

Modifications in documentation processes and their impact on the work of technical communicators and translators and their training

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1. Factors determining translation processes

An examination of workflows in companies which produce multilingual technical documentation reveals that achieving the goal of multilingualism is being taken into account at an ever earlier point in the production chain. A decade or so ago, technical documentation and translations were produced one after the other in separate departments (cf. Göpferich 2000). Since then, a number of factors have made closer cooperation between technical documentation departments on the one hand, and translation services on the other hand, a prerequisite for producing documentation that meets customers' expectations, complies with product liability regulations, and achieves the goals of cost reduction policies at the same time. These factors and their impact on documentation and translation processes are represented in Fig. 1. (on page 39). They will be explained in the next sections.

1.1. Technological progress

Technological progress leads to an increasing complexity and diversification of technical products. For example, the number of car models an automotive manufacturer offers has increased considerably over the last few years and the technical equipment we find in these cars is becoming more and more diversified too. This is reflected by the owner's manuals which, in the case of Mercedes Benz cars, for example, have increased in volume by more than 100 percent in the last decade. The latest edition of the E-Class owner's manual comprises almost 500 pages. Due to technical standardization, the individual models and variants are not composed of completely different parts and equipment so that many descriptions and instructions applicable to one model can be re-used in manuals for other models or variants which use the same components. As I will show, this re-use of documentation sections necessitates changes in the way the production of documentation is organized.

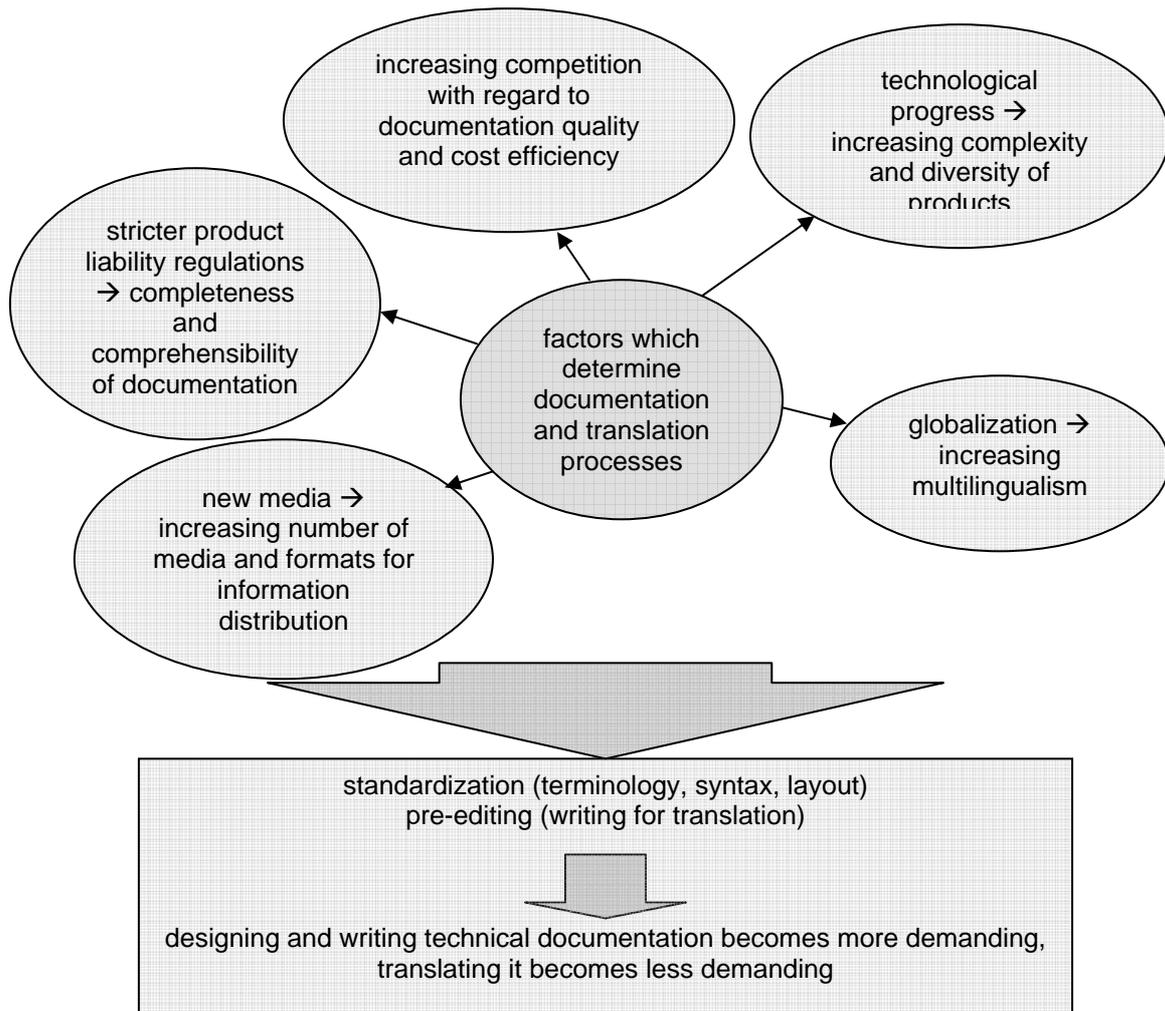


Fig. 1: Factors which determine documentation and translation processes and their impact on technical documentation and translation

1.2. Globalization

Globalization has necessitated an increase in the number of languages in which technical documentation is supplied. With each additional language into which documentation has to be translated, translation costs increase. To keep costs low, the source text volume which needs to be translated has to be reduced. In car owner's manuals this can be done by cutting out descriptive sections which users do not need to make full use of their cars, by using more concise descriptions and instructions, and by re-using sections of documentation which have already been translated and whose translations can be retrieved from a translation memory system.

1.3. New media

Documentation is delivered to the customer not only as printed information, but also on CD ROM, as integrated help texts, or on the Internet. Although the amount of information supplied in each of these media may differ, the wording of many

parts of the documentation can be used in all media. These parts must be generated from single-source texts which can then be converted into medium-specific formats. This makes sure that a new medium does not require a completely new translation process (single-source and cross-media publishing).

1.4. Stricter product liability regulations

Product liability regulations, such as the EU product liability directive, which had to be adopted as national law by the EU member states by the beginning of the 1990s, had an enormous impact on the quality of technical documentation. Until the 1990s, documentation in Europe was produced by people who had not received any special formal training in technical communication. As a consequence, the quality of many documents was poor. The stricter product liability regulations forced manufacturers to raise their documentation standards and led to a demand for experts in technical documentation, who, at that time, could not be found because there were no special training courses for them. This deficit led to the foundation of the first university programs in technical communication in Europe and to special courses in technical writing being integrated into programs in translation and interpreting. The effect of the EU product liability directive is an example of the impact new legal regulations may have on the development of academic programs.

1.5. Increasing competition with regard to documentation quality and cost efficiency

As differences in functionality and quality of technical products become less and as the complexity of these products increases, the quality of the documentation becomes a decisive selection criterion for the customer. At the same time, the sheer volume of documentation which has to be provided represents an enormous cost factor, which has to be reduced as much as possible to remain competitive.

2. Meeting the requirements

The automotive industry is particularly affected by these factors. Therefore, in this industry, the pressure to optimize and streamline documentation processes is extremely high, thus forcing the sector into a pioneering role in this field. I have been working together with DaimlerChrysler since 2000 and spent my sabbatical there in 2002 contributing to a large documentation project. Drawing on this experience, I will describe the measures taken by DaimlerChrysler within the last years to make their customer information meet the requirements specified above. In doing so, I will put special emphasis on the changing roles and tasks of the people involved in producing this customer information.

DaimlerChrysler regularly conducts surveys on customer satisfaction with regard to both vehicles and the quality of documentation. Customers complained that the owner's manuals were too large, contained too much technical jargon and were often incomprehensible. This led to several projects launched by DaimlerChrysler to improve the user-friendliness of their documentation and to reduce the size. The

first project of this type was VERONA (Verständlich ohne Nachfragen – Comprehensible without having to ask further questions).

2.1. The VERONA project

The aim of VERONA was

- to reduce the size of owner's manuals by approximately 25 percent,
- to eliminate all information from the manuals that was not necessary to make use of the car's functionality,
- to improve user access to specific information by typographic highlighting and a better structure, and
- to improve the comprehensibility of the documentation by a more user-friendly terminology and syntax.

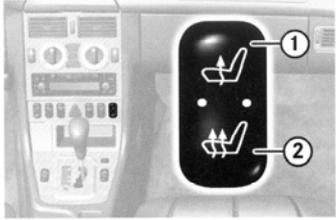
The effect of VERONA on Mercedes Benz owner's manuals can best be demonstrated by comparing a passage from an owner's manual in its original version with the version optimized according to the VERONA strategy. Fig. 2 shows the original passages on the seat heating as used in the 2000 Mercedes Benz C-Class owner's manuals.



Fig. 2: Extract from the Mercedes Benz C-Class owner's manual (DaimlerChrysler 2000:57)

Fig. 3 shows an optimized version of these passages as used for the first time in the 2001 SLK Roadster owner's manual.

Sitzheizung
Der Schalter ist oben an der Mittelkonsole.



1 Sitzheizung
2 Schnelles Aufheizen

► Schalten Sie die Zündung ein (Schlüssel im Lenkschloss auf Stellung 2).

Sitzheizung einschalten
► Drücken Sie oben auf den Schalter.
Die rechte Kontrollleuchte auf dem Schalter leuchtet auf.

Sitzheizung ausschalten
► Drücken Sie erneut oben auf den Schalter.

Sitz schnell aufheizen
► Drücken Sie unten auf den Schalter.
Beide Kontrollleuchten auf dem Schalter leuchten auf.

Schnellaufheizen ausschalten
► Drücken Sie erneut unten auf den Schalter.

i Nach etwa fünf Minuten schaltet die Sitzheizung automatisch auf normalen Heizbetrieb. Es leuchtet nur noch die rechte Kontrollleuchte.

i Die Sitzheizung schaltet nach etwa 30 Minuten automatisch ab.

Sitze
Bedienen im Detail
Selbsthilfe
Was tun, wenn...

Schalter an der Mittelkonsole

Problem	mögliche Ursache	Lösungsvorschläge
Eine oder beide Leuchten auf dem Schalter der Sitzheizung blinken.	Es ist nicht ausreichend Spannung vorhanden, da zu viele Verbraucher eingeschaltet sind. Die Sitzheizung hat sich automatisch abgeschaltet.	Sobald wieder genügend Spannung vorhanden ist, schaltet sich die Sitzheizung automatisch wieder ein.
Die Heckscheiben-Heizung schaltet sich zu früh aus.	Es ist nicht ausreichend Spannung vorhanden, da zu viele Verbraucher eingeschaltet sind. Die Heckscheiben-Heizung hat sich automatisch abgeschaltet.	Sobald wieder genügend Spannung vorhanden ist, schaltet sich die Heckscheiben-Heizung automatisch wieder ein.
Die  Kontrollleuchte leuchtet auf.	<ul style="list-style-type: none"> Der Beifahrer-Airbag ist abgeschaltet, weil sich ein Kindersitz auf dem Beifahrersitz befindet. Der Beifahrer-Airbag ist defekt, da sich kein Kindersitz auf dem Beifahrersitz befindet. 	<ul style="list-style-type: none"> ► Lassen Sie das Airbag-System von einer Mercedes-Benz Service-Station überprüfen.

Fig. 3: Extract from the SLK Roadster owner's manual (DaimlerChrysler 2001:47, 130)

A comparison of the two extracts reveals that the SLK Roadster version has been improved in the following respects:

1. In the C-Class manual, instructions (e. g., "Taste (1) drücken:") and descriptions of system reactions ("Eine rote Kontrollleuchte in der Taste leuchtet auf.") are represented in the same typography. In the SLK Roadster manual this is different: Here instructions are preceded by a black triangle, whereas reactions of the system (descriptions) are not. Furthermore, in the SLK Roadster manual subheadings in bold typeface subdivide the text. The advantage of this

typographic differentiation for users is that they can access the specific information they are looking for more directly and thus faster.

2. The C-Class manual has a system-oriented (hardware-oriented) structure, i. e., the text structure reflects the structure of the car. This can be seen from the fact that, for example, the keys have been chosen as the topics of the subheadings (“Taste (1) drücken:”, “Taste (2) drücken:”, “Taste (1) oder (2) nochmals drücken:”). In owner’s or user’s manuals and operating instructions, such a system-oriented or hardware-oriented structure is not user-friendly: Users usually do not start from the system (here the keys) and ask *What can I do with these keys?* Instead, they start from what they want to achieve and ask *How can I switch the seat heating on/off?* The headings and subheadings should therefore reflect the questions the user asks, i. e., they should not refer to system components (such as the keys), but to actions which can be performed with these components. This has been taken into account in the SLK Roadster manual (“Sitzheizung einschalten,” “Sitzheizung ausschalten,” and “Sitz schnell aufheizen”).
3. In the C-Class manual, the imperative infinitive (*Taste drücken.*) is used for instructions whereas in the SLK manual instructions are given by means of the imperative (*Drücken Sie die Taste.*). In manuals for prestigious products such as Mercedes Benz vehicles, the imperative is the more polite option; it gives the manufacturer a more service-oriented image.
4. In the C-Class manual, the passage about the seat heating begins with problems which may occur. Situations in which the user is confronted with such problems should be an exception and should, therefore, only be mentioned after the information about the regular operation has been given. Mentioning problematic situations at the beginning, and thus in an exposed position, may be detrimental to the manufacturer’s image. This has been taken into account in the SLK manual: There the problems which may occur appear in a separate troubleshooting chapter (“Selbsthilfe”) at the end of the manual.
5. In the C-Class manual, the switch which German car drivers usually call *Zündung* (*ignition*) is termed *Startschalter*. Since *Zündung* is more common among car drivers, it is certainly also the more comprehensible term for them and is therefore to be preferred. This has been taken into account in the SLK manual.
6. The picture in the C-Class manual does not make clear where exactly in the centre console the user may find the switch in question, since the centre console houses several switches. The information given in the SLK manual is more precise. It states where exactly the switch is to be found (“oben”) and furthermore, the picture not only shows the switch itself, it also shows the position where it is integrated.

Optimizations like those of the extract in Fig. 2 resulting in the version in Fig. 3 are typical tasks of technical writers. If we translate the version in Fig. 2 into English without combining the linguistic (and cultural) transfer with text optimizing measures, the English target text will not fulfil its function in an ideal way, just as the German original does not. To achieve an optimal result for the English readership, a translator following the principles of functional translation theories such as the theory of translatorial action by Holz-Mänttari (1984) must have the desire to combine a linguistic (and cultural) transfer from German into another language with optimizations such as the ones explained above and thus produce an English version, for example, as the one illustrated in Fig. 4. This combination is what I call *intercultural technical writing*.

Seat heating

The switch for the seat heating is located in the upper section of the centre console.

[Fig.]

- 1 Seat heating
- 2 Rapid heating

- ▶ Make sure that the ignition is switched on (key in the ignition switch in position 2).

Switching on the seat heating

- ▶ Press upper section of the switch.
The right-hand indicator lamp lights up on the switch.

Switching off the seat heating

- ▶ Press upper section of the switch again.

i

The seat heating switches off automatically after approximately 30 minutes.

Switching on rapid heating

- ▶ Press lower section of the switch.
Both indicator lamps light up on the switch.

i

After approximately five minutes the seat heating switches to normal heating mode automatically. Only the right-hand indicator lamp remains lit.

Switching off rapid heating

- ▶ Press lower section of the switch again.

Problem	Possible cause	Suggested solutions
One or both of the indicator lamps in the seat heating switch are flashing.	There is insufficient voltage because too many consumers are switched on. The seat heating has switched off automatically.	The seat heating will automatically switch back on as soon as there is sufficient voltage again.

Fig. 4: Optimized English version

In practice, however, translators are not always allowed to carry out such optimizations while translating. Owner's manuals are translated using translation memory systems in which, for reasons of efficiency, major modifications in layout and structure beyond the segment boundary are not allowed. As a consequence, translators who keep their audience in mind and take their roles seriously, must be dissatisfied when forced to transport deficiencies of the type described above into the target text. If they want to do something about these deficiencies, they have to move to a position upstream in the production chain, i. e., to the position of a technical writer.

This is only one example of the fact that the creative leeway translators have in an industrial environment becomes more and more restricted by the conditions under which they have to produce translations. Since the advance of functional translation theories into our translator and interpreter training, our students have been taught to take on more and more responsibility for their work. However, as I have shown,

they often cannot put this into practice when working as technical translators in companies. Therefore, if we do not want them to become frustrated, we must take the next step and also train them as full-fledged technical communicators who can produce texts which not only fulfil the expectations of their intended readership but also meet the requirement of leading to good translation results in the environments (such as translation memory systems) used in translation services.

2.2. Model manual and organizational changes

As we have seen from the example in section 2.1, VERONA has led to better source-text documentation quality and thus also to better translation quality. What could not yet be achieved in the VERONA project was a maximum degree of consistency in the customer documentation. This, however, is necessary to take optimal advantage of translation memory systems.

The inconsistency in owner's manuals has organizational reasons. Until recently, the production of owner's manuals at DaimlerChrysler was organized in the following manner: For each model range there was one in-house technical communicator who coordinated and supervised the production of the manuals for this model range. The production of the manuals themselves was outsourced, with different documentation companies in charge of the development of the various manuals. This had the effect that passages which cover exactly the same component in the manuals for different models varied, although, ideally, they should have been identical.

In the following, let us have a look at the passages covering the Sequentronic transmission from two different Mercedes Benz owner's manuals. The first extract is from the owner's manual of the Mercedes Benz E-Class (Fig. 5), the second, from that of the SL-Class (Fig. 6). The information the driver needs on the operation of this transmission is almost identical for both car models, yet the two extracts differ in many respects. One reason for this is that they were written by different authors.

Manuell-Modus

Im Manuell-Modus wählen Sie alle Schaltvorgänge manuell.

Anfahren

Es kann nur im 1. Gang oder im Rückwärtsgang angefahren werden.

- ▶ Treten Sie auf das Bremspedal.
 - ▶ Schalten Sie in die Fahrstellung G oder R.
- In der Getriebestellungs-Anzeige wird der eingelegte Gang angezeigt.
- ▶ Geben Sie dosiert Gas.

- ▶ Lassen Sie die Bremse langsam los, um langsam anzufahren („Ankriechen“).

Wenn die SEQUENTRONIC den Schaltvorgang nicht ausführt, zeigt die Getriebestellungs-Anzeige eine „0“, und im Multifunktions-Display erscheint die Anzeige **Bremse** betätigen!.

Hochschalten

- ▶ Tippen Sie den Wählhebel in Richtung +.
- Das Getriebe schaltet in den nächsthöheren Gang.

Herunterschalten

- ▶ Tippen Sie den Wählhebel in Richtung -.

Das Getriebe schaltet in den nächstniedrigeren Gang.

Schleudergefahr !

Schalten Sie auf glatter Fahrbahn nicht zum bremsen zurück. Die Antriebsräder können die Haftung verlieren.

Fig. 5: Extract from the Mercedes Benz E-Class owner's manual (DaimlerChrysler 2003:156f.)

Manuell-Modus

Im Manuell-Modus schalten Sie von Hand. Sie können in den nächsthöheren oder in den nächstniedrigeren Gang schalten.

Anfahren

Sie können nur im ersten Gang oder im Rückwärtsgang anfahren.

- ▶ Treten Sie auf die Bremse.
- ▶ Schalten Sie in die Wählhebelstellung G oder R.

Im Multifunktions-Display wird der eingelegte Gang angezeigt.

- ▶ Lösen Sie vorsichtig die Parkbremse und fahren Sie langsam an.

i

Wenn die SEQUENTRONIC nicht schaltet, steht im Multifunktions-Display 0 und die Meldung **Bremse** betätigen!.

Hochschalten

- ▶ Tippen Sie den Wählhebel in Richtung +.

oder

- ▶ Drücken Sie außen auf die Lenkrad-Schaltasten (▷ Seite 150).

Das Getriebe schaltet in den nächsthöheren Gang.

Zurückschalten

- ▶ Tippen Sie den Wählhebel in Richtung -.

oder

- ▶ Drücken Sie innen auf eine der Lenkrad-Schaltasten (▷ Seite 150).

Das Getriebe schaltet in den nächstniedrigeren Gang.

i

Wenn Sie mit zu hohen oder zu niedrigen Drehzahlen fahren, schaltet die SEQUENTRONIC auch im Manuell-Modus automatisch.

Unfallgefahr !

Schalten Sie auf glatter Fahrbahn nicht zurück, um zu bremsen. Die Antriebsräder könnten die Haftung verlieren und das Fahrzeug kann schleudern.

Fig. 6: Extract from the Mercedes Benz SL-Class owner's manual (DaimlerChrysler 2002:142f.)

Since Mercedes Benz owner's manuals are translated using a translation memory system (TRANSIT), almost identical passages in the two manuals would have the advantage that the translation of the second manual could to a large extent be composed of 100-percent matches. A comparison of the two extracts, however, reveals numerous discrepancies, which have been highlighted in Fig. 5 and 6.

Many of these discrepancies could have been avoided by establishing and using a standardized terminology and a style guide. Both measures have been taken in the meantime. To achieve an even higher degree of consistency, additional organizational measures have been taken. Whereas in the past, one in-house technical communicator had been responsible for the customer information of an entire model range, s/he is now responsible for the documentation of one component in all model ranges. At the same time a model owner's manual has been designed for a fictitious car which contains all the options available in a Mercedes Benz vehicle. Whenever a component or an option has to be documented for a new model, the respective passages from the model manual have to be used as a starting point and adapted as needed. This example shows that increases in quality can sometimes only be achieved by means of organizational changes.

2.3. The ARKI project

ARKI (Allgemeines Redaktionssystem Kundeninformation – General editing environment customer information) was launched to increase the quality of customer information while at the same time reducing the cost of its production and

translation. The goal of this project is the development of an editing environment which allows the composition of customer information

- by re-using text modules,
- by providing the authors with a standardized terminology and a style guide, and
- by allowing automatic checking of the documents for conformance with the terminology released for use and the rules defined in the style guide.

Where do translators come in in this project? – First of all, they come in before a new term is released for use in customer information. For the purpose of terminological consistency, a concept-oriented termbase has been created. For each concept only one term per language is allowed (no synonyms). Technical authors may make suggestions for new German terms they need. Before these terms are released, they are passed on to the translation services where terminologists find equivalents for them in all languages in which they are needed. In so doing, they become aware of terminological incongruencies between languages and cultures which may make it necessary to split up a source-language concept into two or more target-language concepts. Only after this has happened are the terms released. This is necessary because, in the database, each concept has an individual concept number. In the case of polysemy the concept number allows the translator to find out in what sense the term is used in the particular context (for further information on this cf. Göpferich 2003). This, again, makes the actual translation task easier and more monotonous while at the same time shifting the interesting and more demanding tasks to stages prior to the actual translation process.

2.4. DaimlerChrysler text optimization competition

Another measure taken by DaimlerChrysler was a competition, in which several universities in German-speaking countries were invited to take part. Among those who took part in this competition was a team of five of our students at Graz whom I had encouraged to take part because this competition provided them with realistic working conditions. Within three months they had to make suggestions on how to improve the quality of sections of the E-Class owner's manual and to further reduce its size. For this purpose, they were provided with an E-Class vehicle (the E-Class is produced in Graz), which they could use for usability testing; they could talk to both documentation experts and specialists in automotive engineering to get their specific questions answered; and they had to work closely together in a team to cope with their workload in a limited time span and to produce consistent results. These realistic working conditions together with the chance of winning the award were a highly motivating experience for them (and resulted in them winning the first prize of €7.500 and a trip to Stuttgart). The project had provided a real social constructivist learning environment for them as suggested by Kiraly (2000) in his excellent work *A Social Constructivist Approach to Translator Education*. He describes such a learning environment as follows:

In a classroom based on transformational beliefs, the teacher will assume roles such as guide, assistant, mentor and facilitator and will see his or her job primarily in terms of helping create complex, naturalistic learning environments in the classroom, and providing support for collaborative learning processes. In such a classroom, learning activities will be marked by proactive students working in collaboration with each other and with the teacher, and a focus on situationally embedded real-life or realistic projects rather than on memorization of discrete pieces of knowledge. Rather than a place where students are isolated from the real world after graduation while being prepared to face it, the transformationist classroom is seen as being inextricably embedded with authentic, real-world activity. Thus learning becomes a forum for guided social and cultural experience. The individualized nature of the learning process will be respected and, rather than distributing knowledge, the facilitator will guide learners in the construction of their own meaning. (Kiraly 2000:23)

My role as a teacher in this project was exactly that of a facilitator: I provided my students with the contacts at DaimlerChrysler and passed on to them what I had learned about the production of customer information in this company. My students had to use these contacts and the information I provided them with to solve new problems and make innovative suggestions. This was a real challenge to them, especially since they knew that there was no model answer in my drawer which I could hand out to them after they had tried to solve the problem by themselves. At the same time, such projects give us teachers an opportunity to keep in touch with what is going on outside the ivory tower and thus to continuously adapt our training to the requirements of the market. They also enable us to intervene in market developments whenever we feel that they are incompatible with our professional ethos.

3. Conclusion

As I have shown above, the use of a standardized terminology, the aim of consistency in source documents, and the employment of translation memory systems makes translating technical documentation easier and more monotonous while at the same time shifting the interesting and more demanding tasks to stages prior to the actual translation process (standardizing terminology, developing style guides and editing environments, optimizing texts, writing for translation, etc.). If we do not want our graduate translators to become frustrated in these translation environments, we must also train them as full-fledged technical communicators, who are able and allowed to perform text optimizations and produce source texts which not only fulfil the expectations of their intended readership but also the requirements of being translatable and leading to good translation results in the environments (such as translation memory systems) used in translation services.

As I have also shown, translation cannot be regarded as an isolated process, must be seen as one step in a complex documentation production chain. Such documentation production chains cannot be simulated in traditional translation

practice classes. Therefore, if we want to prepare our students for the full range of language and culture mediation tasks that will wait for them outside our institutions, we must give them the chance to do authentic praxis-oriented work where they must “come to grips with the types of constraints and expectations they can expect to face once they graduate” (Kiraly 2000:193). Providing our students with such realistic working conditions makes close cooperation between translator training institutions and companies indispensable. For this purpose, the Laboratory for Communication & Documentation (LabCom.Doc) was established, a transfer centre at the Department of Translation Studies of the University of Graz, which gives students and young graduates the opportunity to work on projects launched and financed by companies and institutions.

Cooperating closely with companies not only provides students with realistic working conditions, it also helps the teaching staff to keep in contact with the world outside the ivory tower and to adapt their training to the requirements of the market. This does not mean that our training institutions should become the slaves of industry. On the contrary, working closely together with companies gives us the opportunity to recognize developments which we cannot tolerate at an early stage and take measures to divert them into more favourable directions. Such interventions may, for example, concern the development of new computer tools which support documentation and translation processes. Being able to develop ergonomic computer tools which really meet the needs of translators necessitates field studies, so called workplace studies, such as the one carried out by Risku (2004). They help us to find out how translators and related professional groups organize their work and cooperate with each other and at what points in these processes what types of computer support could be of advantage. Once the specifications are clear, those who have carried out the field studies must be able to communicate with software engineering specialists who can develop the programmes that meet these specifications.

If Kiraly (2000) is right with his social constructivist theory of translator education, we must give our students the chance to cooperate with all the professional groups with whom they will have to work together at their later workplaces. This means that we must bring them together with marketing experts, who know customer wishes, technical communicators, software engineers, etc. Ideally, the individual university programs for these professional profiles share courses where the students from the different programs come together to solve problems in model projects in a joint effort. Such cooperation will not only contribute to better cooperation in their later positions but also to new professional profiles which result from a blending of qualifications from training programs which, today, are still offered separately and independently.

In such projects, our students can gain their own insights. At the same time, it gives us teachers the chance to quit our traditional role as “sage on the stage” and accompany them as “guide on the side” (King 1993). This not only makes their

education a more challenging task for them, but also gives us university teachers the chance to keep embedded in working environments outside the ivory tower.

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ABSTRACT

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A number of factors, such as technological progress, globalization, the new media, stricter product liability directives, and increasing competition with regard to documentation quality and cost efficiency, force companies to optimize and streamline documentation processes. This article presents the measures a large automotive manufacturer has taken within the last five years to cope with this pressure and describes the impact of these measures on the task profiles of technical communicators and translators working in the automotive industry. Drawing on Kiraly's social constructivist approach to translator education, the last section of this paper discusses how university programs in translation and interpreting can prepare students for these changing professional profiles.
