3.1, Diane had translated the last part of the ST clause [*gire después el temporizador en el sentido de las agujas del reloj*] *hasta la posición deseada*²⁸ with [...] *tot de gewenste tijd* ('to the desired time'). She replaced the word *tijd* in the revision phase by the word *braadtijd* ('roasting time'), presumably for reasons of consistency.

4.3.3 Global process description

In this section, we will describe Diane's temporal organisation of the translation process in the pretest and posttest to reveal a potential effect of the writing training on the process level.

In the pretest, Diane's translation process was characterised by its linearity. She started her translation process by briefly scanning the ST for approximately 12 seconds. As Diane explained in the retrospective interview, this is her normal working method to get a general impression of the ST content. After having scanned the ST quickly, Diane started to translate the ST in a linear manner, using the electronic monolingual and bilingual dictionaries, and the Internet only when she was uncertain about the Dutch equivalent for a ST word or clause. Within 27 minutes, she produced a translation of the entire ST, which she subsequently revised during four minutes. This revision was also linear, going from the beginning of the TT to the end, and included one phraseological and two terminological revisions (see below). Diane confirmed during the retrospective interview that this constituted a typical translation process for her, as she always waits to revise her translation after having produced a TT of the entire ST. Diane also elaborated that she normally abstains from searching information in dictionaries and the Internet. Instead, she usually locates an adequate parallel text in Dutch and/or an image of the device

²⁸ See footnote 23 for the English translation.

that the ST describes, which she then uses in combination with common sense to solve ST interpretation problems.

In the posttest, Diane needed approximately 18.5 minutes to produce a translation of all ST segments, after which she revised for 12 minutes. She used the same linear working method as in the pretest, waiting to revise the translation until she had translated all ST segments. Diane's use of external sources was also similar. However, she spent relatively less time consulting these in the posttest than in the pretest, as can be observed in the focus events in Figures 3 and 4 (i.e., band underneath the graphs). In the pretest, Diane spent 20% of the total process time in external sources and 77% in Word, whereas these percentages were respectively 10% and 89% in the posttest.²⁹ Moreover, a shift in type of external sources could be observed: Diane restricted herself to electronic dictionaries in the posttest, whereas in the pretest she merely consulted information on the Internet.

The linear working method used in the pretest and posttest suggests that the writing training did not influence the translation process much. However, we can deduce from the descriptions above that Diane's final revision phase was much longer in the posttest. In fact, the final revision phase in the pretest amounted to 13% of total process time, whereas this was 39% in the posttest. More detailed analysis of the process data revealed that Diane's pausing and revision behaviour changed considerably after the writing training. Table 13 shows that, although Diane completed the translation task in the posttest in less time, she spent relatively more time pausing. Moreover, the mean length of pauses increased as well as the number of pauses longer than 10 seconds.³⁰ If we combine these data with the data regarding sources, we can observe that Diane paused for longer periods of time and spent relatively more time in Word. This might indicate a change in Diane's reflection and revision behaviour after the writing training.

²⁹ The remaining percentages (resp. 2% and 1%) are attributed to activities in other programs, such as Programs Manager or Taskbar.

³⁰ Similar results were obtained by the other participants, who registered fewer pauses but longer average pause lengths. The exception to this pattern was Brian, who registered opposite results concerning the number of pauses of ≥ 1 , 2 and 10 seconds, as well as regarding the average pause length.

Table 13. *Pausing data regarding Diane's pretest and posttest*

	Pretest	Posttest
Total process time ¹	32:55	30:28
Total pause time ^{1 2}	13:52	15:10
Ratio pause time/process time ²	42%	50%
Number of pauses \geq 1 sec.	282	222
Mean pause length of pauses \geq 1 sec.	3.781	5.249
Number of pauses \geq 10 sec.	19	27
Mean pause length of pauses \geq 10 sec.	16.626	23.475

1 (in minutes:seconds)

2 (pause threshold = 2 sec.)

The process graphs of Diane's pretest and posttest, visualised in Figure 3 and 4, provided evidence of a change in revision behaviour. In these figures, the beginning of the final revision phase is encircled and starts at the point where the amount of product characters (visualised by the product line) maintains stable. A comparison of Figure 3 and 4 reveals that, in comparison with the pretest, the final revision phase in the posttest was relatively much longer in duration (viz. 12 minutes vs. 4 minutes, amounting to 40% and 13% respectively of total process time). Moreover, this final revision phase consisted of more than one revision episode, as can be deduced from the striped line, which visualizes the cursor position movements.

As shown in Figure 3, the cursor movements suggest that Diane revised the translation only once during the pretest, since the cursor moved from the last TT word upwards to the 5th TT sentence (A in Figure 3) and again downwards to the second last sentence (B). The eye-tracking data confirmed one linear reading episode (interrupted by reading regressions) of approximately 3.5 minutes (episode A-B in Figure 3), but also revealed a subsequent, final quick read-through for thirty seconds that did not imply cursor movements.

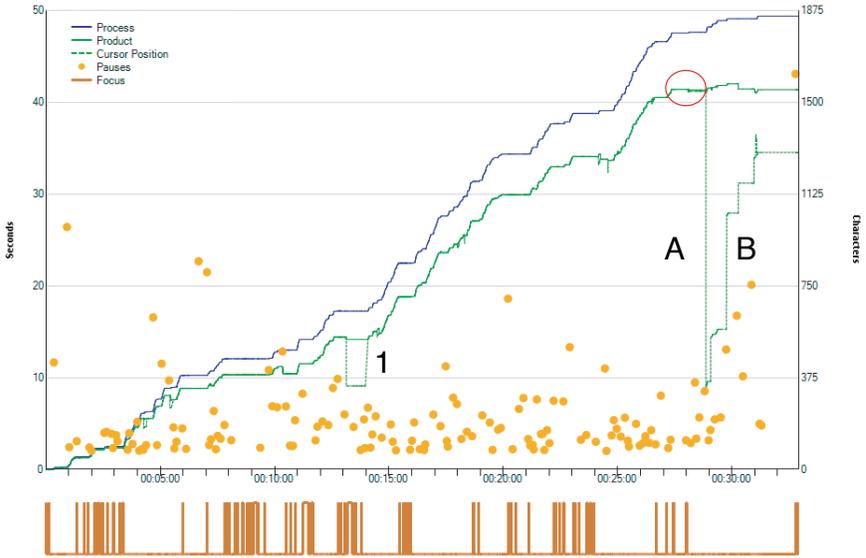


Figure 3. Process graph of Diane's pretest.³¹

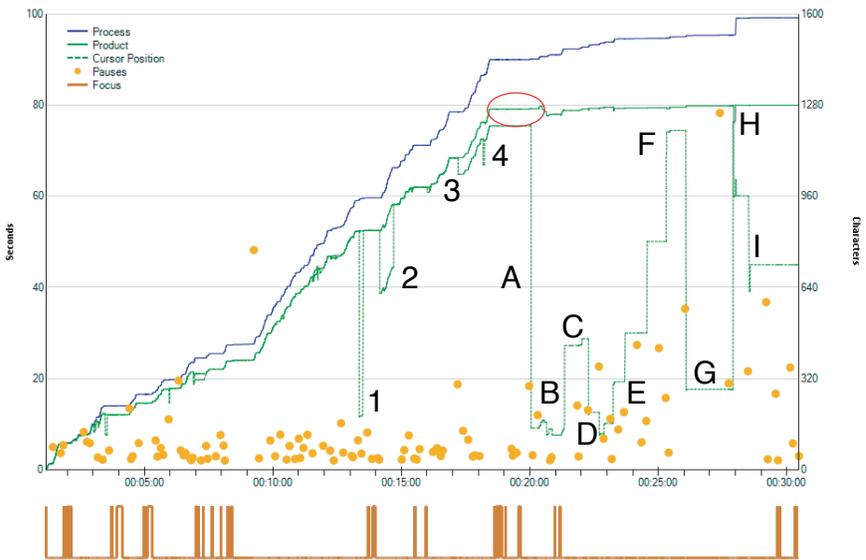


Figure 4. Process graph of Diane's posttest.

31 Additional information about the legend: the process line shows the amount of characters produced (including deletions), whereas the product line reveals the actual document length. The focus lines shown underneath the graph visualize when and how long external sources are being consulted (see Leijten, Van Waes, Schriver & Hayes, 2014, p. 298).

The cursor position movements were much more erratic in the posttest, as shown in Figure 4. Diane went considerably more often back and forth in the TT during her final revision. Moreover, there seemed to have been more than one revision episode. The first revision episode comprised a thorough check from approximately the beginning of the TT to the end (from 19 minutes to 28 minutes). At the beginning of this episode (A in Figure 4), Diane checked the word *spies* (turnspit) in the monolingual Dutch dictionary, which is visualised by the horizontal cursor position as well as the cluster of external-source consultation from 19.00 to 20.30 minutes. Subsequently, she moved upwards to the first sentence of the second TT section *Zet de bediening van de thermostaat op de temperatuur die nodig is om te kunnen braden* ('Put the button of the thermostat in the temperature that is needed to be able to roast'), which she revised to *Zet de bediening van de thermostaat in de gewenste temperatuur* ('Put the button of the thermostat in the desired temperature') going back and forth in the same sentence (as shown by the erratic cursor position movements, B in Figure 4). Diane subsequently moved downwards in the TT (as shown in the rise of the cursor position line) to the last part of the second sentence in the action sequence of how to use the turnspit (C): *opening daarvoor voorzien bovenin* (sic) *de oven* ('opening provided for that purpose in the upper part of the oven'). She revised this TT segment by introducing an adjectival clause: *opening die daarvoor voorzien is bovenin* (sic) *de oven*. The process graph shows that Diane subsequently moved upwards in the TT again (i.e., a fall in cursor position line) towards the TT segment of her first revision containing the general instruction of how to use the oven. The S-notation and revision matrix indicated that she first changed the translation of *resistencia adecuada* ('adequate resistance') from *juiste weerstand* ('correct resistance') into *gewenste weerstand* ('desired resistance'). She then moved further upwards to the previous TT sentence that she had already revised before (B), and changed the verbal phrase *Zet... in* into *Draai... naar* ('Turn to'). After this revision, Diane scrolled down to the description of the turnspit, where she replaced *is voorzien van* ('is provided with') by *bestaat uit* ('consists of') (E). This revision was followed by nearly two minutes (from 23.26 to 25.18 minutes) of bursts of mouse movements downwards in the TT, which were separated by pauses that varied from 6 to 27 seconds. This suggests re-reading of the final TT section. The next revision (F) concerned the penultimate and final TT sentences, which was followed by a long pause of more than 35 seconds. Subsequently, the cursor position moved upwards in the TT again towards the last step in the action sequence of how to use the oven in general (G). This likely initiates

the second revision episode. Diane introduced an explicitation into that TT sentence by changing the noun *tijd* ('time') into *braadtijd* ('roasting time'). After this revision, she paused for more than one minute (viz., 78 seconds) and no mouse activity was registered. It therefore appears that she read through the TT during this time. The letter H in Figure 4 shows that Diane subsequently moved the cursor to the final TT sentence, which contained at that time the warning not to clean the oven when hot. As we have described in Section 4.3.2, Diane moved this sentence upwards to the beginning of the third TT section (I). A few long pauses (entailing nearly 2 minutes in total) followed this last revision. Figure 4 indicates that, during these pauses, Diane scrolled a little further up the TT again, which suggests that she started revising the TT for a third time.

In addition to the change in final revision behaviour, another effect of the writing training appears to be that Diane started to move considerably more upwards and downwards in the TT while translating the ST. In Figure 4, we can observe a number of revision episodes (numbered 1, 2, 3 and 4) in the cursor-position line before the start of the final revision phase, whereas Figure 3 only contains one similar episode. Episode nr. 1 in Figure 3 represents Diane's problem-solving behaviour regarding the problematic ST term *nivel de apurado*. She had left this term partly untranslated (*het... niveau*-'the... level') at first, but returned to this TT segment after having translated the next two ST sentences. She initiated a new search on the Internet, but this did not provide a satisfactory solution, which prompted her to leave the TT segment like it was for the time being and continue her translation process. After having translated the entire ST, Diane returned to the very same TT sentence (see revision episode A) to insert the final translation solution: she deleted the translation solution *het... niveau* and inserted *de stand van de messen* ('the position of the blades'). During the retrospective interview, she explained that she had reached this translation solution thanks to the last ST section, which discusses how to maintain the fabric shaver and how to clean the shaving head and its blades by unscrewing the *anillo regulador de apurado* ('defuzz regulator ring'). Diane associated this term with the previously mentioned term *selector regulador de niveles de apurado*, from which she deduced that you could move the blades closer to or away from the grill by turning the regulator ring. This enabled her to revise her previous translation solution with *de stand van de messen* and *messenstand* (in the subsequent TT sentence).

In the posttest, more recursive behaviour could also be observed in the TT-production phase. In Figure 4, revision episode nr. 2 corresponds

to the relocation of the ST sentence about the instruction to unscrew the handle of the turnspit in order to close the oven door, which was previously discussed in Section 4.3.2. Episode nr. 3 concerns the restructuring of the third ST section concerning the cleaning of the turnspit oven. As discussed in Section 4.3.2, Diane carried out this restructuring in multiple steps while producing the translation of the corresponding ST sentences. Revision episode nr. 4 is related to the same segment and visualizes how Diane had previously moved upwards in the TT to indent the warning *Let op* from the left margin. As described in Section 4.3.2, the revision of the TT term *kooktijd* into *grilltijd* and subsequently into *braadtijd* inspired the revision of a verb previously used in the TT, viz., *grillen*, into *braden*. This corresponds to episode nr. 1 in Figure 4.

5. Discussion

In this section, we will first address the transfer of writing training information to the translation context by the professional translators. Subsequently, we will discuss what writing training contributed to their translation processes and products. Finally, we will address a number of methodological considerations.

Transfer

The present study follows the research line initiated in Chapter 3 and 4. A priori, it was assumed that professional translators would have a higher level of translation competence than undergraduate translation students and that, due to automaticity of certain cognitive processes and more available cognitive resources, professionals would show overall a more extensive, if not complete, integration of writing training elements in their translation processes, both on micro-textual and macro-textual level. This layered premise presents a number of methodological difficulties. First, it is naturally difficult to establish on the basis of a single translation performance whether the professional translators as a group indeed have a higher level of competence than the group of translation students, regardless of individual differences within each group. Second, product quality is often used as an indicator for translation competence, but the multi-componential concept of competence is complex to grasp in one single measure, since it affects both product and process aspects. Third, the working experience and translation degree of professionals might give them a head start in terms of text-productive skills and their use in the translation process. This makes it difficult to determine not only whether

professional translators apply writing training elements extensively in their translation process, but also whether this incorporation is more extensive than among translation students.

Taking these reservations into account, the average holistic and overall analytic pretest assessments of the professionals and translation students indeed point to a higher competence level of the professionals. The overall relative frequency of correctly translated rich points in the posttest (viz., 78%) and of formatting and design elements, as well as the qualitative process data, suggest that professionals indeed integrated writing training elements extensively into their translation process. Given they already translated on average 60% of the rich points correctly in the pretest, the effect of the writing training might nonetheless be more limited than the one observed among the translation students, whose transediting of rich points went from 25% to 64%. Furthermore, it cannot be confirmed that the professionals' use of writing training elements concerned both micro-textual and macro-textual features. On the one hand, the professionals already showed considerable attention for micro-textual features in the pretest, which makes the apparent effect of writing training on these features relatively small. Moreover, the attention for action-driven formulation of titles remained scarce, even after the writing training. On the other hand, the relative frequency of correctly translated rich points related to macro-textual features (e.g., consistency in titles and macro-information structure) increased considerably from pretest to posttest. Thus, translators with a higher level of translation competence indeed apply writing knowledge extensively in a translation task, but there still is room for further improvement in the transfer. This interpretation is supported by the variation in the amount and type of writing training elements that the professional translators individually applied in their translation process. The case study of Diane described a translation performance that can be classified as "consistently superior" to the other translators: Diane completed the translation tasks in the pretest and posttest in the least amount of time, scored highest on the holistic and analytic assessment in both tests, and she incorporated (nearly) all writing training elements in her translation process. However, the transfer found in this case study cannot be generalized to other participants.

The extensive yet incomplete transfer of writing training information to the translation task begs the question: what are the factors that influenced the professionals' transfer? Lack of available cognitive resources was a priori not thought to be an issue among the professional translators.

However, the data cannot completely rule out that the lack of available cognitive resources or cognitive overload may have played a role among some of the professional translators. Angela, for example, scored lowest on the holistic and analytic assessments in the pretest (even though she was the second fastest translator with most years of professional experience).³² She hardly made any use of writing training elements in her posttest, except for a more consistent use of Dutch imperatives and terminology. Moreover, she expressed in the questionnaire and verbally to the researcher that she had tried to “apply what we had previously learned”, but that problematic ST interpretation had hindered her from implementing more elements in her translation than “thinking about the user” and using imperatives. Moreover, her responses to the questionnaire statements concerning the difficulty of ST interpretation, TT production, overall task difficulty and satisfaction with the end product (Appendix 5, questions A, B, D, E) showed that she had encountered the task to be rather difficult.³³ Chris’ and Brian’s responses to the questionnaires revealed similar difficulties.³⁴ Thus, even professional translators who have a relatively high translation competence but do not reach the expert-level may still suffer from cognitive overload. The fact that the task commended in this study did not constitute a routine-task for the professional translators might be an explanation for this. These interpretations are related to a point made by Jääskeläinen in her article on translation expertise: “[...] in translation process research it has been found that contrary to the assumed general automaticity of professional translation, some of the most successful professionals engaged in more effortful processing activities than novices or unsuccessful professionals” (2010, p. 218).

The lack of sufficient retainment and internalization of the acquired writing training information seems to have been another important factor influencing the transfer of writing information to the translation task. Retainment of the information provided during the writing training seemed to have been particularly problematic for Angela. Although retainment was not explicitly tested, her succinct and vague answers to questions I-IV (Appendix 5) about the quality requirements of user manuals and about the deliberate use or avoidance of writing training

32 Angela’s holistic score was slightly below the students’ overall holistic score (5 vs. 5.6), but she committed considerably fewer translation errors than the students (39 vs. 49.3).

33 For this analysis, statements D and E were recoded to obtain similar directionality. Angela’s average agreement with the four statements was 4.5 (1).

34 The average agreement of Brian, Chris and Ellen with the questionnaire statements related to task difficulty was 4.5 (1), 5 (.82) and 3 (1.15) respectively. Diane’s average agreement was 1.75 (0.5).

elements in the translation task indicated little retainment. The other four translators mentioned more and more specific writing training elements, even Chris and Ellen. However, it is curious to observe that those rich points that were not translated correctly by Brian, Chris and Ellen (i.e., consistent and action-driven titles) were not mentioned by them in the questionnaires either. This too hints at partial retainment. Moreover, Chris and Ellen mentioned in their questionnaires to have used certain writing training elements in their translation (such as chronological information order in the case of Chris, and imperatives for Ellen), but their translation did not systematically attest to these. Since the posttest immediately succeeded the writing training, the translators might not have had sufficient time to internalize all the information provided during the writing training.

Another factor might be the translators' adaptiveness or flexibility to apply newly acquired information (or knowledge) to solve a familiar task. The willingness and ability to adapt core competences and routine problem-solving behaviour to new settings has been related to the concept of 'adaptive expert' in studies of expertise (e.g., Hatano & Inagaki, 1986) and in research on transfer of learning (e.g., Schwartz, Bransford & Sears, 2005). 'Adaptive experts', a concept proposed by Hatano and Inagaki (1986), are characterized by their "ability to verbalize the principles underlying their skills, [...] to judge conventional and non-conventional versions of skills as appropriate, [...] to modify or invent skills according to local constraints, [...] to learn from new situations and avoid the over-application of previously efficient schema" (Lin, Schwartz & Bransford, 2007, p. 57). In contrast, 'routine experts', who are highly efficient and accurate in solving recurrent problems due to a large knowledge base in a particular domain, are not characterized by innovation and creativity. It might be a bit far-fetched to relate these insights to the present study, because only Diane could be considered an expert translator (and given the positive transfer most likely an 'adaptive expert').³⁵ However, the ability to change familiar problem-solving procedures might still have played a role in the amount and type of writing training elements that the professionals applied in their translation task. The perceived merit of 'going out of your comfort zone' may be of influence on the willingness to change: when

35 The fact that the other four translators did not "display expert-behaviour" confirms the statement made by Jääskeläinen: "while all experts are professionals, not all professionals are experts, especially in the context of the requirement for 'consistently superior performance'" (2010, p. 215). Göpferich (2010b) argues that professionals may not match our expectations, because of deviating quality criteria (e.g., equivalent-based criteria instead of functional criteria) and inexperience in the text genre to be translated.

professionals consider it highly unlikely that they can and will use the writing information in their professional translation practice—e.g., due to customer reluctance or even refusal, and/or software limitations posed by translation memories—, this may negatively affect transfer. However, the translators' answers to related questions (i.e., questions i and j in Appendix 5) did not provide conclusive evidence to support this interpretation. Diane saw the applicability of the writing information most feasible in her professional practice, but Angela, Brian, Chris and Ellen were less convinced.³⁶

Effect of writing training on translation product and process of professional translators

The writing training seems to stimulate professional translators to take into account the target readers and their interaction with the TT more consciously in their translation process. This can be deduced from the qualitative process data as well as the product data. In the pretest, the retrospective interviews and the questionnaires did not contain indicators to suggest that the target reader played any specific role in the decision-making process of the professionals. In contrast, 'the user' was explicitly mentioned in the posttest questionnaires as one of the writing training elements used in the translation task, even by the two professional translators whose translation products did not manifest extensive incorporation of writing training elements. The shift in focus from linguistic to non-linguistic issues in the product data points to more attention for the function and usage of the TT. In the pretest, the professionals followed the ST quite strictly and more free translation solutions were primarily based on linguistic criteria to create a more fluent Dutch text. These linguistic, and more specifically stylistic, criteria inspired the transediting of illocutionary indicators, micro-textual information structure and terminology. In the posttest, most translators paid attention to pragmatic aspects as well, such as macro-textual information structure, consistent titles and visual design of the TT. In other words, the professionals not so much shifted but rather extended their focus from exclusively linguistic, stylistic aspects

36 Diane, Angela, Brian, Chris and Ellen's agreement with question i (regarding the impossibility to apply writing information due to customer reluctance) was 1, 4, 5, 5 and 3 respectively (1 being complete disagreement and 7 complete agreement). The responses of question j (regarding the impossibility to apply writing information due to software constraints) were 3, 4, 3, 1, 4 respectively. The translators' field of specialisation seems to have influenced these answers, as can be deduced from the remark added by Chris. He specializes in legal translation, a field in which ST loyalty is dominant, instructive texts are less frequent and translation memories are not yet commonly used. The same seems to be valid for Brian, who expressed in the pretest that free translation and rewriting or adaptation of the ST is uncommon and impossible in his professional practice.

to pragmatic elements. More conscious consideration of the target reader was also found in the previous study among translation students.

The user-perspective may also have increased or changed the translators' awareness of linguistic elements, as the significant decrease in stylistic translation errors (i.e., *category B*) proved. In fact, even those professional translators who applied very few writing training elements in their translation task improved considerably in this area, decreasing both *B2* (i.e., non-idiomatic TT) and *B3* (i.e., inconsistent terminology) errors. This result is distinct from the findings of the previous study among translation students, where no clear impact on stylistic errors could be ascertained. It is difficult to find clear explanations for this discrepancy between professional translators and translation students.

The writing training also seems to have provided the professional translators with more detailed knowledge of the characteristics of quality user manuals, and consequently of the translation task at hand. In the pretest, the professional translators manifested rather general, linguistically -focused genre knowledge. Most translators mentioned two to three TT quality criteria they had taken into account during the translation process (question I in Appendix 4): the use of imperatives in Dutch (as Brian stated "you should say 'do this, do that'"), natural sounding sentences that are not too "stiff" or "bombastic" (in Chris' words), and the use of standard Dutch instead of Flemish linguistic variants (Angela's response). In the posttest, the same question received more detailed answers, which were related to specific textual components: consistent use of imperatives, avoidance of synonyms, striving for conciseness and clarity, taking on the user perspective, using unambiguous and motivating titles, and clearly explaining and visualizing the steps that users have to carry out. The significant decrease in genre-related translation errors (i.e., *category C*) further supports this finding. This effect of writing training was in line with findings among translation students.

Writing training did not seem to have a disruptive effect on the translation process of the professionals. When they used writing training elements in their translation task, they did so immediately while producing the TT. Moreover, four out of five translators completed the posttest faster than the pretest (except Brian), which suggests that writing training did not lengthen processing time either. From the case study of Diane's translation process, we can also deduce that extensive incorporation of writing training elements in a translation context did not alter the organisation of her translation process in various phases, although the relative distribution

of time across the phases changed. The writing training also seems to lead to more reflection, as can be deduced from the differences in Diane's pausing behaviour in the pretest and posttest, as well as the distinct length and recursivity of her final revision phase. Although the nature of this increased reflection remains unclear, a more critical evaluation of ST quality seems to be part of it. This could be observed in the comparison of translators' response to question II (see Appendix 4 and 5) before and after the writing training. In the pretest, no translator voiced any criticism about the quality of the content, structure or formulation of the ST, but they expressed several concerns in the posttest (with the exception of Angela). Their criticism primarily concerned the visual and chronological structure of the ST, as well as its long and "vague" sentences. Similar results were found among the translation students, who were also more critical of the ST quality after the writing training. Moreover, the higher recursivity of their translation of the rich points also indicated an increase in reflection from pretest to posttest.

Methodological considerations and suggestions for further research

The present, exploratory study invites a number of methodological considerations as well as suggestions for further research. First, the professional translators who participated in this study did not (or not frequently) translate user manuals in their daily practice. This double characteristic (i.e., lack of experience in this specific text genre combined with a relatively high translation competence) was ideal in relation to the previous study (reported in Chapters 3 and 4). It has allowed us to examine how translators with relative low and high translation competence (translation students vs. professional translators), both without experience in the text genre of user manuals, are able to transfer information acquired in writing training to their translation process. The next step in this research continuum would be to observe the effect of writing training on professional translators who are experts in translating user manuals. This may shed additional light on the importance of routine vs. adaptive expertise for transfer, as well as on the question whether professional translators without any technical writing training learn how to produce good user manuals through deliberate practice in translating this genre.

Second, a few adjustments in the experimental design may be needed for future research. In the present study, the posttest immediately followed the writing training and was organised in a group setting. It is possible that the combination of the two-and-a-half hour-long writing training and the one hour-long translation task (which were organised at

the end of a regular workday) has negatively impacted the participants' concentration. Organising the posttest not immediately after the writing training may circumvent fatigue as well as the issue of "sequestered problem-solving"³⁷ (Bransford & Sears, 1999). Moreover, the group setting did not allow for collecting qualitative data via retrospection, a method that provided valuable information in the pretest.³⁸ The questionnaires provided reasonable insight into the participants' metacognitive knowledge. However, this method still left quite a number of questions unanswered about the retainment of the writing training and the potential reasons of negative transfer, which might be avoided by conducting individual retrospective interviews. The group setting did not allow for the use of an eye tracker either. The fixations, saccades and regressions had provided valuable qualitative information in the pretest to contextualise the process data yielded by the keystroke logging (see case study). Eye-tracking also proved to be useful for the cued retrospective interviews: the replay of the eye-tracking video contains additional cues (e.g., eye movements and fixations) to stimulate recall in participants, cues which are not present in the replay of screen captures or keystroke logs. Consistent use of eye tracking should therefore be reconsidered in future studies given its valuable insight into how reading and TT production are related (Van Waes, Leijten & Quinlan, 2010). Moreover, quantitative analysis of pupil dilations, which was beyond the scope of this exploratory study, may provide empirical indicators of cognitive (over)load (O'Brien, 2013; Seeber, 2013). The present study, and more precisely the global findings regarding the evolution in stylistic translation errors, has shown that rich-point analysis alone may not reveal all effects of writing training on terminology use. Diane's case study has shown that, even if the ST contains consistent terminology and consequently in itself does not pose a translation problem, translators' solutions for these features may indeed affect terminology use throughout the TT. This confirms the importance of TT analysis in addition to rich-point analysis.

37 Bransford and Sears (1999) relate sequestered problem-solving (SPS) with "direct-application tests" of transfer. These tests study the participants' ability to directly apply their previous learning to a new setting or problem, without having had any opportunities "to demonstrate their abilities to learn to solve new problems by seeking help from other resources such as texts or colleagues or by trying things out, receiving feedback and getting opportunities to revise" (1999, p. 68).

38 It could be argued that the retrospective interviews in the pretest may have triggered a learning effect, but no proof of this was found in the posttest data.

6. Conclusion

The present study explored the effect of writing training among professional translators (i.e., professional translators) to examine whether translators with a relatively high translation competence would transfer writing training information more extensively to their translation tasks. Overall, the professional translators indeed applied writing training elements rather extensively in their translation processes. However, the type and amount of writing information that the translators applied individually differed considerably. Nonetheless, the writing training seems to have a positive effect on the genre knowledge of the professional translators as well as on their awareness of the needs and expectations of the target audience. Writing training also seems to positively influence translation quality, as the professionals committed considerably fewer stylistic and genre-related translation errors. Writing training also seems to have stimulated reflection among the professional translators, particularly in the revision phase of the translation process.

Acknowledgements

We would like to thank the professional translators who participated in this study. Many thanks to Charlotte Klima for co-assessing the translation products.

Appendix 1: Source text pretest (fabric shaver)

Funcionamiento

Hay que insertar 4 pilas alcalinas (4 x 1,5V AA/LR6) en el compartimento de las pilas siguiendo las indicaciones de polaridad. Se cerrará el compartimento presionando la tapa y deslizándola hacia abajo.

Antes de insertar las pilas, debe asegurarse que el interruptor de funcionamiento del aparato está en posición de apagado.

Ponga la prenda sobre una superficie lisa.

Seleccionar el nivel de apurado deslizando el selector regulador de niveles de apurado.

Situar el interruptor de funcionamiento en posición de encendido.

Deslice suavemente, sin presionar, el quitapelusas sobre la prenda estirada adecuando el selector de apurado a cada necesidad. La pelusa y fibras se recogerán en el depósito transparente. El depósito de pelusas no debe llenarse más de sus $\frac{3}{4}$ partes.

Apague el quitapelusas situando el interruptor en posición de apagado.

Mantener el quitapelusas

Le recomendamos vaciar el depósito de pelusas después de su uso.

Extraiga el depósito de pelusas deslizándolo hacia abajo y vacíelo.

Debe limpiar la rejilla con la ayuda del cepillo que se adjunta.

Para limpiar la parte interna de la rejilla y el cabezal de cuchillas proceda de la siguiente manera:

Retire el anillo regulador de apurado deslizándolo hacia fuera hasta retirarlo del aparato, extraiga la pieza plástica con rejilla ayudándose de una herramienta de superficie plana, limpie las pelusas cuidadosamente con el cepillo para no dañar la zona de cuchillas, y limpie las partes plásticas con un paño seco.

No utilizar sobre prendas húmedas, de textura irregular o delicadas como hilo, seda y punto fino.

Appendix 2: Source text posttest (turnspit oven)

¿Cómo instalar el horno?

Se realizará la nivelación mediante cuatro patas regulables que tiene en la parte inferior.

¿Cómo funciona el horno?

Sitúe el mando del termostato en el punto que indique la temperatura necesaria para el asado, coloque el mando del conmutador para que funcione la resistencia adecuada y gire después el temporizador en el sentido de las agujas del reloj hasta la posición deseada.

El asador rotativo va provisto de un motor giratorio, un gancho de soporte y un espadín con una empuñadura de baquelita. Para su utilización debe procederse como sigue:

- a) Cuelgue el gancho en el alojamiento situado en la parte superior del horno. Introduzca la punta del espadín en el alojamiento que tiene el motor giratorio situado en la parte trasera del horno. La otra parte se apoyará en el gancho.
- b) Gire el conmutador para que accione el motor giratorio y la resistencia del grill. Seleccione la temperatura y el tiempo de asado.
- c) Una vez realizado el asado llevar el conmutador y el termostato a la posición cero.

Antes de realizar el asado, debe desenroscar el mango del espadín para poder cerrar la puerta del horno.

Limpieza

La limpieza debe realizarse con una esponja o estropajo que no raye utilizando agua jabonosa o algún detergente suave. No limpiar cuando el aparato esté todavía muy caliente. Es conveniente limpiar periódicamente el espadín sumergiéndolo en agua jabonosa, frotándolo con estropajo; antes de volver a colocarlo debe secarse.

Appendix 3: Writing training (selection of slides)



Functions

- Learning function
- Reference function
- Motivational function
- Legal function

0



Basic principles

Effective & efficient

- ✓ Relevance
- ✓ Completeness
- ✓ Clarity

1



Form - examples







Recept maïskoekjes

In ingrediënten
1 Blik maïs (uitgelekt, ca. 175 gram), 1 kleine prei, grof gehakt, alleen het wit en lichtgroen, 1 bosje scedjerij, 1 teen knoflook, 1 grote rode Spaanse peper of 2 el sambal, 2 eieren, bloem, 2 el dijsten, 2 el ketjap, zout en olie.

Bereiding
Doe de maïs, prei, scedjerij, knoflook en Spaanse pepers in een blender en laat deze even draaien. Let op: niet te lang, het moet geen brei worden.
Doe het geheel over in een kom en meng er de eieren, de specerijen, de ketjap, wat zout en vervolgens zoveel bloem door dat het een kleverig deeg wordt.
Verhit in een koekenpan op laagvuur voor een laagje olie van een halve centimeter en laat oefspels van het deeg in de hete olie glijden. Strip ze plat zodat zich een koekje vormt en bak ca. 3 minuten aan iedere kant of tot ze goedbruin zijn. Laat uitklimmen op koekenpapier.
Lekker met zoete chilisaus.

HELPSTART
volg orde aansluiten startkabels
1-2-3-4
starten
10 minuten laden met startkabels
startkabels losnemen
volg orde
4-3-2-1

2



Content and structure

Content sections

Inleiding

Hartelijk dank voor de aanschaf van dit Philips-scheerapparaat. Lees deze gebruiksaanwijzing door, want deze bevat informatie over de gewichtige kenmerken van dit scheerapparaat en een aantal tips om het scheren gemakkelijker en prettiger te maken.

Waarschuwing

- Wees voorzichtig met heet water. Controleer altijd of het water niet te heet is om te voorkomen dat u uw handen verbrandt.

Snel opladen

Als u het scheerapparaat 5 minuten hebt opgeladen, bevat de accu voldoende energie voor één scheerbeurt.

1. Steek de kleine stekker in de oplader.
2. Steek de adapter in het stopcontact.
3. Plaats het scheerapparaat in de oplader. Druk het scheerapparaat goed vast in de houder.



Gevaar

Explosiegevaar. Geen werktuigen e.d. op de accu, d.b. op eindbol en accuconnector leggen.

Verwondingsgevaar. Wonden nooit in contact brengen met toed. Na het reuk aan accu's altijd de handen reinigen.

Veelgestelde vragen

1. Waarom scheert het scheerapparaat minder goed dan eerst?

- Mogelijk is het scheerapparaat niet goed schoon. Schakel het scheerapparaat in en dompel de scheerunit in warm water met wat vloeibare zeep (zie hoofdstuk 'Schoonmaken en onderhouden').
- De scheerhoofden kunnen beschadigd of versleten zijn. Vervang de scheerunit (zie hoofdstuk 'Vervangen').

Garantie

In ieder land zijn de door ons bevoegde verkooptentoren uitgegeven garantievoorwaarden van toepassing. Eventuele wijzigingen aan het apparaat verhelpen wij zonder kosten binnen de garantietermijn, mits een materiaal of fabricatiefout de oorzaak van deze storing is. Neem bij klachten binnen de garantietermijn contact op met uw leverancier of de dichtstbijzijnde klantenservice-locatie en neem uw aankoopbewijs mee.

CE-verklaring

Hierbij verklaart Philips dat de naam van de machine door deze ontwerp en bouwwijze en in de door ons in de handel gebrachte uitvoering voldoet aan de essentiële eisen, zoals vermeld in de desbetreffende EU-richtlijn. Deze verklaring wordt niet geldig wanneer zonder toelating met een wijziging aan de machine wordt aangepakt.

Model:	U1000-5000
Type:	T1000-5000
Van koppeling op de BS-richtlijn	
BS 01/02	
2006/95/EG	
2006/102/EG	
2006/96/EG	
2002/95/EG	
Niet-gevaarlijke gebieden	
EN 60335-1:2008 + A1 2011 + A2:2012	

3



Titles

Exercise 1: User manual digital tv

Zoekfunctie	37	Wissen	47
Zoekcriteria	38	Bijlagen	48
Zoekresultaten	39	Overzicht adressen	51
Nieuwe zoekopdracht	39	Adresboek	52
Communicatie	40	Zoeken	53
E-mail	42	Toevoegen	54
Verzenden	44	Automatisch invoeren	56
Antwoorden	46		

Op zoek naar een programma of film	37
Zoekcriteria instellen	38
Zoekresultaten	39
Opnieuw zoeken	39
Communicatie	40
E-mails lezen	42
E-mails sturen	44
Een nieuwe e-mail sturen	44
Een e-mail beantwoorden	46
Een e-mail wissen	47
Bijlagen	48
Een overzicht opvragen van de adressen bij een e-mail	51
Adresboek	52
Een contactpersoon zoeken in het adresboek	53
Een contactpersoon toevoegen aan het adresboek	54
Een contactpersoon automatisch in een e-mail invoeren	56

Universiteit Antwerpen 4



Titles

- Action-driven: object + action verb
- Consistency
- Comprehensibility
- Numbered if they form one global task

Universiteit Antwerpen 5



Action sequence

Enumerated sequence of actions:

- All necessary steps
- Chronological information order
 - ✓ In text
 - ✓ In action sequence
 - ✓ In one single step

Universiteit Antwerpen

6



Action sequence

- Sufficient detail
- Number of actions in one step:
 - ✓ Easy to remember
 - ✓ Time of action
 - ✓ Place of action
 - ✓ Unity of action-> switching of reading and doing

5 stappen	3 stappen	2 stappen
1. Vouw het papier dubbel. 2. Steek het papier in het apparaat. 3. Druk op de aan-knop. 4. Wacht tot het papier geheel versnipperd is. 5. Druk op de uitknop.	1. Vouw het papier dubbel. 2. Steek het papier in het apparaat en druk op de aan-knop. 3. Wacht tot het papier geheel versnipperd is en druk op de uitknop.	1. Steek het dubbelgevouwen papier in het apparaat en druk op de aan-knop. 2. Wacht tot het papier geheel versnipperd is en druk op de uitknop.

Universiteit Antwerpen

7



Outcome information

- Result of an action
- Control mechanism
- Motivating

Various formulations:

- ✓ Result
- ✓ Result and goal
- ✓ Observation by user
- ✓ Result=action by system

Druk op de aan-knop zodat het rode lampje gaat branden.

U ziet nu een blauw lichtje verschijnen.

De verwijderde berichten worden opgeslagen in de map Verwijderde berichten.

Universiteit Antwerpen



Action sequence and outcome information

Lay-out

De fotograaf gefotografeerd

Het kan voorkomen dat er een foto moet worden gemaakt van alle aanwezigen, inclusief de fotograaf. Hiervoor gebruikt u de zelfontspannfunctie. Met deze functie stikt u een pauze van tien seconden in tussen het moment dat u op de sluitenknop drukt en het moment dat de foto wordt genomen.

- 1 Schakel de camera in en zet de schuifschakelaar op Capture (opname).
- 2 Druk op de knop Self-Timer (zelfontspanner).

Het pictogram van de zelfontspanner verschijnt in het statusdisplay.

Als u de zelfontspanner wilt uitschakelen voor de foto is genomen, drukt u nogmaals op de zelfontspannerknop of schakelt u de camera uit.

- 3 Plaats de camera op een vlakke en stevige ondergrond of op een statief.
- 4 Breng in de zoomer het onderwerp goed in beeld en druk op de sluitenknop.

Het rode zelfontspannersymbool gaat dan en blijft acht seconden branden. Daarna knijpt het ongeveer twee seconden vervolgens verscht de foto genomen. De zelfontspanner wordt uitgeschakeld nadat de foto is genomen.



Universiteit Antwerpen



Action sequence and outcome information

Exercise 2

Je kunt alle podcasts automatisch bijwerken. Je moet dan de optie 'Alle podcasts automatisch bijwerken' kiezen. iTunes werkt de podcasts op de iPod bij met de podcasts op de computer, als je op 'OK' klikt. Een andere mogelijkheid is een selectie maken van de podcasts die je wilt bijwerken. Je dient dan 'Alleen geselecteerde podcasts automatisch bijwerken' te kiezen. Om alleen een selectie automatisch bij te werken, plaats je een vinkje in de vakjes naast de podcasts die je wilt bijwerken en kies je een optie uit het venstermenu. Als je op 'OK' klikt, werkt iTunes de geselecteerde podcasts op de iPod bij met de geselecteerde podcasts op de computer. Tot slot kun je ook een beperkt aantal afleveringen automatisch bijwerken op de iPod. Kies een van de opties voor automatisch bijwerken en kies vervolgens een optie uit het venstermenu 'Bijwerken': 'Alle afleveringen', 'Alleen gemarkeerde afleveringen', 'Alleen meest recente aflevering' of 'Alleen niet afgespeelde afleveringen'.

Universiteit Antwerpen

10



Stappenlijst en uitkomstinformatie

Taak in iTunes	Stappen
Alle podcasts automatisch bijwerken	<ol style="list-style-type: none"> 1. Kies 'Alle podcasts automatisch bijwerken'. 2. Klik op 'OK'.
Geselecteerde podcasts automatisch bijwerken	<ol style="list-style-type: none"> 1. Kies 'Alleen geselecteerde podcasts automatisch bijwerken'. 2. Plaats een vinkje in de vakjes naast de podcasts die je wilt bijwerken. 3. Klik op 'OK'.
Beperkt aantal afleveringen automatisch bijwerken	<ol style="list-style-type: none"> 1. Kies een van de opties voor automatisch bijwerken. 2. Kies een optie uit het venstermenu 'Bijwerken': <ol style="list-style-type: none"> a. 'Alle afleveringen' b. 'Alleen gemarkeerde afleveringen' c. 'Alleen meest recente aflevering' d. 'Alleen niet gespeelde afleveringen' 3. Klik op 'OK'.

Universiteit Antwerpen

11



Warnings

At the right time and at the right place:

- ✓ Beginning of documentation
- ✓ In action sequence
 - ✓ Directly before risky step
 - ✓ As a step → chronological information order

Klaarmaken voor gebruik

Opladen

Het duurt ongeveer 10 uur om de accu's volledig op te laden. Als de accu's volledig zijn opgeladen, hebt u een snoerloze scheertijd van maximaal 40 minuten.

Schakel het apparaat altijd uit voordat u de stekker in het stopcontact steekt.

- Plaats het apparaatstekkerkje in het apparaat (1). Steek de adapter in een stopcontact (2) (fig. 3).
- Het oplaadlampje op de adapter gaat branden.

Opmerking: Het oplaadlampje op de adapter blijft branden tot het apparaat volledig is opgeladen.

4 De machine doorspoelen vóór het eerste gebruik

U moet de SHREDDOP-scheermachine vóór het eerste gebruik doorspoelen. Na het doorspoelen, staat de accu's circa 2 minuten in laadstand voordat u de machine klaar voor gebruik en kunt u SHREDDOP-lijm te gebruiken.

- Let op: Schakelen het doorspoelen moet. Anders wordt de batterij niet correct geladen.
- Beroep op het een of meerdere van de twee stappen van het doorspoelen van de accu's en het apparaat (1) en (2) moet de accu's en de machine niet te lang in de laadstand (2) te laten.



- Let op: Zorg ervoor dat de accu goed is geladen. Plaats de accu's in de machine (1) en steek de adapter in een stopcontact (2) en wacht het water uit van de machine (2).



Appendix 4: Questionnaire pretest**GENERAL INFORMATION**

-
- | | |
|--|--|
| 1. Date of birth |/..... /..... |
| 2. Mother tongue(s)
(more than 1 answer possible) | 0 Dutch
0 Other |
| 3. Number of years and months
of experience as a professional
translator as primary occupation | years and months |
| 4. Highest educational degree
obtained
(more than 1 answer possible) | 0 Linguistics Major and minor/
Languages:
0 Interpreting Language combination:
.....
0 Translation Language combination:
.....
0 Other |
| 5. Source languages
(more than 1 answer possible) | 0 German
0 English
0 French
0 Italian
0 Spanish
0 Other |
| 6. Do you also translate from your
native language? | 0 No
0 Yes
Into which language do you
translate?
..... |
| 7. Translation specialism
(more than 1 answer possible) | 0 Audiovisual translation
0 Economical texts
0 Legal translation
0 Literary translation
0 Technical translation
0 Other
..... |
| 8. How often do you translate user
manuals? | 0 Once a month
0 Once every three months
0 Once a year
0 Never |

Questions TRANSLATION PROCESS

I. Please provide a short description of how you went about the translation task (i.e., the step you have taken in the translation process).

II. The translation brief states that the translation should meet the quality requirements of a Dutch user manual. Please explain briefly which quality requirements you have taken into account during the translation process.

III. What was your opinion of the quality of the source text (regarding content and formulation)? Please elaborate.

Appendix 5: Questionnaire posttest

Questions TRANSLATION OF USER MANUAL

- | | | | |
|---|---------------------|---------------|------------------|
| A. I found it difficult to interpret the source text | Completely disagree | 0 0 0 0 0 0 0 | Completely agree |
| | Specific problems | ..... |  |
| B. I found it difficult to find the appropriate words in Dutch. | Completely disagree | 0 0 0 0 0 0 0 | Completely agree |
| | Specific problems | ..... |  |
| C. I found it difficult to assess the target text requirements. | Completely disagree | 0 0 0 0 0 0 0 | Completely agree |
| | Specific problems | ..... |  |
| D. Translating this source text was easy. | Completely disagree | 0 0 0 0 0 0 0 | Completely agree |
| E. In general, I am content with my translation. | Completely disagree | 0 0 0 0 0 0 0 | Completely agree |

Questions TRANSLATION PROCESS

- I. The translation brief states that the translation should meet the quality requirements of a Dutch user manual. Please explain briefly which quality requirements you have taken into account during the translation process.
- II. What was your opinion of the quality of the source text (regarding content and formulation)? Please elaborate.
- III. What information from the writing training did you apply during your translation process? Please elaborate.
- IV. What information from the writing training did you deliberately not use during your translation process? Please elaborate.

Questions WRITING AND TRANSLATING INSTRUCTIVE TEXTS

- | | | | |
|--|---------------------|---------------|------------------|
| a. I consider writing and translating to be two distinct activities. | Completely disagree | 0 0 0 0 0 0 0 | Completely agree |
|--|---------------------|---------------|------------------|

- | | | | |
|--|---------------------|---------------|------------------|
| b. I consider translators to be language experts. | Completely disagree | 0 0 0 0 0 0 0 | Completely agree |
| c. I consider translators to be experts in writing texts. | Completely disagree | 0 0 0 0 0 0 0 | Completely agree |
| d. The writing training has changed my way of translating. | Completely disagree | 0 0 0 0 0 0 0 | Completely agree |
| e. I have used the information from the writing training while reading the source text. | Completely disagree | 0 0 0 0 0 0 0 | Completely agree |
| f. I have used the information from the writing training while formulating the target text. | Completely disagree | 0 0 0 0 0 0 0 | Completely agree |
| g. I have used the information from the writing training while revising. | Completely disagree | 0 0 0 0 0 0 0 | Completely agree |
| h. The writing training has made me pay more attention to the target-text reader. | Completely disagree | 0 0 0 0 0 0 0 | Completely agree |
| i. The requirements and expectations of my customers do not allow me to apply the information from the writing training in my professional translation practice. | Completely disagree | 0 0 0 0 0 0 0 | Completely agree |
| j. The information from the writing training is difficult to apply in professional translation practice due to the translation software that I must use. | Completely disagree | 0 0 0 0 0 0 0 | Completely agree |

6

Conclusion

In this chapter, we aim to answer the general research question posed in the Introduction by summarizing the findings of the research projects described in this dissertation. In addition, we will discuss the strengths and weaknesses of the research. This chapter concludes with a discussion of the implications of these findings and proposes possible directions for further studies.

1. Summary of the general findings

Although the three research projects (i.e., the pilot study, the study involving translation students and the study among professional translators) each addressed distinct and specific research questions, one general research question connects all projects: What effect does writing training have on transediting and translation performance (i.e., translation product and process)?

In the literature review presented in Chapter 1, we argued that many parallels can be drawn between the competences needed for text-production in translation and those required for writing. The quasi-experimental studies in this dissertation were set up in such a way that the competences that translators acquired from writing training could indeed be (partially) used in the translation process. We have examined the effect of writing training among BA-level translation students and professional translators. Although the study among the professional translators did not include a control group, the patterns observed in these data are highly similar to the results found among the translation students. Below, we will summarize the general findings and highlight the differences between the two participant groups when applicable.

Summarizing, we can conclude that writing training mainly influenced macro-textual, genre-specific features in the translation product. This can be deduced from a number of patterns. First, the amount and quality of transediting of rich points related to *Titles (consistency)*, *Information structure (macro-level)* and *Illocutionary indicators* increased significantly.¹ Second, a number of translators started to restructure and change the formatting of the ST after the writing training, by introducing bullet points, bold, italics and explicit warnings in the TT. Third, the number of genre-specific translation errors decreased significantly.² In contrast, writing training did not appear to have an effect on micro-textual, genre-specific features. This can be deduced from the lack of significant change in the amount and quality of transediting of the rich points that represent *Terminology*, *micro-textual information structure* and *action-driven titles*. Writing training did not influence TT formulation that was not specifically related to TL genre conventions, either. Although a few translation students radically changed their global working method by taking the ST as a mere source of information and omitting unnecessarily ST elements in the process, the majority of translation students as well as the professional translators applied the information from the writing training only when a literal translation of the ST would transgress the conventions of user manuals in Dutch.

A number of possibly interrelated factors might explain why the writing training impacted exclusively macro-textual, genre-specific features in the translation product. First, the process data suggest that there has been a partial transfer of writing training information to the translation tasks. This partial transfer may be caused—among others—by the limited duration of the treatment; distinct perception and/or retention by the translators of the various content aspects of the treatment; and the translators' lack of adaptiveness to incorporate newly acquired information in their routine problem-solving behaviour. Moreover, the translators' inability to apply the writing training information in the translation task may be caused by cognitive overload and the need to solve several translation problems simultaneously. However, these factors do not fully explain why the transfer that did take place concerned mainly genre-specific macro-textual features. Second, the exclusive impact on macro-textual features can be

1 These findings also seem valid for professional translators, with the exception of illocutionary indicators. Yet, the high amount and quality of transediting for this rich point category in the pretest would have made a learning effect difficult to achieve.

2 Among the professional translators, a considerable decrease of stylistic translation errors could be observed as well.

related to these features themselves: transfer of the type of information related to macro-textual features may have been easier given their abstract, non-linguistic nature. Third, process data suggest that ST interference was easier to control at macro-textual level than at micro-textual level, especially for the translation students. At the macro-textual level, not only did fewer problems present themselves simultaneously; it was also easier to solve these problems step-by-step, which may have facilitated the transfer of information related to these features from the writing training to the translation task. Fourth, the effect of writing training on the translation product might also be explained by the differences between the activities of writers and translators, as well as their individual perception thereof: writers decide *what* to say in the text to be produced, *when* to say it and *how* to say it, linguistically and visually. In contrast, translators generally have little say over the *what* and *when* and visual *how*, but much over the linguistic *how*, since the essence of the translator's task consists in transferring the message of the ST to the TL. Given this difference, it is perhaps not surprising that writing training does not influence the micro-textual level, i.e., the linguistic *how* of the content, but rather the components that translators generally consider as a given or as 'constraints'. In this dissertation, most translators started to focus on the *when* and visual *how* after the writing training, and some (like the so-called more 'extreme' translation students) even on the *what*.

In addition to specific features of the translation product, writing training also had a positive effect on the translation quality. The TT genre acceptability improved considerably: the number of genre-related errors decreased significantly among the translation students. The professional translators also registered a decrease of 36% in this type of errors. A clear impact on the overall quality of the translation product could not be ascertained. Yet, it is promising that a significant improvement could be observed among the translation students in the overall analytic score in the immediate posttest and in the holistic score in the delayed posttest. The professional translators showcased a similar pattern, since their translation products contained considerably fewer translation errors after the writing training. The lack of a structural overall improvement of product quality can be interpreted in light of the particular focus of the writing training on procedural genre knowledge and strategic writing knowledge in the TL. The SL was not addressed in the writing training nor was grammatical and orthographical correctness in the TL, which may explain why no effect on *category-A* (content) and *category-D* (linguistic correctness) errors

could be observed. A possible explanation why *Category-B* (stylistic) errors were not significantly influenced by the writing training is that stylistic errors concern the TL but relate to language use in a more general sense than genre conventions and accuracy in grammar and spelling. Yet, this interpretation does not clarify why a considerable decrease was registered among the professional translators, primarily thanks to fewer errors attributed to inconsistent word choice.

As we have already discussed above, writing training has significantly influenced the amount and quality of transediting, in particular of macro-textual, genre-specific features. After the writing training, the translators transedited not only considerably more, but also considerably better. This begs the question whether this increase in deliberate deviation from the ST entailed a heightened ability, willingness or audacity on part of the translators to do so. The process data suggest that it might perhaps be a mixture of all three elements, presumably influenced by the translator's individual learning style and adaptiveness to integrate new knowledge in his or her translation behaviour. From the comparative analysis of product and process data, we can deduce that, after the writing training, the translators were more aware of translation problems posed by the discrepancy between ST and TL conventions. The recursivity in the translation of rich points also suggests that the reflection about these translation problems increased, particularly among the translation students.³ The translators' motivation behind their decisions to deviate from the ST—and their TT production in general—also became more layered: The influence on the TT production exerted by elements other than linguistic considerations, such as the needs and expectations of the target audience and the function of the TT, grew. In addition, writing training cultivated the translators' critical assessment of the ST. Thus, we can reason that the writing training enabled translators to transedit if and when necessary, by improving their critical analysis of the ST, their detection of discrepancies between the ST and the requirements of the TT, as well as their ability to produce text in the TL that complied with those requirements. The writing training also stimulated and empowered them to transedit if and when necessary, by providing them with sufficient knowledge to motivate, justify and implement the ST deviations. The writing training did not influence the moment that translators implemented transediting, which suggest an easy incorporation of the writing training information. If transediting was used, it was mostly carried out instantaneously, i.e., being the first

3 A similar increase in recursivity could not be found among the professional translators.

translation solution visible in the log file. Some rich points seemed more prone to immediate transediting than others: *Illocutionary indicators* and *Terminology* were almost always transedited immediately and without any subsequent revision, whereas no clear preference could be ascertained for the transediting of *Titles* and *Information structure*.

Writing training did not appear to influence the organisation of the translation process much. The pattern of immediate transediting among students and professionals alike, as well as the professionals' confirmation of having used writing training information in all phases of their translation task, suggest a relatively smooth (albeit partial) incorporation of this information in all stages of the translation process. The writing training did not seem to change the basis of the translators' working method either, since they continued to translate the ST linearly from top to bottom. However, the writing training did seem to lead to more revision. This can be deduced from the increased recursivity in the students' translation of rich points, the recursivity observed in the writing phase and revision phase of the professionals' process graphs, and the relatively more time devoted to the revision phase (as observed in Diane's case study).

2. Strengths and weaknesses of the present research

A translator should be able to produce a text in the TL: a claim that is supported by many. However, its veracity has never been empirically studied, nor the underlying assumptions regarding the similarities between translation and writing, and the subsequent suggestions to incorporate writing training in translation curricula. The first strength of the present research can therefore be found in the relative novelty of its main topic. By exploring the effects of writing training on translation performance in a quasi-experimental approach, it is possible to empirically test hypotheses previously formulated by Meyer and Russell (1988), Jakobsen (1994), and Doloughan and Rogers (2006) regarding the benefits of writing training for translation students.

The second strength concerns the overall research approach that was adopted. Quasi-experimental or experimental research involving a particular treatment or intervention is not frequently carried out in Translation Studies, which adds to the relative novelty of the current research. Moreover, the combined use of qualitative and quantitative methods of data collection and data analysis, focused on both the translation product and process, allows a view of the central topic from multiple perspectives. In addition, the controlled setting of the second (i.e.,

among the translation students) and third (i.e., among the professionals) research projects in general, and the use of rich points in particular, have enabled the systematic analysis of the effects of writing training across different translation tasks and different translators.

The third strength of the research projects described in this dissertation is related to their focus on transediting. This topic has primarily been studied in the context of news translation (e.g., Schöffner, 2012), whereas the current research examines it in translation tasks outside the journalistic sphere. The first research project (i.e., the pilot study) has shown that the concept of transediting is not without drawbacks, considering for example its complex differentiation with respect to other translation strategies that entail a deviation in formal correspondence with the ST; and the overlap of motives underlying its usage. In the second and third research projects, transediting has nonetheless proven to be a useful instrument to explore those text-productive instances in the translation process that lay at the interface of translation and writing on the one hand, and to systematically check the transfer of writing training to translation tasks on the other.

Despite the promising findings, it is important to observe that the conclusions regarding the effects of writing training on translation performance have to be interpreted within the limitations of the framework introduced in the research projects. The generalizability of the findings must therefore be considered with caution. In the following paragraphs, we will highlight some of the limitations that the current research suffers. As discussed in Chapter 3, 4 and 5, these primarily concern the relatively small samples of participants observed (viz., 17 students and 5 professionals), its text-type and genre-specificity (instructive texts and user manuals), the language combination involved (Spanish-Dutch), its quasi-experimental nature and controlled, laboratory setting. In this section, we would like to briefly discuss the weaknesses that can be found with respect to these two last elements, since a reflection on the methodological considerations taken in the present research may inform further studies.

The quasi-experimental nature of the current research has been presented above as a strength. However, some elements related to the research approach also can be conceived as weaknesses. First, it is challenging to create an adequate control group in quasi-experimental studies, which also has been the case in the present research. As Saldanha and O'Brien (2014, p. 15) acknowledge, it is difficult to find translators that are perfectly comparable to the participants of the experimental group.

In other words, how can you obtain two groups of comparable translators who have similar translation competence and experience but only differ in writing training? The most straightforward solution would have been to not give any treatment to the control group, but this was not feasible or desirable in the pedagogical environment in which the research was carried out. Moreover, this would have counteracted the sought-after comparability: since the intervention would likely increase the experimental group's genre knowledge alongside their writing experience, this could have generated not only a difference in having had writing training or not, but also a difference in translation competence. After all, genre knowledge is considered to be a subcomponent of translation competence. To counteract a potential imbalance at that level, we therefore decided to subject the participants of the control group to an intervention as well. However, this decision and the instructional design of the treatment of the control group may give rise to criticism, since the focus in this intervention was on the SL instead of the TL and the cognitive processes addressed were slightly different than in the writing training (see Chapter 4).

Second, inherent to quasi-experimental research, is the difficulty of assessing the influence of extraneous and confounding variables. To avoid data noise as much as possible, we decided to carry out experiments in a laboratory, controlled setting. This setting has given the research more focus, but has introduced simultaneously a high degree of reductionism and may affect the ecological validity of the results.

We will now address the most important simplifications introduced in the research design. The first concerns the STs used, which were specifically chosen and manipulated to allow for transediting and to enable the study of transfer between the writing training and the translation task. However, not every ST in pedagogical and professional translation tasks will require or even permit the use of transediting, and the effects of writing training may vary accordingly. Related to this issue of external controlling influences is another simplification: the observed translation processes were isolated processes, in which the translators did not interact with agents other than the initiator, who was only implicitly present in the translation brief. Furthermore, the translation task did not involve the use of translation memory (TM) tools, which may condition and/or restrict the text production carried out by translators and consequently transediting. Since TM tools involve sentence-based processing (Jiménez Crespo, 2009), and do not easily allow or even discourage structural changes to the

macrostructure of the text, this raises questions as to whether the current findings can be generalized to translation tasks involving such tools.

3. Implications of the general findings for translation pedagogy

The present research did not reveal a structural effect of writing training on every aspect of translation quality nor on transediting at all textual levels. Nonetheless, the findings are promising given the relatively short duration of the treatment as well as its isolated nature. In this section, we will discuss the implication of these findings for translation pedagogy.

The promising results imply that writing training might be a useful didactic tool in translation studies to improve genre knowledge. The product data have shown that writing training led to significantly fewer genre-related translation errors. The process data demonstrated that it broadened and deepened the translators' knowledge of genre conventions in the TL, by teaching them not only what these conventions are in detail, but also why they are as such and how they are related to one another. The present research does not make any claims about whether writing training is the most effective and/or efficient didactical tool to achieve improvement of genre and textual knowledge. For example, contrastive textual analysis may also enforce a relational understanding of SL and TL conventions. However, given its exclusive focus on analysis instead of creation, contrastive textual analysis is less likely to improve procedural knowledge of how to produce text in accordance with the TL conventions than writing training.

Another reason why writing training may be a useful didactic tool is related to the findings concerning transediting. Writing training not only increased the translators' transeditorial awareness and ability, but also helped them to take pragmatic elements—such as the readers and function of the TT—more into consideration during their translation process. This ability to distance oneself from the ST surface and to take on a more global approach to the production of the TT is usually associated with higher levels of translation competence (Göpferich, 2009, pp. 34–35). It therefore appears that writing training may also be useful to help translation students move beyond the micro-structural level, and develop and employ their macro-strategy more deliberately and consistently.

Considering writing training as a useful didactic tool, it will need to be empirically tested what the optimal integration of writing training into a translation studies programme is. Questions that need to be explored

are: Do translation students benefit more from writing training in the early stages of training or is it better to incorporate it later on in the programme, when translators can build on a basic knowledge of the controlling influences on the translation process? The case study of Cindy in Chapter 3 has revealed that it is important that translation students understand how issues such as loyalty, equivalence and norms determine how much of a writer a translator is allowed to be. The findings in Chapter 5 have shown that writing training can still have a positive effect on translators who already have a relatively high level of translation competence.

The answers to questions about *when* to use writing training in translator education are likely to depend on another matter: *how* can writing training best be used in translator training; either as a course module offered separately from the translation seminars or as part of these seminars? The present research has shown that positive results can be obtained even when the writing training is offered in isolation from translation exercises and no explicit link is being made with translation tasks concerning similar texts. However, this does not rule out that a more integrated approach can have the same or even better results. By exploring similar translation and writing tasks in one and the same translation course, it will be perhaps more straightforward to motivate and guide translation students to connect the knowledge gained in writing exercises to their previous and future translation processes. This will likely improve scaffolding and restructuring of knowledge, as well as the students' metacognition. An integrated approach also allows for combination with other didactic tools, such as contrastive textual analysis. Of course, we have to bear in mind while contemplating these aspects that the time available for classroom instruction and monitoring of translation students is limited. Fortunately, the existence of online writing centers, which allows translation students to practice their writing skills outside the classroom as well, may facilitate the integration of writing training in translation courses.⁴

4. Suggestions for further research

The research projects presented in this dissertation contribute to our understanding of translation as a type of text production. They also shed light on how the study of transediting allows us to explore the text-productive aspect of translation and its interface with writing. But most

⁴ The writing training used in the present research was partially based on the materials provided in the online writing center Calliope (www.calliope.be).

importantly, this research yields insight into the effect of writing training on translation performance. Taking into account the current findings and their implications, as well as the strengths and weaknesses of the research, we would like to provide some suggestions for further research in this section.

The previous section has addressed the difficulty to generalise the current findings. Therefore, we recommend extending the present research to other (and larger samples of) translators, other text types and genres, other language combinations, and less-controlled settings. First, the present study examined the effect of writing training on undergraduate translation students and professional translators with little to no experience in translating user manuals. It would be interesting to widen this spectrum of participants by including translation students who have just started their studies, and professional translators who are experts in translating user manuals and usually work with computer assisted translation (CAT) tools. Second, the writing training used in the current research was specifically aimed at instructive texts, and its effect on translation performance was studied in tasks that involved a particular genre of instructive texts, viz., user manuals. To generalize the present findings, we would recommend extending this study to other genres that have an instructive function, such as PILs. The pilot study in this dissertation has shown that many of the transediting strategies used for the translation of that text genre were the same or very similar to the ones needed in the translation of user manuals. This leads us to think that writing training provided in the current research may also have a positive effect on translation performance in that text genre. Third, we additionally suggest exploring writing training focused on other text sorts, such as informative or argumentative texts. For example, if translators are trained in writing argumentative texts (e.g., by outline strategies), will this influence their performance in *précis*-writing, i.e., summarizing translation? Fourth, it is also desirable to examine the effect of L1-writing training on translation tasks entailing different SLs.⁵ If the effect were to be similar, this would further strengthen the argument to integrate writing training in the mother tongue in translation studies programmes. Fifth, the present research explored the effect of writing training in a fairly controlled experiment, by (a) establishing a direct link between the writing training and the rich points in the STs, and (b) using STs that were chosen and manipulated specifically to allow for transediting. However, it would be more ecologically valid to explore the effect of writing training in less-

5 L1 being the TL.

controlled settings. Since the present study focused on the effect of writing training on transediting and no significant impact could be found on TT production in general, this begs the question: does writing training have any effect on translation performance in translation tasks in which there is no need for transediting?

Revision is another line of research that has to be pursued in relation to the effects of writing training on translation performance. The current findings have shown that writing training leads to more recursivity in the translation process in general, and in the revision phase in particular, which points to an increase in self-revision. Moreover, the concept of transediting itself implies revision of a text produced by someone else, viz., the ST, which also increased and improved after writing training. Following this line of thought, it might well be possible that writing training influences the translator's (self)-revision competence as well. Do translators who have received writing training in a particular text type perform better in revision tasks involving that same text type than translators who have not? This might be worthy of exploration, especially in case of revision consisting exclusively of a monolingual re-reading of the TT.

Thirdly, we have already expressed the importance of testing the pedagogical benefits of writing training for translator training in contrast to other didactical tools. The instructional design of writing training for translators (e.g., observational learning) also needs further exploration. We recommend that future studies that address the effect of writing training on translation performance take into consideration the individual learning styles of the translators studied as well. In the current research, retention of writing training information and transfer thereof to the translation task varied among the participants. This may be related to a number of factors, but given the pedagogical setting, it is advisable to determine the translators' learning preferences beforehand and take these into account during data-analysis to rule out or confirm that these are an extraneous variable.

A fourth and final suggestion concerns the research methods used to explore how writing competence is related to translation competence. The current research has addressed this topic indirectly by using writing training as a means to create a difference in writing competence and subsequently examining what effect this difference had on translation performance. However, research methods other than quasi-experimental research should be explored as well to address this topic further. Qualitative analysis may be a suitable research method, e.g., by comparing writing and

translation performances by the same translators in similar text genres and topics. The aspects to be examined in relation to the link between writing competence and translation competence are numerous: are good translators inherently good writers, and vice versa?; must translators be good writers to produce high-quality translations?; in which translation assignments is writing competence most important to produce high-quality translations?; to name just a few. By answering these questions, we will begin to unveil the true meaning of the assumption “translators must be able to *write* a text”.

Summary

In this dissertation, we study an issue that lays at the interface of translation and writing: the influence of writing training on translation performance in general (i.e., translation product and process) and transediting in particular. Since translating and writing share a number of basic characteristics and can therefore be considered parts of the superordinate category of text production, this begs the question: does training in one type of text production, writing, foster performance in the other, translation?

This dissertation consists of six chapters. Chapter 1 presents a literature review on translation competence and writing competence to yield a better understanding of the translator's text-productive competence. Chapter 2–5 report on three research projects that have been carried out to address the central topic of this dissertation. The first project, reported on in Chapter 2, explores the topic of transediting by describing its use by MA-level translation students in the translation of an American patient information leaflet (PIL) into Dutch. Chapters 3 and 4 describe the findings of the second research project, which studies the effect of writing training on the translation performance of undergraduate translation students, and more specifically on their use of transediting. The third project continues the research line that has been described, but among professional translators (Chapter 5). Chapter 6 contains a general conclusion, a discussion of the implications of the main findings and suggestions for further research.

1

The translator as a writer: Text-productive competence as a component of translation competence

Most translation scholars and practitioners believe that a translator should be able to write. This widespread belief appears to point to the text-productive competence of translators, because in the translation competence models writing competence is not mentioned. Instead, more or less explicit references to text-productive competence are found. By using the term text-productive competence instead of writing competence, it is emphasized that the text-production that takes place during the translation process may be more or less ST-oriented and therefore may resemble other forms of text productions, such as writing and adaptation, to a greater or lesser extent. This also suggests that there might be an overlap with the competence of writers.

In the literature on translation competence, the translator's text-productive competence seems to be restricted to communicative competence in the TL, building on declarative but predominantly procedural lexical, grammatical, pragmatic and textual knowledge. Moreover, this communicative competence in the TL cannot be viewed in isolation of the ability to control interference from the ST and SL. In addition to these elements, the translator's text-productive competence also appears to stem from or be intertwined with strategic knowledge.

A comparison between the competences attributed to writers and translators have shown that they indeed share many identical knowledge types, skills, abilities and attitudes. Although a number of writing subcompetences bear great resemblance with translation subcompetences at first sight, closer examination reveals divergence in their scope and/or purpose in translation.

2

An exploratory study of transediting in students' translation processes

This chapter reviews the literature on the concept of transediting. In 1989, Stetting coined the term transediting to refer to the overlap of translating and editing in the translation task, a combination that is often necessary to produce a target text that is understandable and acceptable in the target culture. The concept of transediting has in our view great potential to rethink translation as a form of text production and to examine how translators' writing competence is used in the translation process. As nearly every act of translation includes some alteration or editing of the ST, it is important to distinguish that transediting refers to the conscious deviation from the ST when a linguistically correct literal equivalent exists in the TL, but cannot or should not be used in the TT due to the specifications of the translation commission. Transediting can also be used for the amelioration or optimisation of the ST in the TL. This brings us to the following operational definition: Transediting is the conscious or automatized cognitive route to solve a problem caused by either poor ST quality or differing function, audience, conventions and/or valid text norms in the target culture.

In addition to this literature review, this chapter also reports on the first research project, which consisted in an exploratory study of transediting in the translation processes of Dutch-speaking MA translation students. The aim of this first research project was threefold: (1) to explore the concept of transediting; (2) to explore how transediting manifests itself in the translation processes of translation students; (3) to verify whether think aloud and computer keystroke logging are the most suitable methods to shed light on the use of transediting.

For this study, four MA-level translation students were asked to translate an American patient information leaflet (PIL) for a Dutch-speaking audience in accordance with the valid European Medicines Agency's (EMA) directive and guidelines. Of these four participants, two participants possessed declarative knowledge of the EMA standards and the text genre, whereas the other two also had some procedural knowledge, i.e. experience with translating patient information leaflets. In this study, it was primarily the translation commission and the clear differences between the ST and TT norms, which gave rise to the need for ST rewriting. ST quality issues not or seldomly motivated the use of transediting in this translation task. Data on the translation processes were collected through

think aloud and computer keystroke logging (Translog and Inputlog). Data-analysis was carried out on a working document in which the think-aloud and log data were placed next to each other in segments. Each think-aloud segment was coded to reconstruct the cognitive processes taking place. The coding labels used were inspired by the classification proposed by Krings (2001).

By combining product and process data, we have been able to distinguish various transediting operations such as (micro-level and macro-level) restructuring, substitution and omission of ST units as well as addition of information in the TT. The participants with both declarative and procedural knowledge seem to address and use transediting more frequently than the participants with only declarative knowledge. The phase allocation of transediting operations appears to be the result of the participants' working styles, although three out of four students show preference for implementation in the pre-writing and writing phase.

Despite these general observations, it is nevertheless difficult to corroborate whether the difference in the participants' knowledge leads to a difference in the use of transediting. Among all participants, the awareness to introduce the obligatory standard phrases into the TT and to restructure the ST is prominent. Yet, no clear-cut differences between the two participant groups can be found with regard to micro-level restructuring. Nonetheless, the participants with only declarative knowledge of PILs do not pay any attention to explaining difficult medical terms, which suggests that they did not take into account the knowledge level of the TT recipients and thus do not see nor feel the need for cultural transediting.

This exploratory study has also provided some suggestions to optimize the methodological framework for future research on transediting in the translation process. Although the triangulation of methods yields rich data, the method of think aloud does in many instances not provide further insights into why the students use transediting and seems to cause cognitive overload. The method of prompted immediate retrospection (and more specifically stimulated retrospective interviews) might be more suitable, since it is less intrusive and may yield more specific information about the use of transediting. With regard to keystroke logging tools, we prefer the use of Inputlog, since it is less intrusive and generates more statistical data. Furthermore, the analysis of the quality of the transediting—as well as the quality of the overall TT—ought to be taken into consideration in further research to make observations about transediting strategies, working profiles and process parameters more complete and profound.

3

The effect of writing training on the translation product of translation students

This chapter presents the findings of the second research project, which studied the effect of writing training on the translation product and process of seventeen undergraduate translation students.

This study was organized as a 2 (condition: experimental vs. control group) x 3 (time: pretest-immediate posttest-delayed posttest) design, with condition being the between variable and time the within variable. On each of the test moments, the participants were asked to translate a Spanish user manual of a household appliance into Dutch. The treatment consisted in writing training for the experimental group (i.e., writing instructive texts in their mother tongue (Dutch)) and placebo training for the control group. In the writing training, considerable attention was drawn to consistent and action-driven titles, logical and chronological information structure, consistent use of illocutionary indicators and terminology. These focal points were represented in the source text by means of rich points that had to be transedited (Stetting, 1989).

The data collection methods used in the second research project were computer keystroke logging (Inputlog), screen capturing (CamStudio and Morae), cued retrospective interviews and questionnaires. The data were analyzed both quantitatively and qualitatively. Data-analysis was focused primarily on the translation of the rich points given their direct relation with the treatment.

In this chapter, we approach the collected data from a product perspective. In relation to the effect of writing training on the translation products, we formulated two hypotheses. First, text type-specific writing training in the target language (TL) leads to an increased focus on and compliance with TL genre norms and conventions, resulting in more transediting visible in the translation product. Second, writing training in the TL leads to a better quality of the translation product. To test these hypotheses, we examined the transediting observable in the rich points and the target texts as a whole, as well as the translation quality.

The first hypothesis is confirmed. The experimental group transedits significantly more rich points than the control group after the treatment, in three out of four categories: *titles (consistency)*, *information structure (macro-level)* and *illocutionary indicators*. Moreover, some participants of the experimental group start to restructure and redesign the target text (TT)

after the treatment, by means of bullet points, bold, italics and explicit warnings. However, writing training does not appear to have a large effect on TT formulation that is not specifically related to TL genre conventions. Thus, writing training appears to influence primarily transediting of non-linguistic, macro-textual genre features in the TT. It remains unclear whether the lack of transediting of linguistic, micro-textual genre features is caused by a lack of awareness of these features, cognitive overload and/or a lack of transfer from the writing training to the translation context.

The second hypothesis cannot be confirmed nor disproved given the discrepancy in results. Based on holistic scores, writing training leads to a significantly better overall translation quality in the delayed posttest. The overall analytic scores, as expressed by the total number of translation errors, yields similar results, but in the immediate posttest alone. A clear and significant influence of the writing training can be ascertained with regard to the genre-related translation errors: the experimental group's translation products show significantly fewer violations of target-language genre conventions in both posttests. The inconclusive results with regard to the effect of writing training on the overall translation quality allow various interpretations. It is in itself rather promising that the experimental group scores significantly better than the control group in one out of two posttests, since an improvement in one translation subcompetence (such as writing competence) can but does not necessarily lead to a structural, overall improvement of translation performance as measured by translation quality. Source text (ST) difficulty might also be a factor: when all error categories are weighted equally in the overall analytic score and content errors increase (which they did in the delayed posttest), the decrease in genre errors will not outweigh the increase in content errors.

4

The impact of writing training on transediting in translation, analysed from a combined product-process perspective

In this chapter, we analyse the transediting data from the writing training experiment from a process perspective. The log files and screen captures give quantitative insight into the moment of transediting and the recursivity in the translation of the rich points. The stimulated retrospective interviews provide qualitative data about the reasoning behind the (lack of) transediting. The purpose of this chapter is twofold. First, we want to get insight into when, how and why the transediting of rich points takes place

in the translation process. Second, we aim to find plausible explanations as to why writing training significantly influences macro-textual genre features in the TT only, by combining the qualitative and quantitative process data and the product data from Chapter 3.

Writing training does not seem to influence the moment of transediting much. Both experimental and control group demonstrate a general preference for immediate transediting: if transediting is chosen as a translation solution, this is mostly carried out as a first translation solution. Nonetheless, some types of rich points (e.g., *illocutionary indicators* and *terminology*) seem to be more prone to immediate transediting than others (e.g., *titles* and *information structure*). It appears that the choice of a particular transediting approach might be related to the grammatical hierarchy of the constituent that requires transediting, and not to writing training.

Writing training seems to considerably influence reflection during the translation process. The participants of the experimental group are more reflective about the translation problems posed by the rich points than the control group. This is manifested by the rise in recursivity in the translation of rich points after the writing training, as well as the more frequent use of delayed transediting among participants of the experimental group than among those of the control group. The participants of the experimental group take into account the function of the TT and its use by the target audience more explicitly for the drafting of the TT than the participants of the control group do. They also review the ST more critically, both in terms of text logic and discrepancies with the text conventions of the target culture (TC).

The combination of product and process data provides us with a number of clues to explain why the writing training does not affect all rich point categories. A first plausible explanation is the lack of retainment of writing training information. During the retrospective interviews, the participants of the experimental group show a more detailed knowledge of genre conventions in the TL, but only with respect to the rich points they transedit. The abstract, less linguistically bound, nature of the macro-textual genre conventions may favour retainment, but the present study does not contain indicators to confirm this. The interviews also show flawed problem diagnosis in relation to translation problems posed by the rich points, which hints at lack of internalisation. A second explanation is ST interference. Control of ST interference for macro-level *information structure*, *consistent titles* and *illocutionary indicators* seems to be more feasible, as fewer text-production problems present themselves simultaneously and cognitive demands are lower. A third, related factor might be cognitive

overload, since the retrospective interviews show that, while the participants were aware of certain translation problems, they are unable to juggle all cognitive demands surrounding those problems.

We conclude this chapter with a number of suggestions for further study of the effect of writing training on translation performance. In particular, we suggest examining the effect of writing training in participants with differing levels of translation competence. Since lack of available cognitive resources may hinder complete transfer of writing knowledge to the translation context, it would be interesting to see how professional translators tackle similar translation problems to those posed by the STs in the present study.

5

The effect of writing training on the translation performance of professional translators

In this chapter, we address the findings of the third research project, which studied the effect of writing training on the translation product and process of five professional translators with limited experience in translating user manuals. This research project aimed to continue the research line proposed in Chapter 3 and 4, by examining whether translators with a higher level of translation competence (i.e., professional translators) transfer writing training information extensively to the translation task, for instance due to more available cognitive resources.

For this study, a similar pretest-posttest experimental design was used, in which five professional translators were trained in writing instructive texts in their mother tongue (Dutch). In the pretest and posttest, these translators were asked to translate a Spanish user manual of a household appliance into Dutch.

The data were collected in the pretest using computer keystroke logging (Inputlog), eyetracking (Tobii), questionnaires and cued retrospective interviews. In the posttest, the data collection methods were computer keystroke logging and questionnaires. Data-analysis was characterized by combining product and process data. The first phase of the data-analysis was centred on which elements of the writing training the professional translators transferred to their translation task. To this end, we analysed their translation of the rich points and their TTs in general, and combined these findings with their responses to the questionnaires about which elements of the writing training they had (not) incorporated into

their translation task. Moreover, the stimulated retrospective interviews in combination with the pretest and posttest questionnaires were analysed to reveal differences in knowledge of genre conventions. The translation products were also assessed holistically and analytically to verify whether writing training had a significant effect on translation quality. The second phase of the data-analysis consisted in examining the log data to verify whether the translators had incorporated the writing training information as a first translation solution or later on in their translation process (as a revision). Moreover, a case study was carried out to verify the effect of writing training on the duration of the translation process, its organization in various phases, pausing and revision behavior, the use of sources, etc. For this case study, we selected the professional translator, who—from all five translators—had used writing training information most extensively (as had been revealed in the first phase of the data-analysis).

Overall, the professional translators apply writing training elements rather extensively in their translation processes. However, the type and amount of writing information that the translators apply individually differs considerably, and so does the quality of their translation products. The case study demonstrated that a professional translator whose performance can be classified as “expert performance” incorporates writing training information extensively, without disrupting the translation process.

The results of this exploratory study correspond to some of the findings previously observed among translation students (i.e., findings reported in Chapter 3 and 4). First, the writing training seems to have a positive effect on the genre knowledge of the professional translators as well as on their awareness of the needs and expectations of the target audience. Second, writing training also seems to positively influence translation quality, as the professionals committed considerably fewer stylistic and genre-related translation errors, even for the translator whose performance was already quite good in the pretest. Third, writing training also seems to have stimulated reflection among the professional translators, particularly in the revision phase of the translation process.

This follow-up study cannot confirm that the availability of more cognitive resources determines the transfer of writing training information to the translation task. The product and process data of the professional translators suggest that transfer of writing training to translation performance may also be influenced by the degree of retainment and internalization of the acquired writing training information, as well as by the translator’s adaptiveness or flexibility to apply newly acquired information to solve familiar tasks.

6

Conclusion

In this chapter, we summarize the findings of the three research projects described in this dissertation. The main research question posed was: What effect does writing training have on transediting and translation performance (i.e., translation product and process)? Writing training has significantly increased the amount and improved the quality of transediting, in particular of macro-textual, genre-specific features. With regard to the translation product, writing training mainly influenced macro-textual, genre-specific features, as can be deduced from (1) the significant increase in amount and quality of transediting of rich points related to *titles* (consistency), *information structure* (macro-level) and *illocutionary indicators*; (2) the increased attention of the translators for visual and structural representation of text content (e.g., bullet points); and (3) the significant decrease in genre-specific translation errors. With regard to the translation process, the writing training did not appear to influence the overall organisation of the process much, which suggests a relatively smooth (albeit partial) incorporation of writing training information during the translation process. However, it did seem to lead to more revision in the translation process, as suggested by the increased recursivity in the students' translation of rich points and the recursivity observed in the writing phase and revision phase of the professionals' process graphs.

These promising results imply that writing training might be a useful didactic tool in translation studies to (1) broaden and deepen genre knowledge; (2) increase the translators' transeditorial awareness and ability; (3) help translators distance themselves from the ST surface and take pragmatic elements into consideration during their translation process. However, it will need to be empirically tested how and at what stage writing training can be optimally integrated into a translation studies programme.

In this chapter, we also address the strengths and weaknesses of the study described. This study contributes to our understanding of translation as a type of text production, sheds light on how the study of transediting allows us to explore the text-productive aspect of translation and its interface with writing. Strengths are therefore considered to be the relative novelty of the research focus, the overall research design allowing for a multifaceted yet systematic exploration of the research topic, and the analysis of transediting outside the journalistic sphere. Limitations are also

present in the form of the relatively small samples of participants observed, the text-type and genre-specificity of the research (instructive texts and user manuals), the language combination involved (Spanish-Dutch), its quasi-experimental nature and controlled, laboratory setting.

This chapter concludes with a discussion of the possible directions for further research. First, we recommend extending the present research to other (and larger samples of) translators, other text types and genres, other language combinations, and less-controlled settings, to generalize the findings. Second, revision is another line of research that can be pursued, since the current findings suggest that writing training leads to more recursivity and revisions. Third, it is important to further test the pedagogical benefits of writing training for translator training, not only in contrast to other didactical tools but also with regard to the instructional design of writing training for translators itself (by taking into account the individual learning styles of the translators studied). Fourth, research methods other than quasi-experimental research should be explored as well to address the effects of writing training on translation performance further.

References

- Alamargot, D., & Chanquoy, L. (2001). *Studies in writing: Vol. 9. Through the models of writing*. Dordrecht: Kluwer.
- Alamargot, D., & Fayol, M. (2009). Modeling the development of written composition. In R. Beard, D. Myhill, J. Riley, & M. Nystrand (Eds.), *The Sage handbook of writing development* (pp. 23–47). London: Sage.
- Allal, L., Chanquoy, L., & Largy, P. (Eds.) (2004). *Studies in writing: Vol. 13. Revision. Cognitive and instructional processes*. Dordrecht: Kluwer.
- Alves, R. A. (2012). The future is bright for writing research. In Berninger, V. W. (Ed.), *Past, present, and future contributions of cognitive writing research to cognitive psychology* (pp. 591–598). New York: Psychology.
- Anderson, J. R. (1981). *Cognitive skills and their acquisition*. Hillsdale, NJ: Lawrence Erlbaum.
- Anderson, J. R. (1983). *The Architecture of Cognition*. Cambridge, MA: Harvard University Press.
- Anderson, L. W., & Krathwohl, D. R. (Eds.) (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. New York: Longman.
- Angelelli, C. V. (2009). Using a rubric to assess translation ability. Defining the construct. In C. V. Angelelli & H. E. Jacobson (Eds.), *Testing and assessment in translation and interpreting studies. A call for dialogue between research and practice* (pp. 13–47). Amsterdam: John Benjamins.
- Angelelli, C. V., & Jacobson, H. E. (Eds.) (2009). Introduction. In C. V. Angelelli & H. E. Jacobson (Eds.), *Testing and assessment in translation and interpreting studies. A call for dialogue between research and practice* (pp. 1–10). Amsterdam: John Benjamins.
- Asadi, P., & Séguinot, C. (2005). Shortcuts, strategies and general patterns in a

- process study of nine professionals. *Meta*, 50(2), 522–547.
- Askehave, I., & Zethsen, K. K. (2002). Translating for laymen. *Perspectives: Studies in Translatology*, 10(1), 15–29.
- Bachman, L. (1990). *Fundamental considerations in language testing*. Oxford: Oxford University Press.
- Baddeley, A. D. (1986). *Working memory*. Exford: Clarendon.
- Balemans, P. (2010). Transcreation: Translating and recreating. *Translating is an Art*. Retrieved from <http://pbtranslations.wordpress.com/2010/07/14/transcreation-translating-and-recreating/> (accessed 5 June 2011).
- Bassnett, S. (2006). Writing and translating. In S. Bassnett & P. Bush (Eds.), *The translator as writer* (pp. 173–183). London: Continuum.
- Bassnett, S. (2014). *Translation* [The new critical idiom]. London: Routledge.
- Bazerman, C. (2012). Writing, cognition, and affect from the perspectives of sociocultural and historical studies of writing. In V. W. Berninger (Ed.), *Past, Present, and Future Contributions of Cognitive Writing Research to Cognitive Psychology* (89–104). New York: Psychology.
- Beaufort, A. (2007). *College Writing and Beyond. A New Framework for University Writing Instruction*. Logan: Utah.
- Beeby, A. (2000). Evaluating the development of translation competence. In C. Schäffner & B. Adab (Eds.), *Developing translation competence* (pp. 185–198). Amsterdam: John Benjamins.
- Bereiter, C., & Scardamalia, M. (1987). *The psychology of written composition*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Berman, R. (1994). Learners' transfer of writing skills between languages. *TESL Canada Journal*, 12(1), 29–46.
- Berninger, V. W., & Swanson, H. L. (1994). Modifying Hayes and Flower's model of skilled writing to explain beginning and developing writing. In J. S. Carlson (Series Ed.) & E.C. Butterfield (Volume Ed.), *Advances in cognition and educational practice: Vol. 2. Children's writing: Toward a process theory of the development of skilled writing* (pp. 57–81). Greenwich, CT: JAI Press.
- Berninger, V. W., Vaughan, K. B., Abbott, R. D., Begay, K., Coleman, K.B., Curtin, G., ...Graham, S. (2002). Teaching spelling and composition alone and together: Implications for the simple view of writing. *Journal of Educational Psychology*, 94, 291–304.
- Biggs, J., & Tang, C. (2011). *Teaching for quality learning at university*. Maidenhead: McGraw-Hill and Open University Press.
- Boase-Beier, J., & Holman, M. (1999). *The practices of literary translation. Constraints*

- and creativity*. Manchester: St. Jerome.
- Bowker, L. (2004). What does it take to work in the translation profession in Canada in the 21st century? Exploring a database of job advertisements. *Meta*, 49(4), 960–972.
- Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.) (1999). *How people learn: Brain, mind, experience, and school*. Washington, DC: National Academy.
- Bransford, J. L., & Sears, D. G. (1999). Rethinking transfer: A simple proposal with multiple implications. *Review of Research in Education*, Chapter 3. Vol. 24, pp. 61–100. Retrieved from: <http://www.stanford.edu/~danls/RethinkingTransfer.pdf>
- Breedveld, H. (2002). Writing and revising processes in professional translation. *Across Languages and Cultures*, 3(1), 91–100.
- Butterfield, E. C., Hacker, D. J., & Plumb, C. (1994). Topic knowledge, linguistic knowledge, and revision skill as determinants of text revision. In J. S. Carlson (Series Ed.) & E.C. Butterfield (Vol. Ed.), *Advances in cognition and educational practice: Vol. 2 Children's writing: Toward a process theory of development of skills writing* (pp. 83–141). Greenwich, CT: JAI Press.
- Byrne, J. (2010). Are technical translators writing themselves out of existence? In I. Kemble (Ed.), *The translator as writer*. Portsmouth: University of Portsmouth (pp. 14–27). Retrieved from http://www.jodybyrne.com/content/wp-content/uploads/2012/03/Byrne_portsouth_keynote-2009.pdf
- Byrne, J. (2012). *Scientific and technical translation explained: A nuts and bolts guide for beginners*. Manchester: St. Jerome.
- Campbell, S. (1998). *Translation into the second language*. New York: Addison Wesley Longman.
- Canadian Translation Industry Sectoral Committee (CTISC) (1999). *Survey of the Canadian translation industry: Human resources and export development strategy*. Retrieved from <http://www.uottawa.ca/associations/csict/princi-e.htm>
- Cao, D. (1996). Towards a model of translation proficiency. *Target*, 8(2), 325–240.
- Carl, M., & Dragsted, B. (2012). Inside the monitor model: Processes of default and challenged translation production. *Translation: Corpora, Computation, Cognition: Special Issue on the Crossroads between Contrastive Linguistics, Translation Studies and Machine Translation* 2(1), 127–145.
- Carter, M., Ferzli, M., & Wiebe, E. (2004). Teaching genre to English first-language adults: A study of the laboratory report. *Research in the Teaching of English*, 38, 395–419.
- Cheng, A. (2007). Transferring generic features and recontextualizing genre awareness: Understanding writing performance in the ESP genre-based literacy framework. *English for Specific Purposes*, 26, 287–307.

- Cheng, A. (2008). Analyzing genre exemplars in preparation for writing: The case of an L2 graduate student in the ESP genre-based instructional framework of academic literacy. *Applied Linguistics* 29(1), 50–71.
- Chenoweth, N. A., & Hayes, J. R. (2001). Fluency in writing: Generating text in L1 and L2. *Written Communication*, 18(1), 80–98.
- Chesterman, A. (1997). *Memes of translation*. Amsterdam: John Benjamins.
- Chesterman, A. (2005). Problems with strategies. In K. Károly & A. Fóris (Eds.), *New Trends in Translation Studies. In Honour of Kinga Klaudy* (pp. 17–28). Budapest: Adadémiai Kiadó.
- Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). New York: Academic Press.
- Collombat, I. (2006). General knowledge: A basic translation problem solving Tool. *Translation studies in the new millennium. An international journal of translation and interpreting*, 4, 59–66.
- Council of Europe (2001). *The common European framework of reference for languages: Learning, teaching, assessment*. Cambridge: Cambridge University Press.
- Cushing Weigle, S. (2002). *Assessing writing*. Cambridge: Cambridge University Press.
- Dam-Jensen, H. (2012). Decision-making in translation. A pilot study of students' translation processes. *Fachsprache*, 3-4, 146–164.
- Dam-Jensen, H., & Heine, C. (2009). Process research methods and their application in the didactics of text production and translation. *trans-kom: Zeitschrift für Translationswissenschaft und Fachkommunikation*, 2(1), 1–25.
- Dam-Jensen, H., & Heine, C. (2013). Writing and translation process research: Bridging the gap (Introduction). *Journal of Writing Research*, 5(1), 89–101.
- De Meyer, F., Leijten, M., Opendacker, L., Stals, S., & Van Waes, L. (2010). *Calliope. Instructieve Teksten*. Retrieved from http://www.calliope.be/dutch/html/topic_0C088C2F-4331-4127-85BC-9FC4DEE8D861_9E48C765-6C79-46A3-A7B1-BDD0BF3C9AA8_1.htm
- Directive 2001/83/EC of the European Parliament and of the Council of 6 november 2001 on the Community Code relating to Medicinal Products for Human Use (28/11/2004). *Official Journal of the European Union* L – 311, 67–128.
- Directive 2004/27/EC of the European Parliament and of the Council of 31 March 2004 amending Directive 2001/83/EC on the Community Code relating to Medicinal Products for Human Use (30/04/2004). *Official Journal of the European Union* L – 136, 34–57.
- Doloughan, F., & Rogers, M. (2006). Mediation and regulation of textual space: The role of creative writing in translator training. In I. Kemble & C.

- O'Sullivan (Eds.), *Translation and creativity: How creative is the translator?* *Proceedings of the Conference held on 12 November 2005 in Portsmouth* (pp. 34–43). Portsmouth: University of Portsmouth.
- Dragsted, B. (2005). Segmentation in translation: Difference across levels of expertise and difficulty. *Target*, 17(1), 49–70.
- Ehrensberger-Dow, M., & Perrin, D. (2009). Capturing translation processes to access metalinguistic awareness. *Across Languages and Cultures*, 10(2), 275–288.
- EMT expert group (2009). *Competences for professional translators, experts in multilingual and multimedia communication*. Retrieved from http://ec.europa.eu/dgs/translation/programmes/emt/key_documents/emt_competences_translators_en.pdf
- EN 15038 (2006). *Translation Services - Service Requirements*. Brussels: European Committee for Standardization.
- Englund Dimitrova, B. (2005). *Expertise and explicitation in the translation process*. Amsterdam: John Benjamins.
- Ericsson, K. A., & Kintsch, W. (1995). Long-term working memory. *Psychological Review*, 102(2), 211–245.
- Ericsson, K. A., & Simon, H. (1984 [1993]). *Protocol analysis: Verbal reports as data* (Rev. ed.). Cambridge, MA: MIT Press.
- ETS (2010). *The skills underlying writing expertise: Implications for K-12 writing assessment*. Retrieved from <http://www.ets.org/s/research/pdf/CBALwriting.pdf>
- European Commission Enterprise and Industry Directorate-General (2008). *General Guideline on the packaging information of medicinal products for human use authorized by the community*. Retrieved from http://ec.europa.eu/health/files/eudralex/vol-2/c/bluebox_02_2008_en.pdf
- European Commission Enterprise and Industry Directorate-General (2009). *Guideline on the readability of the labelling and package leaflet of medicinal products for human use* (revision 1, 12 January 2009). Retrieved from http://ec.europa.eu/health/files/eudralex/vol-2/c/smpc_guideline_rev2_en.pdf
- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Los Angeles: SAGE.
- Fishman, S. M., & McCarthy, L. (2001). An ESL writer and her discipline-based professor. *Written Communication*, 18, 180–228.
- Flower, L. S., Hayes, J. R., Carey, L., Schriver, K., & Stratman, J. (1986). Detection, diagnosis and the strategies of revision. *College composition and communication*, 37, 16–55.
- Galbraith, D. (1996). Self-monitoring, discovery through writing and individual differences in drafting strategy. In G. Rijlaarsdam, H. van den Bergh, & M. Couzijn (Eds.), *Theories, models and methodology in writing research* (pp. 121–141). Amsterdam: Amsterdam University Press.

- Galbraith, D. (1999). Writing as a knowledge-constituting process. In M. Torrance & D. Galbraith (Eds.), *Studies in writing: Vol. 4. Knowing what to write: Conceptual processes in text production* (pp. 139–160). Amsterdam: Amsterdam University Press.
- Gambier, Y. (2009). *Competences for Professional Translators, Experts in Multilingual and Multimedia Communication*. EMT expert group. Retrieved from http://ec.europa.eu/dgs/translation/programmes/emt/key_documents/emt_competences_translators_en.pdf
- Gamero Pérez, S. (2000). La traducción de los marcadores discursivos como rasgo convencional del género. El caso de los manuales de instrucciones (alemán-español). In V. Salvador & A. Piquer (Eds.), *El discurs prefabricat: estudis de fraseologia teòrica i aplicada* (pp. 93–106). Castellón: Universitat Jaume I.
- Gamero Pérez, S. (2001). *La traducción de textos técnicos: Descripción y análisis de textos (alemán-español)*. Barcelona: Ariel.
- Gamero Pérez, S., & Öster, U. (1999). Análisis contrastivo de los actos de habla directivos en los manuales de instrucciones: conclusiones aplicables a la traducción. In P. Elena García, C. Fortea, M. Recio, S. Roiss, & D. Wiggert (Eds.), *Universo de palabras: actas del I Simposio de la Traducción del/al Alemán* (pp. 93–106). Salamanca: Universidad de Salamanca.
- García Izquierdo, I., & Montalt, V. (2002). Translating into textual genres. *Linguística Antverpiensia*, 1, 135–143.
- Gerloff, P. (1988). *From French to English: A look at the translation process in students, bilinguals, and professional translators*. Doctoral dissertation. Cambridge (MA): Harvard University.
- Gile, D. (2009). *Basic concepts and models for interpreter and translator training* (Rev. Ed.). Amsterdam: John Benjamins.
- Gnecchi, M., Maylath, B., Moustén, B., Scarpa, F., & Vandepitte, S. (2011). Field convergence between technical writers and technical translators: Consequences for training institutions. *IEEE Transactions on Professional Communication*, 54(2), 168–184.
- Gnecchi, M., Maylath, B., Scarpa, F., Moustén, B., & Vandepitte, S. (2008). “Professional Communication and Translation in Convergence.” *Proceedings of the IEEE International Professional Communication Conference, 13-16 July 2008, Concordia U, Montréal, Québec, Canada*. New York: IEEE.
- González Davies, M. (2004). *Multiple voices in the translation classroom: Activities, tasks and projects*. Amsterdam: John Benjamins.
- Göpferich, S. (1996). (Fach)Übersetzen vs. Technical Writing: Parallelen und Unterschiede. In G. Budin (Ed.), *Multilingualism in Specialist Communication/Multilingualisme dans la communication spécialisée/Mehrsprachigkeit in der*

- Fachkommunikation. Proceedings of the 10th European LSP Symposium Vienna 1995.* Bd. 1 (pp. 399–434). Vienna: TermNet.
- Göpferich, S. (2004). Die Fähigkeit zur übersetzungsgerechten Textproduktion als Teil der Translationskompetenz. In E. Fleischmann, P. A. Schmitt, & G. Wotjak (Eds.), *Translationskompetenz. Tagungsberichte der LICTRA (Leipzig International Conference on Translation Studies) 4.-6.10.2001* (pp. 353–376). Tübingen: Stauffenburg.
- Göpferich, S. (2008). *Translationsprozessforschung: Stand Methoden Perspektiven. (Translationswissenschaft 4)*. Tübingen: Narr.
- Göpferich, S. (2009). Towards a model of translation competence and its acquisition: The longitudinal study ‘TransComp’. In S. Göpferich, A. L. Jakobsen, & I. Mees (Eds.), *Copenhagen studies in language 37. Behind the mind: Methods, models and results in translation process research* (pp. 11–37). Kopenhagen: Samfundslitteratur.
- Göpferich, S. (2010a). Anleitungen rezipieren, Anleitungen produzieren: Empirische Befunde zu kognitiven Prozessen bei Übersetzungsnovizen und Übersetzungsprofis. *Hermes - Journal of Language and Communication Studies*, 44, 169–197.
- Göpferich, S. (2010b). The translation of instructive texts from a cognitive perspective: novices and professionals compared. In S. Göpferich, F. Alves, & I. M. Mees (Eds.), *Copenhagen Studies in Language 39. New Approaches in Translation Process Research* (pp. 5–52). Kopenhagen: Samfundslitteratur.
- Göpferich, S., & Jääskeläinen, R. (2009). Process research into the development of translation competence: where are we, and where do we need to go? *Across Languages and Cultures*, 10(2), 169–191.
- Gosden, H. (1998). An aspect of holistic modeling in academic writing: Propositional clusters as a heuristic for thematic control. *Journal of Second Language Writing*, 7, 19–41.
- Grabe, W., & Kaplan, R. B. (1996). *Theory & practice of writing*. London: Longman.
- Gross, A. (2003). Teaching translation as a form of writing. In B. J. Baer & G. S. Koby (Eds.), *Beyond the ivory tower: Rethinking translation pedagogy* (pp. 83–93). Amsterdam: John Benjamins.
- Gutt, E. A. (1991). *Translation and relevance: Cognition and context*. Oxford: Basil Blackwell.
- Hammond, J., & Macken-Horarik, M. (1999). Critical literacy: Challenges and questions for ESL classrooms. *TESOL Quarterly*, 33, 528–544.
- Hansen, G. (2006). Retrospection methods in translator training and translation research. *JoSTrans* 5, 2–41.
- Hansen, G. (2010). In Y. Gambier & L. Van Doorslaer (Eds.), *Handbook of translation*

- studies* (pp. 385–388). Amsterdam: John Benjamins.
- Hart-Davidson, W. (2001). On writing, technical communication, and information technology: The core competencies of technical communication. *Technical Communication*, 48(2), 145–155.
- Hatano, G., & Inagaki, K. (1986). Two courses of expertise. In H. Stevenson, H. Azuma, & K. Hakuta (Eds.), *Child development and education in Japan*. New York: Freeman.
- Hayes, J. R. (1996). A new framework for understanding cognition and affect in writing. In C. M. Levy & S. Ransdell (Eds.). *The science of writing* (pp. 1–27). Mahwah, NJ: Erlbaum.
- Hayes, J. R. (2004). What triggers revision? In L. Allal, L. Chanquoy, & P. Largy (Eds.), *Studies in writing: Vol. 13. Revision: Cognitive and instructional processes* (pp. 9–20). Boston: Kluwer.
- Hayes, J. R. (2011). Kinds of knowledge-telling: Modeling early writing development. *Journal of Writing Research*, 3(2), 73–92.
- Hayes, J. R. (2012). Modeling and remodeling writing. *Written Communication*, 29(3), 369–388.
- Hayes, J. R., & Flower, L. S. (1980). Identifying the organization of writing processes. In L. W. Gregg & E. R. Steinberg (Eds.), *Cognitive processes in writing* (pp. 3–30). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Hayes, J. R., Flower, L. S., Shriver, K., Stratman, J., & Carey, L. (1987). Cognitive processes in revision. In S. Rosenberg (Ed.), *Advances in psycholinguistics: Vol. 2. Reading, writing and language* (pp. 176–240). Cambridge: Cambridge University Press.
- Hayes, J. R., & Nash, J. G. (1996). On the nature of planning in writing. In C. M. Levy & S. Ransdell (Eds.), *The science of writing* (pp. 29–55). Mahwah, NJ: Lawrence Erlbaum Associates.
- Henry, A., & Roseberry, R. L. (1998). An evaluation of a genre-based approach to the teaching of EAP/ESP writing. *TESOL Quarterly*, 32, 147–156.
- Holliday, D. R., & McCutchen, D. (2004). Audience perspective in young writers' composing and revising: Reading as the reader. In L. Allal, L. Chanquoy, & P. Largy (Eds.), *Studies in writing: Vol. 13. Revision: Cognitive and instructional processes* (pp. 87–101). Norwell, MA: Kluwer.
- Hönig, H. G. (1991). Holmes' "Mapping theory" and the landscape of mental translation processes. In K. M. van Leuven-Zwart & T. Naaijken (Eds.), *Translation studies: The state of the art. Proceedings of the first James S Holmes Symposium on translation studies* (pp. 77–89). Amsterdam: Rodopi.
- Hönig, H. G. (1995). *Konstruktives Übersetzen. [Studien zur Translation I]*. Tübingen: Stauffenburg.

- Hoskyn, M., & Swanson, H. L. (2003). The relationship between working memory and writing in younger and older adults. *Reading and writing: An interdisciplinary journal*, 16, 759–784.
- House, J. (1977). *A model for translation quality assessment*. Tübingen: Gunter Narr.
- House, J. (1997). *Translation quality assessment: A model revisited*. Tübingen: Narr.
- Hursti, K. (2001). An insider's view on transformation and transfer in international news communication: an English–finnish perspective. *The Electronic Journal of the Department of English at the University of Helsinki*, 1. Retrieved from <http://blogs.helsinki.fi/hes-eng/volumes/volume-1-special-issue-on-translation-studies/an-insiders-view-on-transformation-and-transfer-in-international-news-communication-an-english-finnish-perspective-kristian-hursti/> (accessed 24 November 2010).
- Hurtado Albir, A. (2007). Competence-based curriculum design for training translators. *The Interpreter and Translator Trainer* 1(2), 163–195.
- Hyland, K. (2003). Genre-based pedagogies: A social response to process. *Journal of Second Language Writing*, 12, 17–29.
- Jääskeläinen, R. (1989). The role of reference material in professional vs. non-professional translation: A think-aloud protocol study. In S. Tirkkonen-Condit & S. Condit (Eds.), *Empirical studies in translation and linguistics* (pp. 175–200). Joensuu: University of Joensuu.
- Jääskeläinen, R. (1993). Investigating translation strategies. In S. Tirkkonen-Condit & J. Laffling (Eds.), *Recent trends in empirical translation research* (pp. 99–120). Joensuu: University of Joensuu.
- Jääskeläinen, R. (1999). *Tapping the process: An explorative study of the cognitive and affective factors involved in translating*. Joensuu: Joensuun Yliopisto.
- Jääskeläinen, R. (2000). Focus on methodology in think-aloud studies on translating. In S. Tirkkonen-Condit & R. Jääskeläinen (Eds.), *Tapping and mapping the processes of translation and interpreting: outlooks on empirical research* (pp. 71–82). Amsterdam: John Benjamins.
- Jääskeläinen, R. (2002). Think-aloud protocol studies into translation: An annotated bibliography. *Target*, 14(1), 107–136.
- Jääskeläinen, R. (2010). Are all professional translators experts? Definitions of expertise and reinterpretation of research evidence in process studies. In G. M. Shreve & E. Angelone (Eds.), *Translation and Cognition* (pp. 213–227). Amsterdam: John Benjamins.
- Jääskeläinen, R., & Tirkkonen-Condit, S. (1991). “Automatised processes in professional vs. non-professional translation: A think-aloud study.” In S. Tirkkonen-Condit (Ed.), *Empirical research in translation and intercultural studies. Selected papers of the TRANSIF seminar, Savonlinna 1988* (pp. 89–109). Tübingen:

Gunter Narr.

- Jakobsen, A. L. (1994). Starting from the (other) end: Integrating translation and text production. In C. Dollerup & A. Lindegaard (Eds.), *Teaching Translation and Interpreting 2: Insights, aims, visions* (pp. 143–150). Amsterdam: John Benjamins.
- Jakobsen, A. L. (1999). Logging target text production with Translog. In G. Hansen (Ed.), *Probing the process in translation: Methods and results* (pp. 9–20). Copenhagen: Samfundslitteratur.
- Jakobsen, A. L. (2002). Translation drafting by professional translators and by translation students. In G. Hansen (Ed.), *Empirical Translation Studies: Process and Product* (pp. 191–204). Copenhagen: Samfundslitteratur.
- Jakobsen, A. L. (2003). Effects of think aloud on translation speed, revision and segmentation. In F. Alves (Ed.), *Triangulating translation: Perspectives in process oriented research* (pp. 69–95). Amsterdam: John Benjamins.
- Jakobsen, A. L. (2006). Translog: Research methods in translation. In K. P. H. Sullivan & E. Lindgren (Eds.), *Studies in Writing: Vol. 18. Computer keystroke logging: Methods and applications* (pp. 95–105). Elsevier: Oxford.
- Jakobsen, A. L., & Schou, L. (1999). Translog documentation. In G. Hansen (Ed.), *Probing the process in translation: Methods and results* (pp. 151–186). Copenhagen: Samfundslitteratur.
- Jimenez Crespo, M. A. (2009). The effect of translation memory tools in translated web texts: Evidence from a comparative product-based study. *Linguistica Antverpiensia 8*, 213–232.
- Jones, C. G. (2011). Written and computer-mediated accounting communications skills: An employer perspective. *Business Communication Quarterly*, 74, 247–271.
- Kastberg, P. (2002). Information and documentation management in the training of technical translators - As opposed to teaching technical science. *LSP & Professional Communication – An International Journal*, 2(1), 57–66.
- Katan, D. (2004). *Translating cultures: An introduction for translators, interpreters and mediators*. Manchester: St. Jerome.
- Kaufert, D. S., Hayes, J. R., & Flower, L. (1986). Composing written sentences. *Research in the teaching of English*, 20, 121–140.
- Kellogg, R. T. (1996). A model of working memory in writing. In C. M. Levy & S. Ransdell (Eds.), *The science of writing* (pp. 57–71). Mahwah, NJ: Lawrence Erlbaum Associates.
- Kellogg, R. T. (2008). Training writing skills: A cognitive developmental perspective. *Journal of Writing Research*, 1(1), 1–26.
- Kelly, D. (2005). *A handbook for translator trainers*. Manchester: St. Jerome.
- Kim, R. (2006). Use of extralinguistic knowledge in translation. *Meta*, 51(2), 284–303.

- Kintsch, W. (1998). *Comprehension: a paradigm for cognition*. New York: Cambridge University Press.
- Kiraly, D. (1995). *Pathways to translation*. Kent, Oh.: Kent State University Press.
- Kiraly, D. (2000). *A social constructivist approach to translator education: Empowerment from theory to practice*. Manchester: St. Jerome.
- Kobayashi, H., & Rinnert, C. (2008). Task response and text construction across L1 and L2 writing. *Journal of Second Language Writing*, 17, 7–29.
- Koby, G. S., & Melby, A. K. (2013). Certification and Job Task Analysis (JTA): Establishing validity of translator certification examinations. *Translation & Interpreting: The international journal of translation and interpreting research*, 5 (1), 174–210. Retrieved from: <http://www.trans-int.org/index.php/transint/article/view/243/116>
- Krings, H.P. (2001). *Repairing texts: Empirical investigations of machine translation post-editing processes*. Kent, OH: Kent State University Press.
- Krings, H.P. (2005). Wege ins Labyrinth – Fragestellungen und Methoden der Übersetzungsprozessforschung im Überblick. *Meta* 50(2), 342–358.
- Kruse, O. (2013). Perspectives on academic writing in European higher education: Genres, practices, and competences. *Revista de Docencia Universitaria* 11(1), 37–58.
- Kruse, O., & Chitez, M. (2012). Schreibkompetenz im Studium: Komponenten, Modelle und Assessment. In N. Sennwald & U. Preußner (Hrsg.), *Literale Kompetenzentwicklung an der Hochschule*. Frankfurt am Main: Peter Lang.
- Kruse, O., & Jakobs, E.-M. (1999). Schreiben lernen an der Hochschule: Ein Überblick. In O. Kruse, E.-M. Jakobs, & G. Ruhmann (Hrsg.), *Schlüsselkompetenz Schreiben. Konzepte, Methoden, Projekte für Schreibberatung und Schreibdidaktik an der Hochschule* (pp. 19–34). Neuwied: Luchterhand.
- Künzli, A. (2001). Experts versus novices : l'utilisation de sources d'information pendant le processus de traduction. *Meta*, 46(3), 507–523.
- Künzli, A. (2003). *Quelques Stratégies et Principes en Traduction Technique Français–Allemand et Français–Suédois*. Unpublished doctoral thesis. Stockholm: Stockholms universitet.
- Künzli, A. (2004). Risk taking: Trainee translators vs professional translators: A case study. *JoSTrans*, 2, 34–49.
- Kusssmaul, P. (1995). *Training the translator*. Amsterdam: John Benjamins.
- Laufer, B., & Nation, P. (1995) Vocabulary size and use: Lexical richness in L2 written production. *Applied Linguistics*, 16(3), 307–322.
- Laukkanen, J. (1996). Affective and attitudinal factors in translation processes. *Target*, 8(2), 257–274.
- Lefevere, A. (1992). *Translation, rewriting and the manipulation of literary fame*. New

- York: Routledge.
- Leijten, M. (2007). *Writing and speech recognition: observing error correction strategies of professional writers* (Vol. 160). Utrecht: LOT.
- Leijten, M., & Van Waes, L. (2013). Keystroke logging in writing research: Using Inputlog to analyze and visualize writing processes. *Written Communication*, 30(3), 358–392.
- Leijten, M., Van Waes, L., Schriver, K., & Hayes, J. R. (2014). Writing in the workplace: Constructing documents using multiple digital sources. *Journal of Writing Research*, 5(3), 285–337.
- Lindgren, E., Leijten, M., & Van Waes, L. (2011). Adapting to the reader during writing. *Written Language & Literacy*, 14(2), 188–223.
- Lin, X., Schwartz, D. L., & Bransford, J. (2007). Intercultural adaptive expertise: Explicit and implicit lessons from Dr. Hatano. *Human Development*, 50, 65–72.
- Loffredo, E., & Perteghella, M. (2006). *Translation and creativity. Perspectives on creative writing and translation studies*. London: Continuum.
- Lörscher, W. (1993). Translation process analysis. In Y. Gambier & J. Tammola (Eds.), *Translation and Knowledge. SSOTT IV* (pp. 195–211). Turku: University of Turku.
- MacDonald, S. P. (1992). A method for analyzing sentence-level differences in disciplinary knowledge making. *Written Communication*, 9, 533–569.
- Marco, J. (2007). The terminology of translation: Epistemological, conceptual and intercultural problems and their social consequences. *Target*, 19(2), 255–269.
- Mason, I. (2006). Ostension, inference and response: Analysing participant moves in community interpreting dialogues. *Linguistica Antverpiensia NS* 5, 103–120.
- Mata Pastor, C. (1998). Reflexiones sobre el proceso de la traducción de instrucciones. In L. Félix Fernández & E. Ortega Arjonilla (Eds.), *II Estudios sobre traducción e interpretación* (pp. 1065–1078). Malaga: Universidad de Malaga.
- McCarthy, L. P. (1987). A stranger in strange lands: A college student writing across the curriculum. *Research in the Teaching of English*, 21, 233–265.
- McCutchen, D. (1986). Domain knowledge and linguistic knowledge in the development of writing ability. *Journal of Memory and Language*, 25, 431–444.
- McCutchen, D. (1988). “Functional automaticity” in children’s writing: A problem of metacognitive control. *Written Communication*, 5, 306–324.
- McCutchen, D. (2006). Cognitive factors in the development of children’s writing. In C. A. MacArthur, S. Graham, & J. Fitzgerald (Eds.), *Handbook of writing research* (pp. 115–130). New York: The Guilford Press.
- McCutchen, D. (2011). From novice to expert: Implications of language skills and writing-relevant knowledge for memory during the development of writing skill. *Journal of Writing Research*, 3(1), 51–68.

- McCutchen, D., Covill, A., Hoyne, S. H., & Mildes, K. (1994). Individual differences in writing: Implications of translating fluency. *Journal of Educational Psychology*, 86, 256–266.
- McCutchen, D., Francis, M., & Kerr, S. (1997). Revising for meaning: effects of knowledge and strategy. *Journal of educational psychology*, 86(2), 256–266.
- McCutchen, D., Teske, P., & Bankston, C. (2008). Writing and cognition: implications of the cognitive architecture for learning to write and writing to learn. In C. Bazerman (Ed.), *Handbook of research on writing: History, society, school, individual, text* (pp. 451–470). New York: Lawrence Erlbaum Associates.
- Merkle, D. (2010). Translators of pragmatic texts and expert writing: A reflection on translator training/education in New Brunswick, Canada. In I. Kemble (Ed.), *The translator as writer* (pp. 1–13). Portsmouth: University of Portsmouth. Retrieved from <<http://www.port.ac.uk/departments/academic/slas/conferences/astconferenceproceedings/translationconf2009/translationconf2009file/filetodownload,138137,en.pdf>>
- Meyer, I., & Russell, P. (1988). The role and nature of specialized writing in a translation-specific writing program. *TTR: Traduction, terminologie, redaction*, 1(2), 114–124.
- Minacori, P., & Veisblat, L. (2010). Translation and technical communication: Chicken or egg?. *Meta*, 55(4), 752–768.
- Montalt Resurreccion, V. M., Ezpeleta Piorno, P., & García Izquierdo, I. (2008). The acquisition of translation competence through textual genre. *Translation journal: A publication for translators about translators and translation*, 4(12), 1–12. Retrieved from <http://repositori.uji.es/xmlui/bitstream/handle/10234/25245/30807>.
- Mossop, B. (2001). *Revising and editing for translators*. Manchester: St. Jerome.
- Mossop, B. (2010). Translating what might have been written. In M. Baker, M. Olohan, & M. Calzada Pérez (Eds.), *Text and context: Essays on translation and interpreting in honour of Ian Mason* (pp. 95–113). Manchester: St. Jerome.
- Murcia Bielsa, S. (1999). *Instructional texts in English and Spanish: A contrastive study*. Unpublished doctoral dissertation, Universidad de Córdoba, Córdoba.
- Mustafa, A. (1995). The effect of genre awareness on linguistic transfer. *English for Specific Purposes*, 14(3), 217–256.
- Neubert, A. (2000). Competence in language, languages, and in translation. In C. Schäffner & B. Adab (Eds.) *Developing translation competence* (pp. 3–18). Amsterdam/Philadelphia: John Benjamins.
- Newmark, P. (1988). *Approaches to translation*. New York: Prentice Hall.
- Nord, C. (1991). *Text analysis in translation. Theory, methodology and didactic application of a model for translation-oriented text analysis*. Amsterdam: Rodopi.

- Nord, C. (1997). *Translating as a purposeful activity. Functionalist approaches explained*. Manchester: St Jerome.
- Nord, C. (2005). *Text analysis in translation. Theory, methodology, and didactic application of a model for translation-oriented text analysis* (2nd rev. ed.). Amsterdam: Rodopi.
- Normcommissie 380 138 “Vertaaldiensten” (2006). *NEN-EN15038 Vertaaldiensten - Eisen aan de dienstverlening*. Delft: Nederlands Normalisatie-instituut.
- Nystrand, M. (Ed.). (1982). *What writers know: The language, process, and structure of written discourse*. New York: Academic Press.
- O’Brien, S. (2013). The borrowers. Researching the cognitive aspects of translation. *Target*, 25(1), 5–17.
- Olive, T. (2012). Working memory in writing. In Virginia Wise Berninger (Ed.), *Past, Present, and Future Contributions of Cognitive Writing Research to Cognitive Psychology* (pp. 485–503). New York: Psychology.
- PACTE (2000). Acquiring translation competence: Hypotheses and methodological problems in a research project. In A., Beeby, D. Ensinger, & M. Presas (Eds.), *Investigating Translation* (p. 99-106). Amsterdam: John Benjamins.
- PACTE (2002). Exploratory tests in a study of translation competence. *Conference Interpretation and Translation*, 4(2), 41–69.
- PACTE (2003). Building a translation competence model. In F. Alves (Ed.), *Triangulating translation: Perspectives in process oriented research* (pp. 43–66). Amsterdam: John Benjamins.
- PACTE (2005). Investigating translation competence: Conceptual and methodological issues. *Meta*, 50(2), 609–619.
- PACTE (2007): Zum Wesen der Übersetzungskompetenz. Grundlagen für die experimentelle Validierung eines Ük-Modells. In G. Wotjak (Ed.), *Quo vadis Translatologie? Ein halbes Jahrhundert universitärer Ausbildung von Dolmetschern und Übersetzern in Leipzig. Rückschau, Zwischenbilanz und Perspektiven aus der Außensicht* (pp. 327–432). Berlin: Frank and Timme.
- PACTE (2008). First results of a translation competence experiment: “Knowledge of translation” and “Efficacy of the translation process”. In J. Kearns (Ed.), *Translator and interpreter training. Issues, methods and debates* (pp. 104–126). London: Continuum.
- PACTE (2011). Results of the validation of the PACTE translation competence model: Translation project and dynamic translation index”. In S. O’Brien (Ed.), *IATIS yearbook 2010* (pp. 30–56). London: Continuum.
- Pavlovic, N. (2007). *Directionality in collaborative translation processes*. Unpublished doctoral dissertation. Universitat Rovira i Virgili.
- Presas, M. (1998). Los componentes de la competencia pretraductora en el marco del diseño curricular. In I. García Izquierdo & J. Verdegal (Eds.), *Los estudios*

- de traducción: un reto didáctico* (pp. 131–134). Castelló de la Plana: Universitat Jaume I.
- Pym, A. (1993) *Epistemological problems in translation and its teaching: A seminar for thinking students*. Calaceite: Caminade.
- Pym, A. (2003). Redefining translation competence in an electronic age. In defence of a minimalist approach, *Meta*, 28(4), 481–497.
- QRD (2010). *Human Product Information Annotated Template (EN) v. 7.3.1*. Retrieved from http://www.ema.europa.eu/docs/en_GB/document_library/Template_or_form/2009/10/WC500004368.pdf.
- Ransdell, S., & Levy, C. M. (1996). Working memory constraints on writing quality and fluency. In C. M. Levy & S. Ransdell (Eds.), *The science of writing* (pp. 93–105). Mahwah, NJ: Lawrence Erlbaum Associates.
- Ray, R., & Kelly, N. (2010). *Reaching new markets through transcreation. When translation just isn't enough*. Retrieved from http://www.common senseadvisory.com/Portals/_default/Knowledgebase/ArticleImages/100331_R_Transcreation_Preview.pdf
- Reiß, K., & Vermeer, H. J. (1984). *Grundlegung einer allgemeinen Translationstheorie*. Tübingen: Niemeyer.
- Risku, H. (1998). *Translatorische Kompetenz. Kognitive Grundlagen des Übersetzens als Expertentätigkeit*. Tübingen: Stauffenberg.
- Risku, H. (2004). Migrating from translation to technical communication and usability. In G. Hansen, K. Malmkjær, & D. Gile (Eds.), *Translation Studies: Claims, changes and challenges. Selected contributions from the EST Congress, Copenhagen 2001* (pp. 181–196). Amsterdam: Benjamins.
- Risku, H., & Windhager, F. (2009). Transcultural communication: Managing knowledge and diversity. *SYNAPS* 23, 3–14.
- Roca de Larios, J., Murphy, L., & Marin, J. (2002). Critical examination of L2 writing process research. In G. Rijlaarsdam (Series Ed.), & S. Ransdell & M. L. Barbier (Volume Eds.), *Studies in writing: Vol. 11. New Directions for research in L2 writing* (pp. 11–47). Dordrecht: Kluwer.
- Rothkegel, A. (2010). *Technikkommunikation. Produkte, Texte, Bilder*. Wien: Huter & Roth.
- Saldanha, G., & O'Brien, S. (2014). *Research methodologies in translation studies*. London: Routledge.
- Schäffner, C. (2000). Running before walking? Designing a translation program at undergraduate level. In C. Schäffner, & B. Adab (Eds.), *Developing translation competence* (pp. 143–157). Amsterdam: John Benjamins.
- Schäffner, C. (2012). Rethinking transediting. *Meta*, 57(4), 866–883.
- Schrijver, I., Dam-Jensen, H., & Heine, C. (forthcoming). *An interdisciplinary*

- approach to text production: Talking about terms of the trade(s) first.*
- Schrijver, I., & Van Vaerenbergh, L. (2008). Die Redaktionskompetenz des Übersetzers: eine Mehrwertleistung oder ein Muss? *Trans-kom*, 1(2), 209–228.
- Schrijver, I., Van Vaerenbergh, L., Leijten, M., & Van Waes, L. (2014). The translator as a writer. Measuring the effect of writing skills on the translation product. In D. Knorr, C. Heine, & J. Engberg (Eds.), *Methods in Writing Process Research [Textproduktion in Medium]* (pp. 99–122). Peter Lang: Bern.
- Schrijver, I., Van Vaerenbergh, L., Leijten, M., & Van Waes, L. (in press). The impact of writing training on transediting in translation, analysed from a process perspective. *Perspectives: Studies in Translatology*.
- Schrijver, I., Van Vaerenbergh, L., Leijten, M., & Van Waes, L. (in preparation). *Do professional translators benefit from writing training? A case description.*
- Schrijver, I., Van Vaerenbergh, L., & Van Waes, L. (2011). Transediting in students' translation processes. *Artesis VT Working Papers*. Retrieved from http://www.artesis.be/vertalertolk/upload/docs/onderzoek/2011-1_Schrijver_Van_Vaerenbergh_Van_Waes.pdf
- Schrijver, I., Van Vaerenbergh, L., & Van Waes, L. (2012). An exploratory study of transediting in translation students' translation processes. *Hermes – Journal of Language and Communication in Business*, 49, 1–19. Retrieved from <http://bcom.au.dk/hermes>
- Schriver, K. (2012). What we know about expertise in professional communication. In V. W. Berninger (Ed.), *Past, Present, and Future Contributions of Cognitive Writing Research to Cognitive Psychology* (pp. 275–312). New York: Psychology.
- Schubert, K. (2006). Kultur, Translation, Fachkommunikation. In C. Heine, K. Schubert & H. Gerzymisch-Arbogast (Hg.), *Jahrbuch Übersetzen und Dolmetschen 6. Text and Translation. Theory and Methodology of Translation* (pp. 391–409). Tübingen: Gunter Narr.
- Schubert, K. (2009). Positioning translation in technical communication studies. *The Journal of Specialised Translation* 11, 17–30.
- Schubert, K. (2012). Technical communication and translation. In A. Rothkegel & S. Ruda (Eds.), *Communication on and via technology* (pp. 111–128). Berlin: de Gruyter Mouton.
- Schwartz, D. L., Bransford, J., & Sears, D. (2005). Efficiency and innovation in transfer. In J. Mestre (Ed.), *Transfer of learning from a modern multidisciplinary perspective* (pp. 1–51). Greenwich, CT: Information Age.
- Seeber, K. G. (2013). Cognitive load in simultaneous interpreting. Measures and methods. *Target*, 25(1), 18–32.
- Sim, R. L. (2000). A Training Strategy for Translation Studies. In C. Schäffner & B. Adab (Eds.) *Developing translation competence* (pp. 171–184). Amsterdam/

- Philadelphia: John Benjamins.
- Smart, G. (2000). Reinventing expertise: Experienced writers in the workplace encounter a new genre. In P. Dias & A. Pare' (Eds.), *Transitions: Writing in academic and workplace settings* (pp. 223–252). Cresskill, NJ: Hampton.
- Solac (2013). *Quitapelusas Multiuso Mod Q603*. Retrieved from http://www.solac.com/Solac/detalleProductos.do?menU=productos&page=detalleProductos&identificadorarea=c83269533d8ddd429071e59dd2ac4dc8&area=HOGAR&subarea=QUITAPELUSAS&item=f8e5f5214b650e43879a3ae5ce61ad1f&areaPadre=c83269533d8ddd429071e59dd2ac4dc8&idioma=es_ES.
- Spack, R. (1997). The acquisition of academic literacy in a second language: A longitudinal case study. *Written Communication*, 14, 3–62.
- Steehouder, M. (2008). Procedurele instructies. In P. van Bart & M. Steehouder (Eds.), *Basisboek Technische Communicatie* (pp. 107–121). Assen: Van Gorcum.
- Stetting, K. (1989). Transediting: A new term for coping with the grey area between editing and translating. In G. Caie, et al. (Eds.), *Proceedings from the fourth Nordic conference for English studies* (pp. 371–382). Copenhagen: University of Copenhagen, Department of English.
- Stibbe, M. (2009). Translation vs. transcreation. *Bad language. Writing about writing*. Retrieved from <http://www.badlanguage.net/translation-vs-transcreation> (accessed 5 June 2011).
- Stockton, S. (1995). Writing in history: Narrating the subject of time. *Written Communication*, 12, 47–73.
- Tardy, C. M. (2006). Researching first and second language genre learning: A comparative review and a look ahead. *Journal of Second Language Writing*, 15, 79–101.
- TechSmith Corporation (2014). *Morae. User experience and market research*. <http://www.techsmith.com/morae.html>
- Tirkkonen-Condit, S., Mäkisalo, J., & Immonen, S. (2008). The translation process - interplay between literal rendering and a search for sense. *Across languages and culture*, 9(1), 1–15.
- Toury, G. (1995). *Descriptive translation studies and beyond*. Amsterdam: John Benjamins.
- Van Bart, P., & Steehouder, M. (Eds.) (2008). *Basisboek technische communicatie*. Assen: Van Gorcum.
- Vande Kopple, W.J. (1998). Relative clauses in spectroscopic articles in the Physical Review, Beginnings and 1980: Some changes in patterns of modification and a connection to possible shifts in style. *Written Communication*, 15, 170–202.
- Van den Bergh, H., & Rijlaarsdam, G. (1996). The dynamics of composing: Modelling writing process data. In C. M. Levy & S. E. Ransdell (Eds.), *The*

- science of writing: Theories, methods, individual differences, and applications* (pp. 207–232). Mahwah, NJ: Lawrence Erlbaum.
- Van Waes, L., & Leijten, M. (2006). Logging writing processes with Inputlog. In L. Van Waes, M. Leijten, & C. Neuwirth (Eds.), *Studies in Writing: Vol. 17. Writing and digital Media* (pp. 158–166). Oxford: Elsevier.
- Van Waes, L., Leijten, M., & Quinlan, T. (2010). Reading during sentence composing and error correction: A multilevel analysis of the influences of task complexity. *Reading and Writing, 23*(7), 803–834.
- Vázquez y del Árbol, E. (2008). Aspectos de la traducción técnica: errores e incorrecciones graves en la traducción de manuales de instrucciones alemanes e italianos al español. *Lebende Sprachen, 53*(1), 2–6.
- Vermeer, H. (1987). What does it mean to translate?, *Indian Journal of Applied Linguistics, 13*(2), 25–33.
- Vuorinen, E. (1996). *Crossing cultural boundaries in international news transmission: Translational approach*. Tampere: University of Tampere.
- Wallace, D. L., & Hayes, J. R. (1991). Redefining revision for freshmen. *Research in the Teaching of English, 25*, 54–66.
- Wengelin, Å. (2006). Examining pauses in writing: Theories, methods and empirical data. In K. P. H. Sullivan & E. Lindgren (Eds.), *Studies in Writing: Vol. 18. Computer keystroke logging: Methods and applications* (pp. 107–130). Oxford: Elsevier.
- Wilss, W. (1976). Perspectives and limitations of a didactic framework for the teaching of translation. In: R. W. Brislin (Ed.), *Translation Applications and Research* (pp. 117–137). New York: Gardner.
- Yasuda, S. (2011). Genre-based tasks in foreign language writing: Developing writers' genre awareness, linguistic knowledge, and writing competence. *Journal of Second Language Writing, 20*, 11–131.
- Zimmerman, B. J. (2000). Attaining self-regulation. A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13–39). San Diego: Academic Press.
- Zimmerman, B. J., & Kitsantas, A. (2007). A writer's discipline: The development of self-regulatory skill. In G. Rijlaarsdam, P. Boscolo, & S. Hidi (Eds.), *Studies in Writing: Vol. 19. Writing and motivation*. (pp. 51–69). Oxford: Elsevier.

Samenvatting

In dit proefschrift onderzoeken we een onderwerp dat zich op het raakvlak van vertalen en schrijven bevindt: het effect van schrijftraining op de vertaalprestatie (d.w.z., vertaalproduct en -proces) in het algemeen, en op transediting in het bijzonder. Aangezien vertalen en schrijven een groot aantal basiskennmerken delen en als vormen van tekstproductie kunnen worden beschouwd, kun je je namelijk afvragen: is training in de ene vorm van tekstproductie, schrijven, bevorderlijk voor de prestatie in de andere vorm, vertalen?

Dit proefschrift bestaat uit zes hoofdstukken. Hoofdstuk 1 bevat een literatuurstudie over vertaalcompetentie en schrijfcompetentie om een beter inzicht te krijgen in de tekstproductiecompetentie van vertalers. Hoofdstukken 2–5 rapporteren over de drie onderzoeksprojecten die zijn uitgevoerd in het kader van het centrale onderzoeksthema. In hoofdstuk 2 verkennen we het begrip transediting door het gebruik ervan te bestuderen in het vertaalproces en -product van masterstudenten die een Amerikaanse patiëntenbijsluiter naar het Nederlands vertalen. Hoofdstukken 3 en 4 beschrijven de resultaten van het tweede onderzoeksproject, dat het effect van schrijftraining bestudeert op de vertaalprestatie van bachelorstudenten, en op hun gebruik van transediting. In hoofdstuk 5 zetten we deze onderzoekslijn voort en beschrijven we een studie onder professionele vertalers. Het zesde en laatste hoofdstuk van dit proefschrift bevat een algemene conclusie, waarin de belangrijkste resultaten worden samengevat, de implicaties ervan worden besproken en suggesties worden gedaan voor verder onderzoek.

1

*De vertaler als schrijver:
Tekstproductiecompetentie als een onderdeel
van vertaalcompetentie*

Een groot aantal vertaalwetenschappers en vertalers is van mening dat een vertaler goed moet kunnen schrijven in de doeltaal. Het belang van schrijfcompetentie voor vertalers is gerelateerd aan het feit dat het eindresultaat van elk vertaalproces een tekst is.

In de bestaande vertaalcompetentiemodellen wordt schrijfcompetentie echter helemaal niet genoemd. We kunnen daarentegen wel een min of meer expliciete verwijzing terugvinden naar tekstproductiecompetentie. Door de term ‘tekstproductiecompetentie’ te gebruiken, wordt er benadrukt dat de tekstproductie die plaatsvindt tijdens het vertaalproces in meer of mindere mate brontekst georiënteerd kan zijn en zodoende meer of minder op andere vormen van tekstproductie (zoals schrijven en adaptatie) kan lijken. Een zekere overlap tussen de tekstproductiecompetentie van vertalers en die van schrijvers is dan ook te verwachten.

Een vergelijking tussen de competenties die noodzakelijk worden geacht voor enerzijds schrijven en anderzijds vertalen toont dat schrijvers en vertalers inderdaad veel gemeenschappelijke kennis, vaardigheden en attitudes hebben. Gedetailleerde analyse wijst echter uit dat, hoewel op het eerste gezicht de schrijfsubcompetenties grotendeels overeenkomen met de vertaalsubcompetenties, de omvang en functie ervan verschillen.

In de literatuur over vertaalcompetentie lijkt de tekstproductiecompetentie van vertalers met name te worden gerelateerd aan communicatieve competentie in de doeltaal, die voortkomt uit declaratieve, maar met name procedurele lexicale, grammaticale, pragmatische en tekstuele kennis. Daarnaast kan deze communicatieve competentie in de doeltaal niet los worden gezien van de vaardigheid om brontaal- en brontekstinterferentie tegen te gaan. Naast deze twee elementen lijkt de tekstproductiecompetentie van vertalers ook te steunen op of vervlochten te zijn met strategische kennis.

2

Een exploratief onderzoek naar transediting in het vertaalproces van vertaalstudenten

Hoofdstuk 2 geeft een overzicht van de bestaande literatuur over transediting. Deze term is in 1989 door Stetting geïntroduceerd om te verwijzen naar de combinatie van vertalen en editen, die vaak nodig is in het vertaalproces om een doelttekst te produceren die begrijpelijk en aanvaardbaar is in de doelcultuur. Het concept transediting heeft in onze optiek potentieel om vertalen meer als een vorm van tekstproductie te benaderen en om te onderzoeken hoe de schrijfcompetentie van vertalers wordt gebruikt in het vertaalproces. Aangezien elke vertaling wel een of andere aanpassing van de brontekst impliceert, is het belangrijk om duidelijk te stellen dat transediting een bewuste afwijking van de brontekst inhoudt. Transediting kan om twee redenen gebruikt worden. Enerzijds, als een letterlijke vertaaloplossing taalkundig gezien wel mogelijk is, maar niet gebruikt kan en mag worden in het kader van de specificaties van de vertaalopdracht. Anderzijds, om de brontekst in de doeltaal te corrigeren of te optimaliseren. Dit leidt tot de volgende werkdefinitie: transediting is de bewuste of geautomatiseerde cognitieve route om een vertaalprobleem op te lossen dat veroorzaakt wordt door slechte brontekstkwiteit of door een afwijkende tekstfunctie, doelpubliek, conventies en/of tekstnormen in de doelcultuur.

Hoofdstuk 2 presenteert naast bovenvermelde literatuurstudie ook de resultaten van het eerste onderzoeksproject. Dit is een verkennende studie naar het gebruik van transediting door vier studenten van een masteropleiding in vertalen. Dit eerste onderzoeksproject heeft een meerledige doelstelling: (1) verkenning van het concept transediting; (2) beschrijving van het gebruik van transediting door vertaalstudenten in hun vertaalproces; (3) toetsing of de combinatie van hardop-denken en toetsregistratie een geschikte methode is om het gebruik van transediting te onderzoeken.

In deze verkennende studie werd vier masterstudenten gevraagd een Amerikaanse patiëntenbijsluiter te vertalen voor een Nederlandstalig doelpubliek. Deze vertaling moest voldoen aan de Europese (EMA) regelgeving m.b.t. de structuur en formulering van patiëntenbijsluiters. Van deze vier studenten hadden er twee louter declaratieve kennis van de EMA-regelgeving en het tekstgenre, terwijl de overige twee ook beperkte ervaring hadden in het vertalen van patiëntenbijsluiters en zodoende over een beperkte procedurele kennis beschikten. De tekstconventies

en -normen zijn voor dit tekstgenre zeer verschillend in de bron- en doelcultuur, wat de noodzaak voor transediting met zich meebrengt. In deze studie werd transediting dan ook niet of slechts zeer zelden gebruikt vanwege slechte brontekstkwiteit. De dataverzamelmethode die in dit exploratieve onderzoek gebruikt werden, zijn hardop-denken en toetsregistratie (Translog en Inputlog). Data-analyse werd uitgevoerd middels een werkdocument waarin de data van het hardop-denken en de toetsregistratie naast elkaar staan. Elk segment in dit document werd gecodeerd om te reconstrueren welke cognitieve processen plaatsvonden in het vertaalproces. De labels die zijn gebruikt in deze codering, zijn geïnspireerd op de classificatie van Krings (2001).

Een contrastieve analyse van product- en procesdata toont aan dat de volgende transeditingstrategieën het meest gebruikt worden: (micro- en macrotekstuele) herstructurering, vervanging en weglating van brontekstelementen, alsook toevoeging van informatie in de doeltekst. In tegenstelling tot de vertaalstudenten met louter declaratieve kennis, lijken de studenten met zowel declaratieve als procedurele kennis frequenter naar transediting te verwijzen in hun vertaalproces. Ook gebruiken zij transediting meer in hun vertaalproduct. De fase van het vertaalproces waarin transediting wordt gebruikt, lijkt nauw samen te hangen met de individuele werkstijl van de vertaalstudent, alhoewel drie van de vier vertaalstudenten een duidelijke voorkeur tonen voor het gebruik van transediting tijdens de pre-writing en writing fase.

Hoewel er duidelijk verschillen zijn in het gebruik van transediting door de vier vertaalstudenten, is het moeilijk om deze verschillen te relateren aan het verschil in kennis van de vertaalstudenten. Alle vier de vertaalstudenten voegen verplichte standaardzinnen toe aan de doeltekst en herstructureren de brontekst boven zinsniveau. Er zijn tussen de twee studentengroepen echter geen duidelijke verschillen op te merken ten aanzien van herstructurering onder het zinsniveau. Wel blijkt dat de vertaalstudenten met louter declaratieve kennis weinig tot geen aandacht besteden aan de uitleg van medische terminologie. Dit suggereert dat zij geen rekening houden met het kennisniveau van de doeltekstlezer en bijgevolg niet de noodzaak van transediting op dit punt herkennen.

Op basis van deze verkennende studie hebben we een aantal suggesties geformuleerd ter verbetering van het methodologisch kader voor verder onderzoek naar transediting in het vertaalproces. De combinatie van dataverzamelmethode levert een rijkdom aan data op. Toch blijkt de hardop-denkmethode vaak onvoldoende kwalitatieve data te verschaffen over het hoe en waarom van transediting. Ook lijkt hardop-denken cognitieve overbelasting in de hand te werken. Een alternatief zou gestimuleerde onmiddellijke retrospectie (en dan concreet

gestimuleerde retrospectieve interviews) zijn. Deze methode lijkt minder intrusief te zijn en geeft de onderzoeker de mogelijkheid om op specifieke punten door te vragen naar het gebruik van transediting. Wat betreft de toetsregistratietools, geven wij de voorkeur aan Inputlog, omdat deze tool minder intrusief blijkt te zijn en meer mogelijkheden tot statistische analyses biedt. Een tweede suggestie betreft de analyse van de kwaliteit van de transediting, alsook de kwaliteit van het vertaalproduct. Deze twee zaken dienen in beschouwing te worden genomen om een vollediger en gedetailleerder beeld van transediting te krijgen.

3

Het effect van schrijftraining op de vertaalproducten van vertaalstudenten

Hoofdstuk 3 presenteert de resultaten van het tweede onderzoeksproject, waarin het effect van schrijftraining op het vertaalproduct en vertaalproces van zeventien BA-vertaalstudenten werd bestudeerd.

Dit onderzoeksproject heeft het volgende ontwerp: 2 (conditie: experimentele vs. controlegroep) x 3 (tijd: pretest-immediate posttest-delayed posttest). Hierin is conditie de between-subject-factor en tijd de within-subject-factor. In deze studie worden de studenten op elk van de testmomenten gevraagd om een Spaanse gebruiksaanwijzing van een huishoudelijk apparaat naar het Nederlands te vertalen. De treatment voor de experimentele groep bestaat uit schrijftraining (d.w.z., schrijven van instructieve teksten in hun moedertaal, het Nederlands). Tijdens de schrijftraining wordt er in het bijzonder aandacht besteed aan consistent en actiegericht geformuleerde titels, logische en chronologische informatiestructuur, consistent gebruik van imperatieven en terminologie. Deze aandachtspunten komen terug in de bronteksten middels zogenaamde *rich points*, die vertaald moeten worden middels transediting (Stetting, 1989). De controlegroep krijgt een placebo-training.

De dataverzamelingmethoden die in dit onderzoeksproject worden gebruikt, zijn toetsaanslagregistratie (Inputlog), beeldschermregistratie (CamStudio en Morae), gestimuleerde retrospectieve interviews en vragenlijsten. De kwalitatieve en kwantitatieve data-analyse is met name gericht op de vertaling van de *rich points*, aangezien deze rechtstreeks verband houden met de treatment.

In dit hoofdstuk benaderen we de verzamelde data vanuit een productperspectief. We vertrekken hierbij vanuit twee hypothesen. Ten eerste, schrijftraining in de doeltaal (DT) zal leiden tot een verhoogde aandacht voor en overeenstemming met genrenormen en -conventies in de DT, wat gepaard gaat met meer transediting in het vertaalproduct. Ten tweede, schrijftraining in de DT zal leiden tot een betere kwaliteit van de vertaalproducten. Om deze hypothesen te testen, onderzoeken we de transediting die in de vertaling van de *rich points* en in de doelteksten als geheel kunnen worden waargenomen. Tevens bestuderen we de kwaliteit van de vertaalproducten.

De eerste hypothese wordt bevestigd. De experimentele groep transedit na de treatment significant meer *rich points* dan de controlegroep, al is deze tendens wel beperkt tot drie van de vier rich point-categorieën: *titels (consistentie)*, *informatiestructuur (macrotekstueel)*, *locuties*. Enkele vertaalstudenten van de experimentele groep beginnen bovendien de doelttekst te herstructureren en anders op te maken door gebruik te maken van opsommingstekens, vet- en schuinschrift en expliciete waarschuwingen. De schrijftraining heeft daarentegen geen invloed op doelttekstformulering die niet specifiek genre-gerelateerd is. Kortom, schrijftraining lijkt met name invloed te hebben op de transediting van macrotekstuele genrekenmerken van de doelttekst en locuties. Het blijft onduidelijk of het gebrek aan transediting van microtekstuele genrekenmerken veroorzaakt wordt door een gebrek aan bewustzijn van dit soort kenmerken, cognitieve overbelasting en/of een gebrek aan transfer van de schrijftraining naar de vertaalcontext.

De tweede hypothese kan noch bevestigd noch ontkracht worden gezien de tegenstrijdigheid van de resultaten. Op basis van de holistische kwaliteitsscore leidt schrijftraining tot een significant betere vertaalkwaliteit in de delayed posttest. De analytische score, die het totale aantal vertaalfouten weergeeft, geeft hetzelfde resultaat, maar dan uitsluitend in de immediate posttest. Waar de schrijftraining wel een duidelijk en consistent effect op heeft, is op de genre-gerelateerde vertaalfouten: de experimentele groep maakt na de treatment significant minder fouten tegen genreconventies in de doeltaal dan de controlegroep.

Deze resultaten aangaande het effect van schrijftraining op de globale vertaalkwaliteit kunnen op verschillende manieren geïnterpreteerd worden. Ten eerste is het in principe veelbelovend dat de experimentele groep in één van de twee testmomenten na de treatment significant beter scoort dan de controlegroep. Een verbetering van een vertaalsubcompetentie (zoals schrijfvaardigheid in de doeltaal) kan maar hoeft niet altijd te leiden tot een structurele globale verbetering van de vertaalprestatie. Ten tweede kan de moeilijkheidsgraad van de brontekst

een rol spelen: als alle foutcategorieën hetzelfde gewicht toegekend krijgen in de globale analytische score én de interpretatiefouten toenemen (zoals gebeurd is in de delayed posttest), dan zal de daling in genrefouten de stijging in interpretatiefouten niet nivelleren.

4

Het effect van schrijftraining op transediting in vertalen, belicht vanuit een product-procesperspectief

In dit hoofdstuk belichten we de verzamelde transeditingdata vanuit procesperspectief. Enerzijds geven de toetsaanslagregistratie en beeldschermregistratie kwantitatief inzicht in het moment waarop de vertaalstudenten transediten, maar ook in de recursiviteit in de vertaling van de *rich points*. Anderzijds krijgen we via de gestimuleerde retrospectieve interviews kwalitatieve gegevens over de beweegredenen die schuilgaan achter de transediting.

Dit hoofdstuk heeft een tweeledig doel. Ten eerste willen we inzicht krijgen in wanneer, hoe en waarom vertaalstudenten de *rich points* transediten. Ten tweede hopen we – door de kwantitatieve en kwalitatieve gegevens, alsook de productgegevens uit hoofdstuk 3, met elkaar in verband te brengen – een plausibele verklaring te vinden voor het feit dat schrijftraining alleen een significant effect heeft op de macro-tekstuele genrekenmerken in de doelttekst.

Schrijftraining lijkt het moment van transediting niet erg te beïnvloeden. Zowel de experimentele als de controlegroep vertonen een algemene voorkeur voor onmiddellijke transediting: als de studenten ervoor kiezen om een *rich point* te transediten, dan doen ze dat meestal als eerste vertaaloplossing. Sommige soorten *rich points* lijken zich echter beter te lenen voor onmiddellijke transediting (zoals *locuties* en *terminologie*) dan andere (zoals *titels* en *informatiestructuur*). Het lijkt er dan ook op dat de keuze voor een bepaalde transeditingstrategie gerelateerd is aan de grammaticale hiërarchie van de constituent die getransedit moet worden, en niet aan de schrijftraining.

Schrijftraining lijkt reflectie tijdens het vertaalproces aanzienlijk te stimuleren. De leden van de experimentele groep reflecteren meer dan de controlegroep over de vertaalproblemen in de *rich points*. Dit blijkt uit de toename van recursiviteit in de vertaling van de *rich points* na de treatment, maar ook uit het frequenter gebruik van uitgestelde transediting door de experimentele groep. In tegenstelling tot de controlegroep, houden de

vertaalstudenten van de experimentele groep veel nadrukkelijker rekening met de functie van de doelttekst en het gebruik ervan door het doelpubliek tijdens de doelttekstproductie. Bovendien analyseren ze de brontekst veel kritischer, zowel qua tekstlogica als qua discrepantie met de tekstconventies in de doelcultuur.

De combinatie van product- en procesgegevens geeft ons enkele belangrijke aanwijzingen die kunnen verklaren waarom schrijftraining niet alle *rich point*-categorieën beïnvloedt. Een eerste plausibele verklaring is dat de informatie uit de schrijftraining niet volledig is onthouden door de vertaalstudenten. Tijdens de retrospectieve interviews leggen de leden van de experimentele groep – in vergelijking met de pretest – namelijk een veel gedetailleerdere kennis van genreconventies in de doeltaal aan de dag, maar alleen met betrekking tot die *rich points* die ze ook daadwerkelijk hebben getransediteerd. Wellicht maakt het abstracte karakter van de macrotekstuele genreconventies, die niet echt gekoppeld zijn aan taal maar eerder aan inhoud, het makkelijker om deze conventies te onthouden. De huidige studie kan dit echter niet bevestigen. Het is ook mogelijk dat de studenten de informatie wel onthouden hebben, maar onvoldoende hebben ingeoeffend of geïnternaliseerd om goed te kunnen toepassen in hun vertaalproces. Dit blijkt tijdens de retrospectieve interviews bijvoorbeeld uit de verkeerde of gebrekkige probleemdiagnoses t.a.v. de *rich points*. Een tweede mogelijke verklaring voor het beperkte effect van de schrijftraining is brontekstinterferentie. Controle van brontekstinterferentie lijkt gemakkelijker te zijn voor macrotekstuele informatiestructuur, consistente titels en locuties. Er stellen zich immers minder tekstproductieproblemen tegelijkertijd en de cognitieve belasting ligt bijgevolg lager voor deze *rich points*. Een derde, hieraan gerelateerde verklaring is cognitieve overbelasting: de retrospectieve interviews laten zien dat studenten zich wel bewust zijn van bepaalde vertaalproblemen, maar dat ze simpelweg niet alle cognitieve taken aan kunnen die deze problemen vereisen.

Dit hoofdstuk wordt afgesloten met een aantal suggesties voor verder onderzoek naar het effect van schrijftraining op de vertaalprestatie. Een concrete suggestie betreft de studie van dit thema bij vertalers met een verschillende vertaalcompetentie. Als cognitieve overbelasting of het gebrek aan voldoende cognitieve middelen een mogelijke oorzaak is van de onvolledige transfer van schrijftraining naar de vertaalcontext, dan is het interessant om na te gaan hoe meer ervaren, professionele vertalers op een schrijftraining reageren. Professionele vertalers zullen hoogstwaarschijnlijk minder last van cognitieve overbelasting hebben, aangezien zij – door hun ervaring – een hogere tekstproductiecompetentie en een groter

werkgeheugen hebben dan vertaalstudenten. Het zou dan ook logisch zijn dat zij de informatie uit de schrijftraining uitvoeriger zullen toepassen in hun vertaaltaak.

5

Het effect van schrijftraining op de vertaalprestatie van professionele vertalers: Een casusbeschrijving

In dit hoofdstuk presenteren we de bevindingen van het derde onderzoeksproject, waarin het effect van schrijftraining op het vertaalproduct en -proces van vijf professionele vertalers wordt bestudeerd. Dit onderzoeksproject zet de onderzoekslijn voort die voorgesteld is in hoofdstuk 3 en 4, door na te gaan of vertalers met een hogere vertaalcompetentie (d.w.z., professionele vertalers) informatie uit de schrijftraining uitvoeriger gebruiken in hun vertaaltaak. Zij worden immers verondersteld over meer cognitieve middelen te kunnen beschikken.

Voor dit onderzoek is eenzelfde pretest-postteststructuur gehanteerd. In de pretest en posttest wordt hun gevraagd een Spaanse gebruiksaanwijzing van een huishoudelijk apparaat naar het Nederlands te vertalen. Tussen deze twee testen in worden de vijf professionele vertalers getraind in het schrijven van instructieve teksten in hun moedertaal, het Nederlands. De professionele vertalers hebben weinig tot geen ervaring in vertaling van gebruiksaanwijzingen.

Proces- en productgegevens worden in de pretest verzameld door middel van toetsaanslagregistratie (Inputlog), oogregistratie (Tobii), vragenlijsten en gestimuleerde retrospectieve interviews. In de posttest wordt dit ook gedaan, maar dan uitsluitend door toetsaanslagregistratie (Inputlog) en vragenlijsten.

Tijdens de data-analyse zijn de product- en procesgegevens contrastief geanalyseerd. De eerste stap binnen deze data-analyse bestaat erin na te gaan welke elementen van de schrijftraining door de professionele vertalers in hun vertaalproduct zijn gebruikt. Dit kan worden afgeleid van de vertaling van de *rich points* en de doelteksten in hun globaliteit. Deze resultaten zijn vervolgens vergeleken met wat de professionele vertalers in de vragenlijsten hebben aangegeven over de transfer van schrijftraining naar vertaaltaak. Bovendien zijn de gestimuleerde retrospectieve interviews in combinatie met de vragenlijsten uit de pretest en posttest geanalyseerd

om na te gaan of er verschil in genrekennis optreedt door de schrijftraining. De vertaalproducten zijn tevens holistisch en analytisch geëvalueerd om het effect van de schrijftraining op de vertaalkwaliteit na te gaan. De tweede stap binnen de data-analyse bestaat erin de toetsregistratie zorgvuldig te bekijken om na te gaan wanneer de professionele vertalers de informatie uit de schrijftraining in hun vertaalproces gebruiken: hetzij onmiddellijk als eerste vertaaloplossing, hetzij later in hun proces als revisie. We hebben tevens een casestudy gemaakt om in kaart te brengen in welke mate uitvoerig gebruik van schrijftraininginformatie procesparameters beïnvloedt, zoals procesduur, organisatie van het vertaalproces in fasen, pauzeer- en revisiegedrag. Deze casestudy betreft de professionele vertaalster die van alle vijf de vertalers de meeste elementen uit de schrijftraining in het vertaalproces heeft toegepast.

Globaal gezien passen de professionele vertalers de informatie uit de schrijftraining redelijk uitvoerig toe in hun vertaalproces. Het soort en de hoeveelheid informatie uit de schrijftraining die de vertalers individueel toepassen, zijn echter zeer uiteenlopend. Ook de kwaliteit van hun vertaalproducten is niet eenduidig. De casestudy toont wel aan dat een professioneel vertaler waarvan de vertaalprestatie als expertvertaling kan worden bestempeld, uitvoerig de schrijftraininginformatie toepast in de vertaaltaak zonder dat dit haar vertaalproces ontregelt.

De resultaten van deze exploratieve studie komen grotendeels overeen met de resultaten die bij de vertaalstudenten werden opgemerkt (zie hoofdstuk 3 en 4). Ten eerste lijkt schrijftraining een positief effect te hebben op de genrekennis van de professionele vertalers, evenals op hun besef van de behoeftes en verwachtingen van het doelpubliek. Ten tweede lijkt schrijftraining een positief effect te hebben op de vertaalkwaliteit, want de professionals begaan significant minder stilistische en genre-relateerde vertaalfouten. Ten derde, de professionele vertalers lijken ook meer te reflecteren tijdens het vertaalproces, met name tijdens de revisiefase.

Uit deze vervolgstudie blijkt dat de grotere aanwezigheid van beschikbare cognitieve middelen niet de enige bepalende factor is in de transfer van schrijftraininginformatie naar de vertaaltaak. De product- en procesgegevens van de professionele vertalers wijzen erop dat de transfer van schrijftraining naar de vertaaltaak ook beïnvloed kan worden door de mate waarin de verworven informatie uit de schrijftraining onthouden en intern verwerkt wordt. Een andere factor lijkt het aanpassingsvermogen of de flexibiliteit van de vertaler te zijn om zijn of haar normale probleemoplossende strategieën bij te sturen of te veranderen en daarin nieuwe informatie te integreren.

6

Conclusie

In dit hoofdstuk vatten we de belangrijkste bevindingen samen van de onderzoeksprojecten die in dit proefschrift zijn beschreven. De overkoepelende onderzoeksvraag luidde: welke effect heeft schrijftraining op de vertaalprestatie (d.w.z. vertaalproduct en -proces) in het algemeen, en op transediting in het bijzonder? Schrijftraining heeft met name de macrotekstuele, genrespecifieke elementen in het vertaalproduct beïnvloed. Dit kan worden afgeleid van (1) de significante toename in de hoeveelheid en kwaliteit van de transediting van *rich points* behorend tot de categorieën *titels (consistentie)*, *informatiestructuur (macrotekstueel)*, *locuties*; (2) de toegenomen aandacht voor visuele en structurelementen in de doeltekst (bijv. opsommingstekens); (3) de significante afname van genrespecifieke vertaalfouten. Schrijftraining beïnvloedt het vertaalproces niet of nauwelijks. De algehele organisatie van het vertaalproces verandert niet, wat erop duidt dat de informatie uit de schrijftraining vrij gemakkelijk (zij het slechts gedeeltelijk) wordt geïntegreerd in het vertaalproces. Schrijftraining lijkt daarentegen wel tot meer revisie te leiden, wat kan worden afgeleid van de toegenomen recursiviteit in de transediting van de *rich points* door de vertaalstudenten, en in de schrijf- en revisiefase van de professionals. Qua transediting is er ook een duidelijk effect van de schrijftraining te zien: vertalers transediten meer en beter na de schrijftraining.

Deze veelbelovende resultaten impliceren dat schrijftraining een nuttige didactische tool kan zijn binnen het vertaalonderwijs. Schrijftraining blijkt de genrekennis van vertalers te verbreden en te verdiepen, hun transeditvaardigheid te verbeteren, en hen te helpen meer afstand van de brontekst te nemen en pragmatische factoren in beschouwing te nemen tijdens hun vertaalproces. Desalniettemin moet er in de toekomst empirisch worden nagegaan hoe en in welke fase van een vertaalstudie schrijftraining het beste kan worden geïmplementeerd.

In dit hoofdstuk bespreken we tevens de sterke en zwakke punten van het onderzoek. Dit proefschrift draagt niet alleen bij aan ons begrip van vertaling als een vorm van tekstproductie, maar het laat ook zien hoe transediting meer inzicht biedt in het tekstproductie-aspect van vertaling alsook in het raakvlak tussen vertalen en schrijven. De sterke punten van het beschreven onderzoek zijn bijgevolg het relatief innoverende

karakter van het onderzoeksthema, de algehele onderzoeksopzet die een meerdimensionale en systematische benadering van het onderwerp toelaat, en de analyse van transediting buiten een journalistieke context. De beperkingen van het onderzoek moeten daarentegen gezocht worden in het relatief kleine aantal proefpersonen, de tekstsoort- en genrespecificiteit van het onderzoek (instructieve teksten en gebruiksaanwijzingen), de onderzochte talencombinatie (Spaans-Nederlands), de quasi-experimentele aard van het onderzoek en zijn gecontroleerde opzet.

Dit hoofdstuk sluit af met een aantal suggesties voor verder onderzoek. Ten eerste raden we aan de bevindingen van dit onderzoek te generaliseren door studies op te zetten onder een groter aantal vertalers met andere vertaalspecialismen, met andere tekstsoorten en -genres, andere talencombinaties en een minder gecontroleerde onderzoeksopzet. Ten tweede is revisie een bijkomende interessante onderzoekspiste, want uit dit onderzoek is gebleken dat schrijftraining leidt tot meer recursiviteit en revisie. Ten derde is het belangrijk om het nut van schrijftraining binnen het vertaalonderwijs nader te onderzoeken, met name ten opzichte van andere didactische methodes. Ook dient de opbouw van schrijftraining onder de loep te worden genomen, waarbij rekening moet worden gehouden met de individuele leerstijlen van de vertalers. Ten vierde is het raadzaam om naast quasi-experimenteel onderzoek ook andere onderzoeksmethoden te gebruiken om het effect van schrijftraining op de vertaalprestatie verder te bestuderen.

Curriculum Vitae

Iris Schrijver was born on 8 October 1981 in Zierikzee, the Netherlands. After graduating from secondary school in 1999, she decided to study translation (Dutch-English-Spanish-Danish) at the Higher Institute of Translators and Interpreters in Antwerp, Belgium. She wrote a thesis on the controversial Spanish Antiterrorist Liberation Group (GAL) and graduated cum laude in 2003.

After living in Spain for two years and earning a master's degree in Business Administration at the University of Alcalá de Henares, Iris Schrijver applied for the position of junior lecturer in the Spanish section at the department of Translators and Interpreters of Hogeschool Antwerpen (nowadays part of the University of Antwerp). Since 2005, she has taught courses in translation from Spanish into Dutch in the bachelor and master programmes, including modules on technical and audiovisual translation. As a researcher, she is part of the research group TricS (Translation and intercultural communication Studies) of the University of Antwerp.

In addition to her teaching and research activities, Iris Schrijver is review editor of *Linguistica Antverpiensia, New Series - Themes in Translation Studies*, the journal of the Department of Applied Linguistics/Translators & Interpreters at the University of Antwerp.