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Enhancing students' skills in technical writing and LSP translation through tele-collaboration projects: Teaching students in seven nations to manage complexity in multilateral international collaboration

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**Enhancing students' skills in technical writing and LSP
translation through tele-collaboration projects:
Teaching students in seven nations to manage complexity in
multilateral international collaboration**

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Abstract. Partnerships involving language projects have been common, but most have paired just two nations at a time (Jarvenpaa & Leidner, 1999; Flammia, 2005, 2012; Herrington, 2005, 2008; Humbley et al., 2005; Stärke-Meyerring & Andrews, 2006; Moustén et al., 2010). That changed in 2010, when universities in five nations, long involved in the Trans-Atlantic Project (TAP) began a far more complex international learning-by-doing project (Maylath et al., 2013). By 2012, universities in two more nations were added. In forming their students into cross-cultural virtual teams (CCVTs), instructors asked, how can students best learn experientially to manage complex international/interlingual technical documentation projects? During multilateral collaborations, two projects took place simultaneously: a translation-editing project and a writing-usability testing- translation project. The undertakings' complexity was central in the students' learning, thereby preparing students for the international, multilingual, multicultural environments in which students can be expected to operate after they graduate. Further, the projects succeeded in increasing trans-cultural and language awareness among students with little in extra funding.

Keywords. Collaboration, international, localization, managing complexity, multilateral, multilingual, multicultural, technical writing, translation, usability testing.

1. Introduction

This paper describes the design of a multilateral international project (Thompson & Carter, 1973; Moreno-Lopez, 2004) in technical communication and translator training programs in Europe and the United States. The largest and most complex such international learning-by-doing collaboration to date, the Trans-Atlantic Project (TAP) involves students collaborating in cross-cultural teams, either translating and editing texts and/or writing, usability testing, and translating texts (Humbley et al., 2005; Maylath et al., 2008; Moustén et al., 2008; Moustén et al., 2010a; Moustén et al., 2010b; Moustén et al., 2012). As Spilka (2010) puts it, the work in technical communication “typically takes place in complex, multiple social environments” and “we now need to negotiate a complex, often global world of intersections and interrelationships, multiple goals and constraints, and new ways of creating, disseminating, storing, and retrieving information and of managing knowledge and content” (pp. 8–9). The TAP is an opportunity for learning LSP in a wider context. A description of the project with its types of projects follows, stressing various LSP features. But the TAP turned out to have added value: students learned about timing in LSP-professions, face and power issues in LSP settings, and the importance of knowledge in LSP activities.

2. Bilateral projects

The TAP typically involves a bilateral writing-translation project between just two classes in two countries. The first project started in January 2000 with a technical writing class at the University of Wisconsin-Stout, USA, and a translation class at what was then called the Mercator College in Ghent (now Ghent University), Belgium. The North American technical writing students wrote a procedural text and carried out a user test before they sent it to Europe. They then answered the European translator’s questions. For the European translation students, it meant that they received an American English source text that they needed to translate for a comparable audience in their own language area (official language being Dutch). It also meant that they were able to contact the source-text writer to ask any comprehension questions that they might have and that they could put their own texts to the test.

A second type of bilateral project, the translation-editing project, occurs less frequently. The direction of text travel is reversed. It begins with the translator, rather than the writer. The English-speakers become reviewers or editors of translations, rather than writers of the source text. The first translation-editing project took place in 2001 between a translation class at Aarhus School of Business in Denmark and the technical communication capstone seminar at the University of Wisconsin-Stout. The students in Denmark selected a journalistic type of published text, which they sent to their reviewers in Wisconsin, who edited the translation with an American English audience in mind. Both asked questions of the other.

3. Multilateral projects

3.1. Managing complexity

By 2010, awareness arose that the typical bilateral projects would not be sufficient to prepare technical writing students in a new International Technical Writing course, designed and taught by Maylath at North Dakota State University (NDSU), for the whirlwind of complex projects that they would have to handle simultaneously in the workplace. Discussions with practising technical writers confirmed that a course in international technical writing would need to make managing complexity a prominent feature. In business and industry, globalization has led to mounting concern about how to manage complexity (Lissack and Gunz, 1999; Marrewijk and

Hardjono, 2003; Gottfredson and Rigby, 2009; Helbing, 2010). Researchers in business schools have been paying close attention to what is involved in managing complexity. Maznevski, Steger, and Amann (2007) have, for instance, found that complexity is generated by four factors: diversity, interdependence, ambiguity, and flux. In this project, the mediation does not concern text alone but also activities. Writing activities are dispersed in space and time and performed by means of several mediating artefacts (e.g., Google Drive, social networks, e-mail) that carry traces of the values and ideologies that motivate their use.

In addition, Schwaniger (2000) has found that managers must create an “intelligent organization” adept at meeting three criteria: efficiency, effectiveness, and legitimacy. Legitimacy is a problematic concept. Many translators have had a hierarchical understanding of the translation process and felt as though the authors were the masters of the text, while the translators were the faithful and unquestioning servants. As Maylath pondered how best to help students learn to manage complexity, he thought about how he could simulate diversity, interdependence, ambiguity, and flux to achieve efficiency, effectiveness, and legitimacy, by drawing on the TAP network’s array of courses in international technical writing, usability testing, and translation. The solution was to multiply: multiply the number of projects, the number of partners, and the number of nations, cultures, and languages. Using Blommaert’s (2010) theoretical tools, we can see that student collaboration developed at several different scale-levels (scale = vertical, power-invested space), where different orders of indexicality (informed by a variety of semiotic systems) dominate, resulting in a polycentric context in which writing activities and communicative behaviours were pushed and pulled in various directions.

3.2. Co-authoring

In 2012, another complexity was introduced: international co-authoring between students in the U.S. and Spain. Cross-cultural virtual teams (CCVTs) of students in NDSU’s International Technical Writing course and engineering students from the Polytechnic University of Catalonia’s (UPC’s) Technical Writing course in English co-authored sets of instructions on technical topics. Adding international co-authoring between subject-matter experts and language specialists multiplied complexity much more than first anticipated. The project grew in complexity in relation to (i) language proficiency, (ii) self-perception of status and roles in the collaboration and negotiation involved in the co-authoring process, (iii) task management, and (iv) localization.

For students in Spain, the collaborative project provided their first contact with technical English, simultaneously introducing them to the basics of technical writing in the disciplines while also developing their proficiency in English. Mixed proficiency levels and lack of familiarity with technical writing practices posed several challenges to Spanish students and affected their self-perception of their status and role in the project. Despite their role as subject-matter experts (SMEs) and the fact that they had chosen the topics, the engineering students tended to relinquish control of the process, relying too much on the students in the U.S. for the latter’s (near-)native status. This perception was probably reinforced by certain views of the role of engineers in technical communication, leaving responsibility in the hands of language experts. Linguistic challenges also included the pragmatics of cross-cultural professional communication. Challenges related to task management included coping with differences in timing (e.g., different semester starts) and working across time zones, deciding on and using technology for the project, meeting the deadlines required by the translators, and responding to the demands from different partners (co-authors, usability testers, translators). Thus, the engineering students had to learn about basic concepts essential to technical writing (process, genre, audience) at the same time that they were asked to perform as if in a real-life professional situation, which requires the management of complexity and professional communication skills. Localization was also a key issue that arose as the engineers needed to take into account the global and local dimensions of the project, such as identifying and referring to the objects of the instructions (e.g., dealing with a specific machine in different countries and settings, addressing different types of audiences), as well

as dealing with the semiotics of international communication (e.g., what language, symbols, illustrations, are globally understandable?). As they faced these key questions during the project, students learned experientially.

The TAP provided students with invaluable experience and practice in key concepts in technical writing (audience, purpose, etc.), and because of the deadlines for project stages—for example, the project had to start very early in the term—students needed to learn concepts fast. As they did, the writing instructors learnt ways to help students cope with challenges, including introducing some intensive instruction or awareness-raising activities early in the term, sometimes complemented with self-study material or references. In subsequent co-authoring projects, the instructors now require students in Spain to do their own usability testing, with the aim of making the project more tangible, so that they can anticipate questions and issues that arise during the process. It is clear, however, that, with the project occupying a central space in the course, we need to align the technical writing course for engineers more closely with the project.

These reflections from the UPC instructors participating in the project are complemented by the useful insights provided by two graduate students from NDSU who participated in the project. Both are citizens of Europe studying in the U.S. To Massimo Verzella, one of the Ph.D. students in NDSU's International Technical Writing course, it seemed that the engineering students appeared to be a bit overwhelmed by the co-writing project. Because their competence in English was relatively low, they hesitated when writing the instructions. Many of them implicitly invited the NDSU students to take the lead and start writing so that they could then revise and elaborate on specific sections of the document.

Like Verzella, Tatjana Schell, another Ph.D. student in NDSU's International Technical Writing course, noticed the Spanish students letting the American collaborators take the lead. However, she does not think this was due to low English skills but rather an assumption that their American partners would have a better grip on best word choice because of their authority regarding proper vocabulary. However, because she saw this project as a collaboration with them, she often felt all by herself when it came to constructing the document. Only after the project wrapped up did she think that more face-to-face interaction through the means of Skype, or other media, would have been more beneficial and less time-consuming than emails for the sake of speedier problem solving, thus revealing the importance of negotiating the roles and tasks of each partner in such a project during its entire duration. For the future, we can see that it could be beneficial if students in the International Technical Writing course are asked to investigate topics chosen by the engineering students and to take the lead in writing the document so as to facilitate the task of non-native speakers and ease them into the collaborative process, which entails facilitating the conversion of expert jargon to Global English.

3.3. Usability testing

Usability testing is often conducted in bilateral writing-translation projects but was not done internationally until 2010, when multilateral projects were launched, when usability testing took place simultaneously with the English source texts in both the U.S. and Finland. In 2012, when engineering students chose the text topics, the students conducting usability tests in North Dakota and Vaasa discovered that their universities' engineering labs often lacked equipment, such as instruments for measuring the consistency of a metal, which the engineering students in Catalonia were accustomed to using. In the end, the students were able to test 11 out of 18 topics. Students in the U.S. and Finland had to familiarize themselves with usability of instructional documentation and usability testing methods. Interaction with users made writers also aware of what they did with language and other communicative codes. The students in all three countries also learned from each other by comparing their usability testing reports with somewhat differing results yielded from tests of the same sets of instructions.

Interaction with users made writers aware as well of what they did with language and other communicative codes. Having users test a set of instructions allows authors to achieve a

metacognitive awareness of how their writing process is shaped by their spatio-temporal situatedness, their use of specific mediating artefacts and by such factors as personal level of expertise, personal and cultural assumptions (which inform a local understanding of processes).

3.4. Translating

The TAP provides translation students grand opportunities to enhance their LSP competencies. Effective work planning and time management were a challenge because of universities' different semester schedules and proved to be a significant factor in how far-reaching and in-depth the collaboration could be. The class in the U.S. began in mid-August and the class in Spain in early September, while the classes in Belgium, Denmark, and France started in mid to late September. However, the classes in Finland and Italy did not begin until October. To overcome the problem of having less overlapping time available, the students in Padua worked in groups simulating professional teams. Each group had a project manager, a terminologist, a translator, and a reviser.

Scheduling has always been an issue in the translation process, in particular because translation is often the last phase of a documentation project. Translators can often be heard complaining that schedules are short because clients do not know that translation is not merely a process of pressing a button. Skilled translators have to go through a long list of procedures to complete their work, and they usually know how to manage the schedule. During the writing-testing-translation project, two weeks were devoted to translation, but sometimes, in particular when the co-authors spent too much time on the documentation phase, translators had to cope with tighter schedules. This was a good lesson for them since they would eventually have to learn that tight schedules often happen "out there in the real world." One way to deal with the issue is to be proactive in the planning phase, as some French students took the initiative to do: some of them asked partners in America for at least the topics of the documents or, better yet, for intermediate unfinished drafts. They wanted to anticipate the research phase of translation, by browsing the Internet and looking for books and documents on the topics to get ready for the translation phase. Translators are not SMEs, so they have to master a subject to understand the general meaning of a document and also specific terminology to be able to translate into their native language. Translators are SMEs regarding translation and know this research phase is of great importance. Even when the French students had limited opportunities to negotiate writing issues, they learnt that they had to prompt feedback from the co-authors by asking questions. Feedback is fundamental: the aim is to create interactions between actors. Interactions foster professional skills, confidence, and dynamism. They also boost productivity and quality in the final products—in this case, the technical document on the one side and the translation on the other. Feedback is also about engaging experts to improve quality.

The more limited the time, the more limited were the opportunities to negotiate writing issues. As the technical writers attempted to revise their texts and rush them to each set of translators for each of the three target languages, a key question arose: Are instructions globally translatable into a standard set of actions? In Paris, Minacori realized her students needed a clear list of procedures to translate the document. It was quite astonishing to find out that translating student-authored texts in the TAP seemed to the translation students to be very different from translating a text provided by an instructor. Some students' questions revealed that they seemed lost. Even when Minacori asked the students to get in contact as quickly as possible with their counterparts, very few students took the opportunity to do so. Most of the French students waited till the co-authors sent a completed text to them, rather than starting with intermediate drafts. At project's end, the French students realized that they could have done a better job if they had at least known the topic of the document that they would be translating well in advance. That way they could have done the ample and appropriate research that any translator has to do before getting started.

For their part, the co-authors expected the translators to ask more questions than they did; apparently, the translators felt as if their task was merely to translate what the authors wrote. This hierarchical understanding of the translating process (author as owner or master of the text,

translator as faithful servant) reminds us of Venuti's (1995) case for redressing the problem of the translator's invisibility. In their book *The Prosperous Translator*, Durban and Seidel (2010) argue against translators' isolation from authors and point out the improved quality of the text in the target language when translators ask questions of the source texts' authors. Asking questions creates feedback and always improves the quality of the translation.

In some cases, the French students proposed modifications to the technical document to improve readability. For example, one student decided to add a transition sentence between two different parts of a document: a first phase was about programming, and a second one, about simulation. To demarcate a clear division between the two parts, the French student decided to add the following sentence: "Once programming is over, you can go on with the simulation" (*Une fois la programmation terminée, vous pouvez commencer la simulation*). In this example, the translator behaved as an expert wanting to help a potential reader. In another example, a French student modified a sentence in the document to make it more readable. The original sentence in the source text was "This is a very simple application, but you can add a lot of things and make it a complex application." The French student thought the word "thing" was not precise enough and could also be misleading. Thus, he chose to adjust it by adding the concept of "option" for "thing." In the target language the sentence became "Cette application est très simple d'utilisation, mais vous pouvez y ajouter de nombreuses options selon votre convenance" (This application is very simple, but you can add as many options as you wish). In the same document, the French student read, "Click on Text and Text again." To avoid the repetition and be more concise, he modified the text to "Click on Text twice."

In addition to translation, localization needs to be understood broadly and be seen as not only the translator's problem. The writers too need to take into account the fact that the text will need to be localized in varied cultural locales. In particular, writers have to take into account whether a reference to something outside the text should be used globally—i.e., as a system-bound reference—or whether it may need to be replaced by a local item. When aware in this way, good authors provide guidelines for these points, so that the translators know what is preferred. Of course, the translators can provide guidelines as well, so that the text is localized appropriately and not only according to the authors' notions of what works globally or what works locally. An example of useful interactions and feedback in this regard came from one of the American co-authors who wished to anticipate some questions from the translation teams and give them a nice lesson about localization. The American wrote, "You said that you know little about what you should be doing. I think you should be 'localizing' the text which means translating it into French and thinking about what changes are necessary to make it more appropriate for hypothetical users in France. For instance, think about how you want to translate words like 'software' or 'keyboard' or 'key.' Are there any synonyms for those terms in French or do you tend to use the English words for them? 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 marks instead of outside of it as in British English, e.g. 'apply the "Radial Gradient," and then...' (American English) vs. '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.’”

3.5. Editing

The translation-editing project presented its own challenges to the students. When translating into their L2, translation students had problems with collocations and idiomatic English. They were free to choose the articles they wanted to translate. In most cases, these articles presented a local cultural perspective. For instance, when Italian was the source language, the translators needed to solve problems such as how to present Italian culture-bound concepts to American readers who might have partial or different knowledge of the topic. A prominent example is the different views of the mafia in America versus Italy.

Schell found the translation-editing project to be far more fun than the writing-testing-translating project. She reports that she had a far clearer sense of what was her share of work and what she had to do as an editor. As a co-author, she found herself significantly more challenged in juggling many more partners, cultural differences, strict deadlines, and, overall, understanding her role in the project.

As with the writing-testing-translation project, the time available to work on the three different translation-editing projects (from different source texts in Danish, Dutch, and Italian) was the most visible challenge. Close behind were the nature and quantity of suggestions that the U.S.-based editors could offer to the translators. To make the situation clear, Schell and her NDSU co-editor explicitly pointed out to the translators that their editing suggestions were indeed only suggestions and that the final decision lay with the translator. She reports that, for the translation-editing project, the email communication seemed far more effective than it did in the writing-testing-translating project. Also, in the translation-editing project the translators’ and editors’ discussions about the characteristics of a U.S. audience developed naturally and quickly. In contrast, such discussions in the writing-testing-translation project tended to be toned down, perhaps because of the wider array of target languages and cultures was not as well understood.

Schell notes that it was very interesting to discuss with her partners particular questions concerning the translation process, including about audience awareness and vocabulary used in the text. While her being a non-native English speaker did trigger some uncertainty in her problem solving with regard to the best word choices (she is a native speaker of both German and Russian), she very much enjoyed the collaborative and negotiating side of this project. Also, although she spent far less time with editing the text from her Danish collaborator than with her Belgian collaborators, her knowledge of German was of good help when working with the Flemish Belgians’ translations from Dutch to English. Her editing work for the Danish student concentrated largely on discussions of syntax, while the focus of her collaboration with her Belgian partners focused mainly on audience awareness and choosing the correct vocabulary for the intended readers. She concludes that the experience she gained during the project not only included an understanding of how such projects might work in professional settings but of what should be discussed about the translation process, and how, during an international documentation project.

Suggesting improvements for a text, as editors did for their translators, can produce a face-threatening situation in negotiation situations. Face in this context is defined as “the value a person places on his or her public image, reputation, and status vis-à-vis other people” (Thompson 2014: 90). In the field of intercultural communication, Ting-Toomey (1988) developed an explanatory framework for face concerns and conflict behaviour. Suggesting improvements for a text can

VI. LSP teaching and training

E. Arnó Macià et al.

produce a face-threatening situation that may in turn become a conflict and impede progress and collaboration.

In an example from the translation-editing project between Denmark and the US, a bilingual/bicultural student (culturally half-American, half-Danish) was paired with an editor who was herself bilingual/bicultural as a New American who had emigrated from Sudan eight years earlier. Though the Sudanese-American was comfortable with vernacular American English, learned at her high school in North Dakota, she sometimes still struggles to gain a full mastery of standard English. This was evident already in the introductory email exchanges, in which the Sudanese-American editor revealed that she lacked fully proficient knowledge of the English language and American culture. The American-Danish translator felt that her integrity was threatened or being undermined and was afraid that her work would be ruined. The Sudanese-American editor felt that the task was daunting and hesitated to revise anything. In consultation with each other, the instructors added a second American editor to this team. We can see that it is important for instructors to match personnel and subjects to obtain the right balance and add value to the text. Face can easily be lost on both ends, and conflicts may arise and grow if intervention does not take place. This episode is an example of when intervention was crucial. In retrospect, questions about power distribution between professions, persons, and languages emerge and lead to yet another question, which may become more relevant in future: how does one define a native speaker?

Respect was fundamental for joint problem-solving. A joint-solving strategy involves describing your interests, using open-ended questions, and listening actively (Lewicki et al., 2011:91). Showing respect and listening to reasons why aspects of a text are important are keys to finding correct and appropriate solutions regarding a text's topic, appropriateness, and usability. They need to be coupled with open dialogue and a willingness to follow the advice given.

Power issues were always lurking in the background. Power has four vantage points; potential power, perceived power, power tactics, and realized power (Kim et al. 2005:799-822). In our projects, we found that the best results came when teams shared an even distribution of power and knowledge. We saw that the potential power was hierarchical and followed the direction of text travel, so that the originators of a text (the co-authors in the writing-testing-translation project and the translators in the translation-editing project) seemed to have more power over the text than did subsequent receivers. However, we rarely saw power tactics being exercised overtly, perhaps because our participants were one-time participants. Longer-term relationships might reveal power tactics employed more overtly.

Of course, professional knowledge is an enormous and legitimate power and often the key to good results, as Lewicki et al. (2011:156) make clear, but sometimes it is not recognized as such. An episode from one of the translation-editing collaborations illustrates the importance of knowing the profession, the power that goes with it, but also the time it takes to have it recognized, and not without resistance: One of the Danish students was a trained physicist, in addition to being a translation student. She translated from Danish an article on how Newton's second law works in practice. In addition to improving the language, the U.S.-based editorial team moved an adverbial to a more grammatically appropriate place in the sentence and thereby accidentally changed the whole logic of the text. Many email exchanges followed, until the editors gave up on the translator, while the translator was frustrated that the editors never understood why it was important that the adverbial be linked to a word and not to the whole sentence. To echo what Jan Engberg pointed out on during his keynote address at the 2013 LSP symposium, knowledge exists within each of the participants, and the contribution of knowledge and insistence on knowledge may occur at all levels. The precondition for consensus is continued explanations, discussions and understanding from all parties involved in the project.

4. Conclusions

Our experience taught us several lessons. First, as the collaboration closely resembles the complexity of international documentation workplaces of language service providers, it provides invaluable learning-by-doing exposure to, and practice at, realistic language for specific purposes. In relation to preparing students for global careers, we found that this type of collaboration strongly underpins the value-added aspects of interpersonal relations and cooperation to achieve a high-quality result that caters to both senders' and receivers' goals and needs.

In spite of its complexity, students and lecturers are satisfied with the results of the project, which offers possible models to be applied in other interdisciplinary or cross-curricular courses. Students appreciate the opportunity to connect globally, which in their view contributed to preparing them for challenges related to today's global professional settings. This satisfactory experience is reflected in students' comments (see 5. Appendix).

5. Appendix

BSc student in Industrial Design, Polytechnic University of Catalonia, Spain: "This project gave us the possibility to connect globally and this is important for us, engineers, who need to work with partners worldwide."

MA student in technical translation, Aarhus University, Denmark: "I've learned to look at my own text from someone else's perspective and most often I can get why the person has made the suggestion that she has. If you get a comment on something in your text that you hadn't thought about from the other person's point of view, then it'll only make you cleverer."

BA student in English language and translation, University of Trieste, Italy: "A positive and useful experience [...] giving us the possibility to test our abilities in a different situation from the usual classroom environment and giving us a glimpse of what professional translation can be like."

Assorted students at Vaasa University, Finland: "[The project] helped us to see things from the writer's perspective." "This project improved my confidence in communicating using English." "It was interesting to compare the results of the user-testing conducted here [in Vaasa] and in the US."

Assorted students at University College Ghent/Ghent University, Belgium: "Most positive was seeing the differences between countries (attitude, language competence level, institutions)." "It is a good exercise to ask the writer of a source text the right and most important questions." "We saw what other aspects besides linguistic equivalence were important, e.g. usability testing." "I learned that technical writers look at a text from a different point of view."

Assorted students at University of Paris Diderot, France: Students got insights into the professional experience and gained knowledge in different subject matters. They experienced different aspects of collaborative work and participated in rich cultural exchanges. They said they would benefit from early contact with partners and following development of documents as they move down the line, through a collaborative platform.

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VI. LSP teaching and training

E. Arnó Macià et al.

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E. Arnó Macià et al.

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