

# Norwich Papers

STUDIES IN TRANSLATION

Volume 16      September 2008

## *Experiments in Translation*

Edited by  
Rosalind Harvey, Isabel Hempen  
and Marzenka Sieradzki

UNIVERSITY OF EAST ANGLIA  
Norwich UK

School of Literature and Creative Writing  
School of Language, Linguistics, and Translation Studies

Exploring Translation Competence by Triangulating Empirical Data

### **Exploring Translation Competence by Triangulating Empirical Data**

*Maureen Ehrensberger-Dow and Gary Massey*

Understanding translation competence is crucial not only for translator and interpreter training institutions, but also for increasingly multilingually-dependent governmental institutions and companies. Although in recent years English has become the accepted lingua franca of the business and research world, the need for well-trained professional translators and interpreters has actually increased as more companies reach outside of their language area. Despite the obvious economic importance of translation work, research has failed to keep pace with recent developments, especially into the use of electronic resources for language processing and the increasingly significant areas of revision and translation into a non-native language (L2).

#### **Demands on non-literary translators**

The new European standard EN 15038:2006 establishes and defines the requirements for the provision of quality translation services. As such it represents a prime indicator of the demands on professional non-literary translators. Designed to give translation service providers a set of procedures and requirements to meet market needs, the standard covers the entire service, from managing translation projects to aspects of the translation process and added value services such as rewriting, adaptation and revision of translations from third parties.

The competences that professional translators are expected to have are: translation competence, described in EN 15038:2006 as “the ability to translate texts to the required level” and including “the ability to render the target text in accordance with the client-TSP [translation service provider] agreement”; linguistic and textual competence in the source language (SL) and target language (TL); research competence, information acquisition and processing; cultural competence; and technical competence “for the professional preparation and production of translations” (EN 15038:2006: 7, 3.2.2). When defining the translation process, the standard

encompasses not only translation itself but also checking, revision, review, proofreading and final verification (EN 15038:2006: 11f., 5.4). In particular, it states that “on completion of the initial translation, a translator shall check his/her own work” (EN 15038:2006: 11, 5.4.2).

The skills set out in EN 15038:2006 match the “translator’s skills profile” in the outline of the European Master’s in Translation (EMT) drawn up by European Commission’s Directorate-General for Translation<sup>1</sup>. Here, too, the emphasis is placed on correctly rendering texts in the TL in accordance with “their intended purpose”, on rapid, efficient research through the use of appropriate tools and strategies, and on the capacity to master language technology applications and standard software (European Commission: 2, 2.3). As in the European standard, revision is given prominence (European Commission: 8).

The importance attached to the commission (or “agreement”) by EN 15038:2006 and to the translation’s purpose by the EMT outline reflects a fundamental requirement of real-world translation. As functionalists have long maintained (Holz-Mänttari 1984; Nord 1997; Reiss & Vermeer 1991; Vermeer 1989/2004), it is naive to believe that a translator transfers *the meaning of the source text (ST) to the target text (TT) receivers*. Translation never takes place in a vacuum. Translators are commissioned by clients to translate texts for particular purposes and readerships within the target culture and should be told, or be able to infer, as much as possible about the receivers, time, place, occasion, medium and intended function of the TT (Nord 1997: 30). Nor are the roles of those involved restricted to commissioners, translators and receivers. Holz-Mänttari, for instance, identifies three additional agent roles in the functional network of what she calls “translational action” (1984: 105ff.): the initiator, the ST author and the TT user. And since professional non-literary translation is an economic activity, there are commercial interests and needs to consider. Translators must “balance risks and resources” to achieve economical “fit-for-purpose” translation (Martin 2007: 60), with quality demands ranging from modest (e.g. for gist

translations of content for company-internal use) to extremely high (e.g. for image-relevant or legally binding material). Throughout the process, translators occupy a central position as experts in the complex system of translational action, bringing various types of competence to bear in order to complete the translation task.

### Translation competence

EN 15038:2006 and the EMT outline demonstrate the demands on today’s professional translators. However, their descriptions of translation competence are not backed up by empirical data consistent with a comprehensive theoretical model. Indeed, no generally accepted model of translation competence exists, and until recently there has been little empirical research into translation competence as a whole (PACTE 2003, 2005, 2007a, 2007b). To rectify this situation, the PACTE group<sup>2</sup> has proposed a holistic model comprising a cluster of six interacting sub-competences or components (PACTE 2003: 58f.). These are: the bilingual and extra-linguistic sub-competences; psycho-physiological components, including cognitive/behavioural components and psychomotor mechanisms; the translation-knowledge sub-competence, involving knowledge of translation principles and the profession; the instrumental sub-competence, made up of research and information technology skills; and the strategic sub-competence, which controls the entire translation process, rendering it efficient and solving the problems encountered. Of these, only the last three are specific to translation competence (PACTE 2005: 611).

Initial empirical research carried out by the PACTE group to test the model has been promising. It suggests, for instance, that the instrumental sub-competence is a major feature distinguishing the problem-solving decisions taken by expert translators from those of non-experts (PACTE 2005: 612, 615ff.), which confirms results obtained from similar investigations (see Fraser 1999; Kussmaul 1995; Livbjerg & Mees 2003; Tirkkonen-Condit 2005). On the basis of such findings our own institute has introduced dedicated courses in tools and research techniques, with positive effects on student performance (Massey et al. 2007).

Yet further research is clearly needed, and the model's full applicability to workplace processes, practices and demands is open to question. For example, while sharing many features with the skills sets defined by EN 15038:2006, the model makes no particular distinction between forms of checking/revision and translation. There is thus a strong case for more extensive empirical research in this (see Mossop 2007) and other areas.

### Empirical investigations of translation

Until fairly recently, much of the empirical research into translation was based on so-called think-aloud methods (translators say what they are doing while they are translating), retrospective protocols (translators say what they did after they finish translating), or comparisons of various drafts of a translation or TT (to infer what happens between stages in the translation process). These techniques have brought the field forward significantly, although they also suffer from certain limitations (see Bernardini 2002; Jääskeläinen 2002; Krings 2001, 2005; Lörscher 2005; Tirkkonen-Condit 2002), such as distorting or slowing down the natural translation process (see Hansen 2005, 2006; Jakobsen 2003). For logistical reasons, much of the empirical research into translation has involved trainee translators (usually students) or small numbers of language and translation professionals, doing tasks in more or less controlled circumstances. By manipulating factors such as types of task, translation problems, and available resources, experimental researchers have been able to determine the role these play in the translation process.

With the advent of computers in translation work, computer keystroke logging in combination with think-aloud and/or retrospective protocols opened up opportunities to monitor translation processes with much less impact on the usual behaviour of the translator (Englund Dimitrova 2005, 2006; Rydning 2005; Heiden 2005; O'Brien 2006). In most research of this type, translators are asked to perform certain tasks, and all of the keystrokes and cursor movements on the computer, such as deletions and additions, are recorded in a log file. Despite their usefulness in tracking micro-changes in a developing translation, keystroke logging techniques provide little or no

information about what resources the translator refers to or what the translator is doing when not entering text into the computer. The computer logs basically reflect the writing process involved in translating. Pauses are recorded in the log but only if the translator can indicate precisely what a particular pause is for (while thinking aloud or viewing a replay of the log) is it possible to determine whether that time is spent thinking about a particularly challenging translation problem, reading the source text, looking up terms, checking for parallel texts, rereading the target text, doing relevant research, etc. Monitoring all the changes that take place on the computer screen, however, makes it possible to infer processes occurring during translation, such as when a translator pauses before a word and then opens up an online bilingual dictionary to look for a possible translation. Direct observation of a translator would be one possibility to gather this type of data, as would a video camera set up behind the translator (see Krings 2001; Trandem 2005), but such explicit monitoring can disturb the translation process, thereby reducing its ecological validity (i.e. whether the observed process is an accurate reflection of what happens in the real world). Fortunately, there is now commercially available software that can record all of the changes taking place on the computer screen (screenshot recordings), which is invisible and non-intrusive and has been used in various investigations of writing and translation processes (e.g. Alves 2007; Asadi & Séguinot 2005; Degenhardt 2006; Pagano 2007).

By combining various techniques, it is possible to examine a translation process from different perspectives to gain more insight, a technique known as 'triangulation'. In the literature and in the field of translation studies, it is well-recognised that multi-method approaches are the most appropriate for investigating complex cognitive processes such as writing and translation (e.g. Alves 2003, 2007; Brewer & Hunter 1989; Flick 2004; Jakobsen 2006; PACTE 2005; Perrin 2001, 2003, 2006; Perrin & Ehrensberger-Dow 2006, 2008a; Tashakkori & Teddlie 2003). By considering the development of a TT, pausing, and revisions in combination with evaluations of the final translation product and self-report verbalisations about the process, reliable inferences can be made about how translators deal with problems and make decisions (Alves & Gonçalves 2003; Hansen 2003; Trandem 2005). One of the most convincing

arguments for a multi-method approach is ecological validity (see Perrin 2002): investigating translation processes becomes truly relevant to translation competence and practice when the processes investigated reflect actual workplace practices of working translators and not artefacts of experimental settings and tasks.

Finally, since the definition of translation work has broadened in recent years to include not only translation from STs to TTs, but also editing of machine translation output (post-editing) and revision of other people's texts (Wagner 2005; EN 15038:2006), investigations into translation processes must also take revision processes into account. Some aspects of checking or self-revision (Asadi & Séguinot 2005; Englund Dimitrova 2005) and so-called other-revision (Brunette et al. 2005; Krings 2001; Mossop 2007) have been identified, but again there has been little empirical study of revision skills and strategies in individual translators or comparisons between larger groups of translators at their workplace. In order to help remedy this, our institute has launched a large-scale research project to investigate the development of the skill sets that comprise translation competence.

#### **Investigating aspects of translation competence: a multi-method approach**

Our project, *Capturing Translation Processes*, uses a multi-method approach that combines observation of the workplace situation, semi-structured preliminary interviews to determine self-reported practices, screenshot recordings of everything that happens on the computer screen, retrospective viewings and commentaries of recorded translation processes as well as additional techniques such as keystroke logging and eye-tracking. The data we obtain allows us to deduce effective translation practices and strategies and gain insight into the cognitive processes involved in translation work. In this section, we present some preliminary findings as examples of the kinds of insights into the translation process that can be gained from this type of research.

*Participants.* Seven professional freelance and staff translators, all native speakers of English living and working in Switzerland, participated in a translation experiment as part of a one-day professional development seminar. In addition, sixteen students, all native speakers of German in their final year of an undergraduate translation programme in Switzerland, participated in the experiments reported here as part of their involvement in the larger project.<sup>3</sup>

*Translation experiments.* The participants were asked to translate a short online news service article either from German into English or from English into German (see the appendix for the two STs). The professionals translated from their L2 (German) into their native language (L1), English. The students were randomly assigned either to the group translating from L2 into L1 (English-German) or from L1 into L2 (German-English).

*Method and data.* The translations were done on computers and all screen events were recorded with *Camtasia*, a commercial software application.<sup>4</sup> The participants were trained in the use of the software and had become accustomed to it before they produced texts that were included in the data corpus analysed here. Immediately after producing a translation, participants were shown a replay in real-time of the screenshot recording and asked to verbalise what they saw themselves doing (a "cue-based retrospective verbalisation", cf. Perrin 2003). A researcher was present to record everything the participants said in an audio voice-over digital file linked to the *Camtasia* video recording and to prompt them to continue verbalising if they stopped commenting. By analysing the *Camtasia* recordings, we were able to trace the development of the emerging TT, all of the revisions to the text, all of the search terms and electronic resources that were accessed during the translation process and the comments that the translators made about what they had been doing. We thus obtained numerous intermediate versions of the translation as well as the final TT. The retrospective verbalisations provided us with information about why certain decisions, revisions, searches, etc. were made during the translation process.

**Preliminary findings on revision and research**

One question of interest in the experiment reported here was the influence of self-revision on translation quality. Self-revision is certainly a cost-saving measure and, as we have seen, is specified by EN 15038:2006. However, the data we have analysed suggests that self-revision also carries risks. A series of revisions by one professional translator demonstrates not only the dangers of self-revision but also the degree of detail made possible by screenshot tracking of micro changes during the translation process (see Table 1, words of interest marked in bold). In the course of translating and revising the sentence, the translator changes the meaning of the German *aus dem Verkehr gezogen werden* (in this context roughly equivalent to ‘be taken off the market’) to such a degree that the final TT suggests that products are being confiscated at the border before they enter the country in question.

Source text

“In EU-Staaten müssen immer mehr gefährliche Spielzeuge und Elektrogeräte aus China **aus dem Verkehr gezogen werden.**”

<u>Time</u> (hr:min:sec)	<u>Version</u>	<u>Target text</u>
0:07:37	1	EU countries are <b>withdrawing</b> more and more dangerous toys and electrical apparatus from China.
0:09:08	2	EU countries are <b>taking</b> more and more dangerous toys and electrical apparatus from China <b>out of circulation.</b>
0:13:38	3	EU countries are <b>confiscating</b> more and more dangerous toys and electrical apparatus from China.
0:21:46	Final	EU countries are <b>confiscating</b> more and more dangerous toys and electrical apparatus <b>imported</b> from China.

Table 1: Series of TT versions demonstrating changes in meaning during revision (Pro02)

Another professional expressed concern in her retrospective verbalisation with the number of times she had used a certain word in her TT (“dangerous”, see Table 2).

Indeed, the last revision she made was to change that word to “hazardous” (Pro04, time 0:21:58). The potential cost in cognitive resources of being distracted by self-revision issues of style was apparent in a typing slip in the same professional’s translation. While watching the recording of her translation process and seeing herself type “[...] than electronic equipment for the first time in 2006”, she commented in her retrospective verbalisation “I hope I go back and change that *fort he* to *for the*”. She failed to do so.

<u>Time</u> (hr:min:sec)	<u>Retrospective verbalisation extract</u>
0:02:25	One of the problems I found was that we have ‘dangerous’ a number of times... I would have gone back and removed a few of these ‘dangerouses’.
0:10:29	When I finally finish this, I think I still have three ‘dangerouses’ and one ‘hazardous’ or something.
0:12:29	That would have been the last thing I did... to read through and see how much repeated vocabulary I have and change anything that came up too much.
0:13:37	There’s a lot of repetition of ‘dangerous’ ...

Table 2: Extracts from event-related retrospective verbalisation illustrating concern with style (Pro04)

The value of the retrospective verbalisations as a source of information about the translation process becomes obvious with another example from the same professional. At one point, she inserted three question marks in her TT: “[...] stated EU Consumer Commission??? Meglena Kuneva on Thursday in Brussels” (Pro04, time 0:10:29). In her retrospective verbalisation after finishing the translation, she commented on what she had done: “Consumer Commission something, question mark... but whether she is a ‘Consumer Commissioner’ I don’t know. I have to go back and look.” The verbalisation suggested that the translator recognised the need to do some research and was using question marks as an external reminder: a good strategy. Her practice was less than ideal, however, because she later returned to that

point in the text without having done any research and merely added *-er* to "Commission" to produce: "EU Consumer Commissioner Meglena Kuneva" (Pro04, time 0:13:37). Although Meglena Kuneva is an EU Commissioner, there is no such thing as an EU Consumer Commission so it is debatable whether "EU Consumer Commissioner" would be the best solution here.

In fact, only three of the seven professionals did any research whatsoever for this term. Of those, only two came up with a standard solution supported by official EU documentation, and one professional did research but failed to find a standard EU solution. By comparison, all of the students who translated the same German ST into English researched the term. Only three of them produced a standard EU solution (see Table 3, EU terms marked in bold), a possible explanation for this being the non-standard term *EU-Verbraucherkommissarin* used in the ST.

Source text

"EU-Verbraucherkommissarin Meglena Kuneva"

<u>Professionals</u>	<u>Target texts</u>	<u>Research</u>
Pro02	Consumer Commissioner	no term search
Pro04	EU Consumer Commissioner	no term search
Pro07	EU Commissioner of Consumer goods	no term search
Pro09	<b>EU Commissioner for Consumer Protection</b>	49 sec. search
Pro10	commissioner for consumer goods	2½ min. search
Pro11	consumer commissioner	no term search
Pro15	<b>EU Commissioner for Consumer Protection</b>	5 min. search
<u>Students</u>	<u>Target texts</u>	<u>Research</u>
UE0308	<b>European Commissioner for Consumers</b>	1¼ min. search
UE0310	EU Consumer Commissioner	1 min. search
UE0311	from the EU consumer commission	1 min. search
UE0313	Eu commissioner on consumer policy	3 min. search

UE0314	consumer commissioner	37 sec. search
UE0315	<b>EU Commissioner for Consumers</b>	53 sec. search
UE0317	<b>European Commissioner for Consumers</b>	2 min. search
UE0321	consumer commissioner	3½ min. search

Table 3: Professional and student solutions for a translation problem in the ST (standard solutions in bold)

A similar pattern of research behaviour emerged with another potential problem in the ST (see Table 4). Four of the professionals researched the term, two of them quickly, but only three were successful. Again, all of the students researched the term<sup>5</sup>, and this time almost all of them were both successful and quick (20 sec. or less). As apparent from the *Camtasia* recordings, the unsuccessful student was the only one who referred to online bilingual dictionaries rather than the resources that the other students accessed by using internet search engines and a simple string search of some combination of *RAPEX* and/or *EU-Schnellwarnsystem*.

Source text

"EU-Schnellwarnsystem RAPEX"

<u>Professionals</u>	<u>Target texts</u>	<u>Research</u>
Pro02	EU early warning system RAPEX	no term search
Pro04	RAPEX, the EU early warning system	no term search
Pro07	<b>EU rapid alert system RAPEX</b>	5 min. search
Pro09	RAPEX, the EU Rapid Warning System	11 sec. search
Pro10	<b>rapid alert system RAPEX</b>	42 sec. search
Pro11	RAPEX, an early warning system	no term search
Pro15	<b>EU rapid alert system RAPEX</b>	22 sec. search
<u>Students</u>	<u>Target texts</u>	<u>Research</u>
UE0310	<b>RAPEX, the EU rapid alert system</b>	16 sec. search

UE0311	<b>EU rapid alert system RAPEX</b>	12 sec. search
UE0313	<b>RAPEX, the EU rapid alert system</b>	7 sec. search
UE0314	EU's rapid warning system	2 min. search
UE0315	<b>EU rapid alert system RAPEX</b>	20 sec. search
UE0317	<b>the EU rapid alert system RAPEX</b>	16 sec. search
UE0321	<b>the EU rapid alert system RAPEX</b>	16 sec. search

Table 4: Difference between professional and student search results (standard solutions in bold)

At first glance, it might appear that the professional who researched unsuccessfully merely gave up after a short time (11 sec.), but an examination of the retrospective verbalisation protocol provides a different explanation:

Pro09 RVP: “[...] Here we are, back to the internet, back to Google search for... uhm... RAPEX, yes, because I first thought of ‘early warning system’ ... but it’s actually ‘rapid alert system’ ... and I got it wrong. Actually from going from Google back to my text, I put ‘rapid warning system’... so it’s a mixture of what I guessed and what it actually is. So ‘rapid warning system’ instead of ‘rapid alert system’, which would be considered a very, very bad mistake, back where I work. <laughs>”

This professional’s heightened awareness of the danger of letting pre-conceptions negatively influence the result of what would otherwise be very effective research techniques was a positive side-effect of the experimental approach used here. The professionals and students in this type of research are active participants, who can profit from the insights they gain by reviewing their own translation processes.

There are a number of possible explanations for the differences between the success rate of the professionals and students in the RAPEX example in Table 4, which seem to contradict other research findings (e.g. PACTE 2005). The students had all participated in a course in research techniques as part of their undergraduate programme and were accustomed to using internet resources as part of their translation course demands. They were also younger than the professionals, so might

be part of a generally more media-competent cohort (see Perrin & Ehrensberger-Dow 2008b).

It is also possible that there is a risk of overconfidence and complacency when people translate into their L1, an assumption that would also be supported by the results in Table 3. The experimental design of our research allows us to investigate such questions in more detail, since we can compare translation processes into the L1 with those into the L2. The students translating from German into English were translating into their L2, which might have encouraged them to be more cautious and check resources for unfamiliar terms. An examination of the results for a similar translation problem in the English ST suggests that this might be the case (see Table 5). Only four of the eight students translating into their L1 produced standard solutions for the ST term *the rapid alert system Rapex*, all of them after researching it. None of the non-standard solutions were researched.

Source text

“the rapid alert system Rapex” [sic]

<u>Students</u>	<u>Target texts</u>	<u>Research</u>
UE0301	Frühwarnsystem Rapex	no search term
UE0304	<b>Rapex, das Schnellwarnsystem</b>	2½ min. search
UE0312	<b>Schnellwarnsystem Rapex</b>	20 sec. +5 sec. search
UE0316	Schnellalarmsystem Rapex	no term search
UE0319	Rapex, ein Sicherheitssystem	no term search
UE0320	das schnelle Alarmsystem, Rapex	no term search
UE0323	<b>Rapex, das europäische Schnellwarnsystem</b>	1 min. search
UE0324	<b>Schnellwarnsystem RAPEX</b>	39 sec. search

Table 5: Student search results for translation into L1 (standard solutions in bold)

## Conclusions

Investigating translation by examining various sources of data (from recordings of translation processes, cue-based retrospective verbalisations of translators as well as intermediate and final TT products) has allowed us to highlight the importance of two aspects of translators' competence: revision and research. Although revision is an integral part of the translation process, many translators may not be aware of how essential it is. As one professional translator in our study said while viewing the changes he was making to his TT: "[...] revision is always going on. You're always rethinking, rewriting your text, even when you think it's finished and go back to it next day" (Pro09).

Empirical research such as that reported in the present paper can contribute significantly to the testing and further development of translation competence models. Within the scope of our own long-term project, additional experiments are planned to determine the revision and research strategies used by different groups of translators (e.g. students, novice translators, and experienced professionals) with various translation versions, types of texts and translation problems. It may then be possible to refine and extend existing models to include revision competence as a separate category of skill sets, ranging from unilingual self-revision (common to all producers of texts) to comparative self-revision and other-revision (presumably unique to translators and translator-revisors).

## References

- Alves, F. (2003) 'Triangulation in Process Oriented Research in Translation', in F. Alves (ed) *Triangulating Translation: Perspectives in Process Oriented Research*, Amsterdam: John Benjamins.
- Alves, F. (2007) 'Investigating the Impact of Practice and Familiarity in the Cognitive Performance of Professional Translators when Using Translation Memory Systems', *5<sup>th</sup> EST Congress*, Ljubljana, Slovenia.

- Alves, F. & J. Gonçalves (2003) 'A Relevance Theory Approach to the Investigation of Inferential Processes in Translation', in F. Alves (ed) *Triangulating Translation: Perspectives in Process Oriented Research*, Amsterdam: John Benjamins.
- Asadi, P. & C. Séguinot (2005) 'Shortcuts, Strategies and General Patterns in a Process Study of Nine Professionals', *Meta* 50, 522-547.
- Bernardini, S. (2002) 'Think-aloud Protocols in Translation Research', *Target* 13, 241-263.
- Brewer, J. & A. Hunter (1989) *Multimethod Research: A Synthesis of Styles*, Newbury Park: Sage.
- Brunette, L. et al. (2005) 'The GREVIS Project: Revise or Court Calamity', *Across Languages and Cultures* 6, 29-45.
- Degenhardt, M. (2006) 'CAMTASIA and CATMOVIE: Two Digital Tools for Observing, Documenting and Analysing Writing Processes of University Students', in L. Van Waes et al. (eds) *Writing and Digital Media*, Oxford: Elsevier.
- 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.
- Englund Dimitrova, B. (2006) 'Segmentation of the Writing Process in Translation: Experts Versus Novices', in K. Sullivan & E. Lindgren (eds) *Computer Keystroke Logging and Writing: Methods and Applications*, Amsterdam: Elsevier.
- European Commission, Directorate-General for Translation (no date), *European Master's in Translation (EMT)*. Available from: [http://ec.europa.eu/dgs/translation/external\\_relations/universities/master\\_curriculum\\_en.pdf](http://ec.europa.eu/dgs/translation/external_relations/universities/master_curriculum_en.pdf) [accessed 20 March 2008].
- Flick, U. (2004) *Triangulation*, Wiesbaden: Verlag für Sozialwissenschaften.
- Fraser, J. (1999) 'The Translator and the Word: The Pros and Cons of Dictionaries in Translation', in G. Anderman & M. Rogers (eds) *Word, Text, Translation: Liber Amicorum for Peter Newmark*, Clevedon: Multilingual Matters.



- Hansen, G. (2003) 'Controlling the Process: Theoretical and Methodological Reflections on Research into Translation Processes', in F. Alves (ed) *Triangulating Translation: Perspectives in Process Oriented Research*, Amsterdam: John Benjamins.
- Hansen, G. (2005) 'Experience and Emotion in Empirical Translation Research with Think-aloud and Retrospection', *Meta* 50, 511-521.
- Hansen, G. (2006) 'Retrospection Methods in Translator Training and Translation Research', *Journal of Specialised Translation* 5, 2-41.
- Heiden, T. (2005) 'Blick in die Black Box: Kreative Momente im Übersetzungsprozess: Eine experimentelle Studie mit Translog', *Meta* 50, 449-472.
- Holz-Mänttari, J. (1984) *Translatorisches Handeln: Theorie und Methode*, Helsinki: Suomalainen Tiedeakatemia.
- Jääskeläinen, R. (2002) 'Think-aloud Protocol Studies into Translation: An Annotated Bibliography', *Target* 14, 107-136.
- 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*, Amsterdam: John Benjamins.
- Jakobsen, A. L. (2006) 'Research Methods in Translation – Translog', in K. Sullivan & E. Lindgren (eds) *Computer Key-Stroke Logging and Writing: Methods and Applications*, Oxford: Elsevier.
- Krings, H. P. (2001) *Repairing Texts: Empirical Investigations of Machine Translation Post-Editing Processes*, edited and translated by G.S. Koby, Kent, OH: The Kent State University Press.
- Kussmaul, P. (1995) *Training the Translator*, Amsterdam: John Benjamins.
- Livbjerg, I. & I. M. Mees (2003) 'Patterns of Dictionary Use in Non-domain-specific Translation', in F. Alves (ed) *Triangulating Translation: Perspectives in Process Oriented Research*, Amsterdam: John Benjamins.
- Lörscher, W. (2005) 'The Translation Process: Methods and Problems of its Investigation', *Meta* 50, 597-608.
- Martin, T. (2007) 'Managing Risks and Resources: A Down-to-earth View of Revision', *The Journal of Specialised Translation* 8, 57-63.

- Massey, G. et al. (2007) 'Teaching Instrumental Competence in an E-Learning Environment: A Swiss Perspective', in K. Freigang (ed) *Proceedings of the eCoLoTrain Workshop (Ljubljana 31.8-1.9 2007)*.
- Mossop, B. (2007) 'Empirical Studies of Revision: What We Know and Need to Know', *The Journal of Specialised Translation* 8, 5-20.
- Nord, C. (1997) *Translating as a Purposeful Activity: Functionalist Approaches Explained*, Manchester: St. Jerome.
- O'Brien, S. (2006) 'Pauses as Indicators of Cognitive Effort in Post-editing Machine Translation Output', *Across Languages and Cultures* 7, 1-21.
- PACTE (2003) 'Building a Translation Competence Model', in F. Alves (ed) *Triangulating Translation: Perspectives in Process Oriented Research*, Amsterdam: John Benjamins.
- PACTE (2005) 'Investigating Translation Competence: Conceptual and Methodological Issues', *Meta* 50, 609-619.
- PACTE (2007a) 'Validating the PACTE Translation Competence Model: Results of an Experiment', *5th EST Congress*, Ljubljana, Slovenia.
- PACTE (2007b) 'Zum Wesen der Übersetzungskompetenz: Grundlagen für die experimentelle Validierung eines Ük-Modells', in G. Wotjak (ed) *Quo vadis Translatologie? Ein halbes Jahrhundert universitäre Ausbildung von Dolmetschern und Übersetzern in Leipzig: Rückschau, Zwischenbericht und Perspektiven aus der Aussensicht*, Berlin: Frank & Timme.
- Pagano, A. (2007) 'Expert Knowledge in Translation: Insights from Self-translation in Disciplinary Writing', *5th EST Congress*, Ljubljana, Slovenia.
- Perrin, D. (2001) 'Wie Journalisten schreiben: Ergebnisse angewandter Schreibprozessforschung', in C. Mast & S. Russ-Mohl (eds) *Journalismus* 40, Konstanz: UVK.
- Perrin, D. (2002) 'Investigating Writing Strategies in the Workplace', in C. M. Levy & T. Olive (eds) *Contemporary Tools and Techniques for Studying Writing*, Dordrecht: Kluwer Academic Publishers.
- Perrin, D. (2003) 'Progression Analysis (PA): Investigating Writing Strategies at the Workplace', *Journal of Pragmatics* 35, 907-921.

- Perrin, D. (2006) 'Progression Analysis: An Ethnographic, Computer-based Multi-method Approach to Investigate Natural Writing Processes', in L. Van Waes et al. (eds) *Writing and Digital Media*, Amsterdam: Elsevier.
- Perrin, D. & M. Ehrensberger-Dow (2006) 'Journalists' Language Awareness: Inferences from Writing Strategies', *Revista Alicantina de Estudios Ingleses* 19, 319-343.
- Perrin, D. & M. Ehrensberger-Dow (2008a) 'Progression Analysis: Tracing Journalistic Language Awareness', in M. Burger (ed) *L'analyse linguistique des discours des médias: Théories, méthodes en enjeux: Entre sciences du langage et sciences de la communication et des médias*, Québec: Nota Bene.
- Perrin, D. & M. Ehrensberger-Dow (2008b) 'Media Competence', in G. Rickheit & H. Strohner (eds) *The Mouton-de Gruyter Handbooks of Applied Linguistics: Communicative Competence*, New York: Mouton de Gruyter.
- Reiss, K. & H. J. Vermeer (1991) *Grundlegung einer allgemeinen Translationstheorie*, 2<sup>nd</sup> edition, Tübingen: Niemeyer.
- Rydning, A. F. (2005) 'Le processus de déblocage en traduction', *Bulletin suisse de linguistique appliquée* 81, 99-121.
- Tashakkori, A. & C. Teddlie (2003) 'Major Issues and Controversies in the Use of Mixed Methods in Social and Behavioral Research', in A. Tashakkori & C. Teddlie (eds) *Handbook of Mixed Methods in Social & Behavioral Research*, Thousand Oaks: Sage.
- Tirkkonen-Condit, S. (2002) 'Process Research: State of the Art and Where to Go Next?', *Across Languages and Cultures* 3, 5-19.
- Tirkkonen-Condit, S. (2005) 'The Monitor Model Revisited: Evidence from Process research', *Meta* 50, 405-414.
- Trandem, B. (2005) 'Prise de conscience de la situation de communication en traduction', *Bulletin suisse de linguistique appliquée* 81, 141-159.
- Vermeer, H. J. (1989/2004) 'Skopos and Commission in Translational Action', translated by A. Chesterman, in L. Venuti (ed) *The Translation Studies Reader*, 2<sup>nd</sup> edition, London: Routledge.

- Wagner, E. (2005) 'Translation and/or Editing – the Way Forward?', in G. Anderman & M. Rogers (eds) *In and Out of English: For Better, For Worse?*, Clevedon: Multilingual Matters.

#### Notes

<sup>1</sup> Available at:

[http://ec.europa.eu/dgs/translation/external\\_relations/universities/master\\_curriculum\\_en.pdf](http://ec.europa.eu/dgs/translation/external_relations/universities/master_curriculum_en.pdf).

<sup>2</sup> PACTE (Process in the Acquisition of Translation Competence and Evaluation) is a research group at the Universitat Autònoma de Barcelona.

<sup>3</sup> We would like to express our appreciation to the translators who participated and to the UE03 students from the Zurich University of Applied Sciences.

<sup>4</sup> Information about the software can be accessed at <http://www.techsmith.com/camtasia.asp>.

<sup>5</sup> One of the students in the group (UE0308) did not complete the translation, so there is no data for this section of the text.

## APPENDIX

### Source text (German-English)

#### Gefährliches Spielzeug aus China

In EU-Staaten müssen immer mehr gefährliche Spielzeuge und Elektrogeräte aus China aus dem Verkehr gezogen werden. Im vergangenen Jahr verbannten die EU-Behörden rund ein Drittel mehr Alltagswaren aus den Geschäften als 2005, wie EU-Verbraucherkommissarin Meglena Kuneva am Donnerstag in Brüssel mitteilte. Als gefährlich erwiesen sich etwa Plüschbären, Föhne, Reinigungsmittel und Skibindungen.

Fast die Hälfte der mehr als 920 in der EU beanstandeten Waren kamen aus China. [...] Laut dem EU-Schnellwarnsystem RAPEX erwiesen sich 2006 erstmals Spielzeuge als gefährlicher als Elektrogeräte. [...] Besonders für Kleinkinder ergäben sich Gefahren durch das Verschlucken loser Teile, erklärte die EU-Kommission. Die aus dem Verkehr gezogenen Elektrogeräte drohten elektrische Schocks auszulösen und waren zum Teil nicht feuerfest.

### Source text (English-German)

#### More dangerous goods banned in EU

The European Commission is expected to announce on Thursday a rapid rise in the number of dangerous goods withdrawn from sale across the European Union. The increase is seen in Brussels as proof that an EU-wide alert system is working better to protect consumers. [...] Toys now form the biggest category of hazardous goods on sale, the figures from 2006 are expected to reveal. About half of all goods withdrawn are believed to be imports from China.

Examples posted on the website of the rapid alert system, Rapex, include a teddy bear, which a child could take apart, choke on the filling or be cut by a sharp internal part. "The increase in products withdrawn shows there is better surveillance and better enforcement, not necessarily that there are more unsafe toys on sale," said a British trading standards officer from Surrey.