

## **Multilateral collaboration between technical communicators and translators: a case study of new technologies and processes**

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### **ABSTRACT**

This article describes a multilateral international project (Thompson and Carter 1973, Moreno-Lopez 2004) in technical communication and translator training programmes and discusses its use of technologies in what is seen as the largest and most complex international learning-by-doing collaboration to date. The project is a student collaboration involving two sets of cross-cultural virtual teams who either translate from Danish and Dutch into English and review (or edit) into American English or who are involved in international collaborative writing by Spaniards and Americans, usability testing by Finnish students, and translation from English into Dutch, French and Italian (Humbley et al. 2005; Maylath et al. 2008; Moustén et al. 2008; Moustén; Vandepitte et al. 2010; Moustén et al. 2010, Moustén et al. 2012, Maylath et al. 2013, Maylath et al. 2013b). While students use email, iChat and Skype to communicate with each other and carry out their assignments, they also explore revision and translation reviewing activities on Google Drive. Their comments and negotiations made explicit in Google Drive documents can then be assessed by teachers, who also employ other Google Drive documents to update both the scripts for the two translation directions and the student-topic database. The project culminates in multilateral videoconferences that summarise the main aspects of learning by students. As the collaboration closely resembles the complexity of the international documentation workplaces of language service providers, the use of the various technologies proves to be a central element both in the students' activities and in the teachers' guidance.

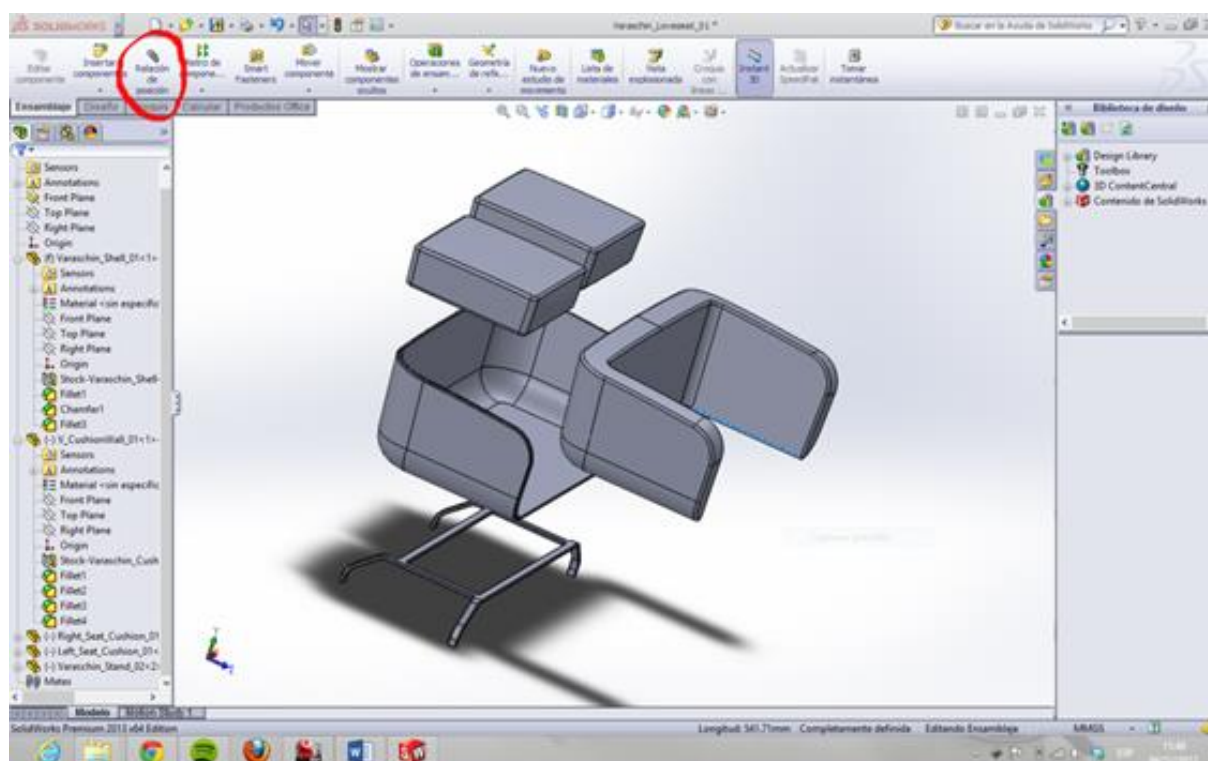
### **KEYWORDS**

Collaborative learning, technical communication, technical translation, usability testing and e-learning tools.

## **1. The Trans-Atlantic and Pacific Project**

The Trans-Atlantic Project (TAP) started in 2000 and has developed into a complex educational writing-translation project consisting of bi-lateral *writing-translation* projects, bi-lateral *translation-editing* projects (since 2001) and *multilateral* projects (since 2010). By 2015 it had expanded to four continents to become the Trans-Atlantic and Pacific Project (TAPP). The multilateral projects have been conducted by as many as eight teachers in up to seven countries and seven languages. TAPP's main aim is to share insights into collaborative writing across borders and cultures with students in a learning-by-doing fashion (Lesgold 2001), and, in the course of this work to gain knowledge of each other's cultural bases. TAPP combines technical communication with translation, a combination described by Risku as "co-operative text design" or "the effective use of source texts and other knowledge sources to produce documents suitable for a specific target group, situation and environment" (2004:182). In many projects, the practical work of exploring translation revision and reviewing activities was

coupled with quality assessment work in terms of usability testing. Although usability testing is not a standard requirement for translators and may also often be neglected as a skill needed by technical writers, the TAPP emphasised its relevance from the start.



**Figure 1. An example passage from the document "How to make a piece with Solid Works."**

### 1.1. Writing-translating project

The first step in a typical bi-lateral writing-translating project involves a technical writing class in the U.S. composing instructions for a particular activity and user testing (Figure 1). The document is then sent to a translation class in Europe. While the translator works on the document, a dialogue takes place between the translator and the writer, during which the writer answers the translator's questions. In turn, the translator may test the instructions, either through a formal testing protocol or merely by contemplating the steps mentally. Either approach can involve asking questions of the technical writer. During this process, possible localisation decisions may be made by exploring cultural differences and/or system differences between the varied audiences of the text.

### 1.2 Translating-editing project

The typical bi-lateral translating-editing project sends the text travelling in the opposite direction. The first step involves a translation student, often in

Europe, who translates a published article from a magazine in the mother tongue into English and sends the translated article to a reviewer/editor in a writing course, usually in the U.S., for publication in the U.S. This reviewer/editor then asks questions of the translator and edits the translations for idiomatic American English.

### **1.3. Multilateral projects**

Multilateral projects can include a writing-translation project that begins with co-authoring in Spain and the U.S. of a document in English. This document is then user-tested in English in Spain, the U.S., and Finland. In the final step, the text is translated into Dutch (Belgium), French (France) and Italian (Italy). Another type of multilateral project may be a translation-editing project with translation from Danish to English (Denmark), from Dutch to English (Belgium), from Greek to English (Greece) or from Italian to English (Italy), all followed by editing for idiomatic American English in the U.S.

Across the TAPP network, various communication technologies are used for different stages and activities. In fact, the most important element in multilateral and multilingual projects is communication that facilitates collaboration, which takes place not only between students themselves but also between teachers, as well as between teachers and students. Some of the most often used telecommunication and software programs/applications are listed below:

- Microsoft Office programs: Word, Powerpoint, Excel and Publisher
- Platforms: Websites, Google Drive
- Shared programs: Microsoft Word with editing tools, Google Drive
- Communication: Telephone conversations, email, iChat, Skype, SMS
- Streaming content: Facebook, Messenger, Adobe Connect
- Terminology management: Word lists, Excel files, AntConc.

In what follows, we will survey the technologies employed at various times across the TAPP network and discuss the technologies in terms of the activities for which they were used: 1) student interaction; 2) student learning activities such as writing, translation, revision, reviewing and usability testing, 3) teacher-student interaction; 4) teacher interaction and 5) multilateral whole-class interaction.

## **2. Student interaction tools**

Since student interaction is considered an essential ingredient for collaborative learning (Cheon, et al. 2012), much attention is devoted to stimulating students to communicate professionally with each other. At its launch, the Trans-Atlantic Project linked students exclusively via e-mail messages and documents attached to them. A typical example is students' pre- or post-learning reports and their writing/translation design

descriptions, known as “translation briefs,” which they attach to an e-mail (and which are used by the teachers for follow-up purposes; see Moustén et al. 2012).

Although students were asked to include their teachers in these student-to-student interactions, they did not always follow these instructions, such that the student-to-student interactions did not always leave a visible trace. If, in such cases, an incident occurred (a misunderstanding or a local holiday that had not been communicated to the international partner[s] or the like), students typically had to confess later that their documentation was not good enough.

On the other hand, students were also given some autonomy and authority over the project: they were allowed to choose the tools, and to take the decision about what to communicate to whom. Other increasingly more frequently used communication means between two student partners, whose use is not traceable for teachers at all, are Facebook (replacing e-mail) and Skype (replacing iChat). Google Docs too, were sometimes used for editing, reviewing, or translating. To solve specific questions related to the document at hand, they sometimes gave access to the Google Doc project to teachers, who could then keep track of questions and comments on the document. For co-authors, usability testers, and translators to examine texts simultaneously, Google Docs often proved useful. Some students started to use different tools for different purposes: e.g., setting up partnerships via e-mail or using Facebook for contact, but working through Google Docs. A few students in Finland also ventured onto Adobe Connect to communicate with each other. Preference for tools also depended on the place of the actors: for interaction across the Atlantic, asynchronous tools such as mail were preferred to the synchronous ones.

Consequently, tracking and tracing the interaction between the members of the international teams became ever harder. Trade and industry sometimes refer to this kind of communication and negotiation as an imminent time bomb under any company where employees act very independently. It may happen, for instance, that the all-important legal documentation of activities in production or construction companies, or important user feedback in pharmaceutical companies is not filed. This lack of sufficient tracking procedures was evident even in the off-the-shelf technological tools that were used, so it is an issue that needs to be focussed on.

In addition to the technological problem-solving tools, the challenges here related to cross-linguistic/cross-cultural issues (using appropriate language, absences/lack of reply, local holidays). The issue of adaptation and localisation has proved to be increasingly important in these exchanges. For example, in a technical document authored by an American student, the text advised the user to magnetise the screwdrivers before use. This process was not known in Denmark, where the text was translated. The

custom in Denmark is that either screwdrivers come magnetised or not. It is not a process that a user ventures into. Even though the world has been knit closer over the past decade, such procedures and processes are still local. The continued development of writing for the Web has heightened this need for adapting text to new locales.

Despite a plethora of tools for communication, time zone differences and differences in semester schedules still pose a big challenge in multilateral communication among students. Another challenge today is that students (not to mention their teachers) must often check one or more emailboxes, Skype, Facebook, their own learning platform, and maybe also other communication and social media. The teams in which students now collaborate are small, and positive experiences sometimes remain within the boundaries of that smaller group. There is thus an increased challenge in spreading the learning-by-doing-experience to the rest of the classes involved, not just the few students involved in each student-to-student interaction.

Therefore, TAPP teachers are now looking into one common collaborative platform. On a tentative basis, we are experimenting with the Zephyr platform, based at Ghent University, Belgium. Although the time zone and semester differences will probably always remain a challenge, these challenges may be easier to handle with a single platform, such as Zephyr, which records and combines all exchanges chronologically. This single platform brings together all projects and students and allows students to follow procedures similar to those that professional technical writers and translators follow. The collaborative platform now constitutes a worldwide collaborative community of student-writers, student-usability-testers and student-translators, similar to that in a company that employs distant staff members. They can learn to find the right 'time window' to communicate professionally. Recently, however, having missed out on that opportunity, some have been able to take recourse in using WhatsApp to communicate across the Atlantic for urgent solutions.

### **3. Student writing/translation/usability testing tools**

As is well-known, writing and translation technologies play an important role in translation training (e.g., Valero Garcés and de la Cruz Cabanillas 2001, Bowker 2002, Rodrigo 2008, Rodríguez-Inés 2010). The tools that students use across the TAPP network show much variation. For instance, both Microsoft Word's track-changes tool and its comment insertion tool are used when students comment on each other's written passages. Such comments sometimes become very long, such as the example of an American student giving feedback to a French student below. Although from a professional perspective, this might not seem the best tool to convey such a long message, its expression of dedication was very much appreciated by the student and the teachers alike:

Also, think about what voice is appropriate for the instructions. In American English, it is usual to use the declarative voice in instructions, e.g. "To open the program, click the button in the bottom left corner" or "To start the program, open Adobe Photoshop." These sentences kind of sound like commands, right? But this is how it is the most appropriate to have a text of instructions for American public. No use of "to start the program, the user has to open Adobe Photoshop" with the 3rd person singular.

Finally, here are a few things that you as translators might be interested in in general:

1. Note the use of the punctuation style appropriate in American English. For instance, in AmE we place a comma or a period (a full stop) inside the quotation [sic] marks instead of outside of it as in British English.  
E. g. apply the "Radial Gradient," and then... (American English)  
apply the "Radial Gradient", and then ... (British English)  
You would need to fix the punctuation if it is different in French.
2. When talking about the audience of the instructions, I use the plural form of "user" as in "users." To refer to the users, I alternatively use the pronoun "them." This helps me avoid referring to the user as "he" (which is deemed as sexist language) or choosing between "he/she" or "she or he" when talking about the user.
3. I have included a small glossary in the first part of the instructions before the actual steps. Based on your consideration of how to appropriate the text for your local user, you can move the Glossary toward the end of the document and place it after the steps. You can also add something to it, e.g. the definition for 'cursor' or 'keyboard' in your language. However, since I thought that the audience for the document would have some basic knowledge of how to operate a computer, I chose to omit adding the definitions for things like 'cursor' or 'keyboard.' (NDSU student, 2014)

As for typical translation tools, some students have tried to work with SDL Trados. However, this program is not particularly suitable for the TAPP collaborations, as it depends on reusable text, whereas TAPP projects move from subject to subject with only sparing reuse of text. Such movement into as many areas and professions as possible not only develops other essential translator competences, such as broadening of general knowledge of science and technology, but also yields similar advantages for the technical writer student. Although SDL Trados turned out not to be appropriate, a couple of other programs did prove useful. Some students used Wordfast Anywhere or other—usually free—terminology tools, and on a very small scale. Another such tool was AntConc, which is an ad-hoc, corpus-linguistic, freeware tool. On the basis of a very small corpus of subject-related texts, which students could datamine for usability, typicality and frequency of certain terms and phrases (Jensen et al. 2012), much more appropriate texts and translations could be made. This tool was thus a help both to the technical writers and the translators. In most cases, approximately ten subject-specific texts suffice. The corpus of these texts is referred to as an ad-hoc corpus, in contrast to the conventional, large, and typically university-based megacorpora. The ease of collecting the texts on the fly by using Google Advanced Search made this process viable in daily work. Because the basic idea of AntConc is not necessarily reuse of text, AntConc proved to be much more suitable for the variety of projects and subjects. In Finland, the students conducting usability testing employed the tools that were necessary to test the instructions which depended mostly on the topic of the text. For example, the instructions "How to program a small

application in C” required students to use Programmer’s Notepad 2.3, Borland C/C++ 5.5, and a laptop (Windows 7) that was connected to a television screen. In turn, students who tested the usability of “How to create an Android app” also became familiar with Appinventor, a cloud-based tool for building apps in a web browser, and a video camera. Such experiences were individual, but highly varied, and communication about them taught students about the existence of other tools, such as SolidWorks 2010, a solid modelling computer-aided design (CAD) and computer-aided engineering (CAE) software program. Smartphones appeared to be very useful: they were used for both voice and video recording, and for taking notes.

As has become clear, new technologies were both the object of testing and the means to communicate about the test. The Zephyr platform now also allows students to easily see what their partners are doing, how the procedures are developing and how their fellow-students have solved any task-specific problems.

#### **4. Teacher-student interaction tools**

Teacher-student interactions typically take place country by country, as the teachers were already seeing classes on a regular basis, and thus made themselves known to the other classes in the network only with their e-mail addresses and their names. Commonly, when students have questions or concerns, they approach their own teachers, or sometimes send a copy of their e-mail to another teacher via the cc: line.

From the start of the projects, teachers’ face-to-face instructions to students were soon supported by e-mail, with which teachers had been familiar for a long time already, and by institutional e-learning platforms. The same communication means were also used for course updates and ongoing consultation with the teacher.

The platforms (e.g., Blackboard, Moodle, Chamilo, and now Zephyr) enable teachers and students to upload and download related documents (project management documents including pre- and post-learning reports, project briefs, etc.), express opinions on discussion and chat forums, view lists of site participants, send urgent mails to all participants, keep track of important dates and deadlines on worksite calendars, manage groups, create/view recent announcements, participate in real-time, written conversations, allow private file-sharing between teachers and students, create site-based surveys and polls, and maintain an archive of all emails sent to the worksite’s email list and log-on activities. Importantly, they also give insight into how students communicate with each other and where difficulties arise. Although the project aimed at such insight from the start, it was not always achieved, however: although students were requested to address their teachers in the cc-line of their emails or to communicate

through their virtual learning platform, students sometimes interacted in different ways. In these cases, no audit trail was left, and teachers could not follow up. Unless a major problem emerged (e.g., when an email bounces back to the sender because of an Internet or address problem), teachers had no means of becoming aware of difficult situations.

Platforms further foster individual and team responsibility: because every action can be seen by a whole group of students as well as teachers, there is a keen sense of social control, with students feeling all the more acutely the need to attend to their responsibilities. This type of controlled situation also often happens in the professional world, in which a project head has a dedicated platform where activities can be monitored.

Platforms also give students a sense of project management, an asset for both technical communication and translation students who want to take up translation project management (TPM) jobs. TAPP teachers have drawn students’ attention to this asset by listing all the procedures to be applied from the joint creation of a document in Barcelona and Fargo, through its dispatch/reception, to its final translated version in Europe (see Appendix). For this purpose, Gantt charts help students who have difficulty managing time for themselves. Such charts also allow for some variation: for instance, documentation activities for translation students, such as browsing websites and skimming books in order to understand the concepts and find the appropriate terminology, may also be carried out during the translation of a document, or even when revising or reviewing it. Students can also decide if all team partners are involved or just one or two team members, and whether there is one translator or a division of duties so that each member can translate a part and then edit the whole document.

In the absence of a common platform for all TAPP-participants involved, Google Drive was used for the student team rosters with topic database (Figure 2) and scripts with deadlines for the writing/translation and translation/editing projects (Figure 3).

1st name <b>Barcelona</b> student	Family name Barcelona student	Barcelona e-mail address	<b>Document topic</b>	1st name <b>Fargo</b> student	Family name Fargo student	Fargo e-mail address	First name <b>Ghent</b> student	Family name Ghent student	Ghent e-mail address	First name <b>Paris</b> student	Family name Paris student	Paris e-mail address	First name <b>Padua</b> student	Family name Padua student	Padua e-mail address	First name <b>Vaasa</b> student	Family name Vaasa student	Vaasa e-mail address
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**Figure 2. TAPP student team roster and topic database in Column 4**

East to West	TR	TR	TR	E	West to East	W	W	TE	TR	TR	TR
	B	I	DK	USA		USA	E	SF	B	F	I



Introduction of process in class and on learning platform; background literature is uploaded.	Sep 25	Oct 1	Sep 24-28	Aug 23	Introduction of process in class and on learning platform; background literature is uploaded.	Aug 23	Sep 25		Sep 25		Oct 11
Students find source texts suitable for translation for the North-American market and fill in the excel form which they upload online	Oct 2	Oct 11	Sep 24-28			Oct 4	Oct 4		NA	NA	NA
Students form teams around source texts	Oct 9	Oct 11	Sep 24-28	With DK; Oct 4. With B&I: Oct 11	Students form teams around source texts.	Oct 4	Oct 4	Oct 10	Oct 15	Oct 17	Oct 15

**Figure 3. TAPP script**

TR= Translation; E = Editing; W = Writing; TE = Testing

Country codes: B = Belgium; DK = Denmark; E = Spain; F = France; I = Italy; USA = United States

Lastly, as many Finnish students lived far from their university in Vaasa, they participated via distance education, namely by means of live video conferences. As an alternative to physical classroom attendance for class meetings, they used Adobe Connect to create a virtual classroom.

### 5. Teacher interaction tools

Teacher interaction typically takes place long before the projects begin, because the network function and set-up have to be devised. To communicate with each other, teachers most often use e-mail, with which they feel most comfortable. It enables them to make practical arrangements and solve ongoing non-urgent problems. Occasionally, communication via Skype has proved useful: this was typically the case for more high-level arrangements, planning, discussions of student interaction and troubleshooting. Google Drive was used for information that needed to be viewed

by teachers for some of the more advanced projects involving many teachers and many classes.

For teacher interaction purposes, however, we would also say that now that we have a single collaboration platform (Zephyr) with a separate course for teachers, we hope to communicate much better and share similar documents and forms which may then be available for research purposes. Above all, seeing the development of students' work and interactions as they move through the project on the students' Zephyr course, teachers will now also be able to observe all the stages of the projects.

## **6. Whole-class interaction tools**

When students filled in the student-topic roster on the Google Drive, all of them could then take the opportunity to participate in international whole-class interaction. However, to link all the classes simultaneously, TAPP classes since 2001 have used live videoconferences via closed-circuit television. Such videoconferences have sometimes been arranged so that students get to know each other in an initial session at the beginning of their project, or, more commonly, in an end-of-project, wrap-up discussion. For the most recent multilateral projects, the final videoconference crossed eight time zones, taking place in three zones simultaneously and bringing together well over 100 students from Barcelona, Fargo, Ghent, Padua, Paris and Vaasa. The videoconference allowed students and teachers alike to summarise the main aspects of the students' learning and permitted questions/answers and illuminating dialogue.

## **7. Conclusions**

This article has presented a brief survey of the various technologies and their uses in the Trans-Atlantic and Pacific Project. The technologies proved to be a central element, both in the students' activities and in the teachers' guidance. The use of the various technologies also involved reflection and communication about the tools, which revealed that a panoply of different communication tools is used for distinct communication purposes. Communication tools that work best between individual partners or small groups are often not the same as those that work best between the instructor and the whole class or between whole classes. The TAPP integrates the experience of computer-mediated interaction into the face-to-face classroom, for example, to discuss cross-cultural incidents or guide students through project stages. The TAPP also uses computer software and builds specialised language corpora as a basis for later work, especially for independent translators. In conclusion, this collaboration already closely resembles the complexity of the international documentation workplaces of language service providers, i.e., communication partners with whom all technical writers and translators working globally will have to be acquainted.

Some of the challenges that the TAPP has faced from the very beginning still need to be solved, but some of them have already been solved thanks to innovative technological tools that increasingly provide the means to replicate the changing work processes in the writing-translation industry, in particular, the movement from bidirectional, asynchronous communication to shared, synchronous communication — a major step forward in most of the exchanges.

In the future, we can heighten students' awareness of their acquired technological skills by introducing a question about their use of technologies in the post-learning reports that they fill out after their projects end. We can also enhance students' project management and time management skills by introducing pertinent elements for project management, such as Gantt charts and standard operating procedures (SOPs). Data collection technologies, such as surveys, could also be employed to collect information from students' learning reports. In that way, responses could be collected easily and reported to whole groups. In addition, voting equipment at live videoconferences might be used to garner participation from all students present.

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**Appendix. TAPP procedures**

<b>East to West</b>	<b>West to East</b>
<b>Translating-editing</b>	<b>Writing-translating</b>
Introduction of process in class and on learning platform; background literature is uploaded.	Introduction of process in class and on learning platform; background literature is uploaded.
Students find source texts suitable for translation for the North-American market and fill in the excel form which they upload online	Students decide on the topic of their texts and fill in the excel form which they upload online
Students form teams around source texts	Students form teams around source texts
<i>Pre-learning reports</i> are filled in by students and shared between the American and European students and their instructors.	<i>Pre-learning reports</i> are filled in by students and shared between the American and European students and their instructors.
In the Translation Brief (or Instructions), each translator defines the intended receiver, purpose and either specific medium or general type of medium they are writing their translation for.	Each team of writers produces a text for translation and sends it to its Finnish partners for usability testing.
The original text, the translated text and the Translation Brief are sent to the SL reviser.	In the Translation Brief (or Instructions), each team of writers defines the intended receiver, purpose and either specific medium or general type of medium they are writing their translation for.
The translation is revised by the SL reviser.	The original text and the Translation Brief are sent to the translator. Between the US writer and the European translator, the text is mediated until consensus has been reached on its contents or/and wording. This can be done by email, telephone, fax, Skype, or whatever communication medium you may share between you.
The translator takes the revisions into account and prepares the final text	The text is translated.
The finished translation ( <b>with a scanned copy of</b> the source text) is emailed to the American contact person (reviewer/editor).	Each team of writers tests its text for usability in the writers' home countries.
The editor(s) go(es) through the translation and assesses suitability for purpose. Between the European translator and the US editor, the text is mediated until consensus has been reached on the US text version. This can be done by email, telephone, fax, iChat, Skype, or whatever communication medium you may share between you. The first version of the editing	The translation is revised by the TL reviser.



assignment is produced.	
	The translator takes the revisions into account and prepares the text for reviewing
	The translation is reviewed by the TL reviewer
	Each writing team, as well as its usability testing partner(s), submits a usability test report for use in revising the text.
The final text is shared with translators.	The final text is shared with US writers.
Post-learning reports are written	Post-learning reports are written
Class debriefing	Class debriefing
Video-conference	Video-conference