

Pedagogical Translation and Mother Tongue in the Teaching and Learning of English for Science and Technology

Traducción pedagógica y lengua materna en la enseñanza y el aprendizaje del inglés para la ciencia y la tecnología

VIVINA ALMEIDA CARREIRA

Instituto Politécnico de Coimbra-Escola Superior Agrária, Bencanta, 3045-601 Coimbra, Portugal.

Dirección de correo electrónico: vivina@esac.pt

ORCID: <https://orcid.org/0000-0002-0890-0877>

Recibido: 14/9/2016. Aceptado: 25/5/2017.

Cómo citar: Carreira, Vivina, «Pedagogical Translation and Mother Tongue in the Teaching and Learning of English for Science and Technology», *Hermēneus. Revista de traducción e interpretación*, 20 (2018): 37-56.

DOI: <https://doi.org/10.24197/her.20.2018.37-56>

Abstract. This study addresses the use of translation as an auxiliary pedagogical method in the teaching and learning of Languages for Specific Purposes. This article will confirm that, provided certain teaching and learning conditions are met, translation might most profitably be employed in language teaching as one teaching tool among others. At the same time that pedagogical translation has come to regain respectability in the process of teaching and learning foreign languages, another issue is also coming to the fore: the repositioning of the mother tongue's role in the foreign languages teaching and learning process. These ideas have been advanced by several scholars, confirmed by the author's experience and are also corroborated by the survey conducted for the purposes of this study.

Keywords: English for specific purposes; language teaching; mother tongue; pedagogical translation; specialised languages.

Resumen. Este estudio aborda el uso de la traducción como un método pedagógico auxiliar en la enseñanza y el aprendizaje de las lenguas para fines específicos. Este artículo confirmará que, con la condición de que se cumplan ciertas condiciones de enseñanza y aprendizaje, la traducción podría ser empleada de manera más rentable en la enseñanza de idiomas como una herramienta de enseñanza, entre otras. Al mismo tiempo que la traducción pedagógica ha recobrado la respetabilidad en el proceso de enseñanza y aprendizaje de lenguas extranjeras, también se pone de relieve otra cuestión: el reposicionamiento del papel de la lengua materna en el proceso de enseñanza y aprendizaje de lenguas extranjeras. Estas ideas han sido desarrolladas por varios académicos, confirmadas por la experiencia de la autora y también corroboradas por la encuesta realizada a los fines de este estudio.

Palabras clave: inglés para fines específicos; enseñanza de idiomas; lengua materna; traducción pedagógica; idiomas especializados.

Summary: 1. Introduction and methodology; 2. Learners' profile and goals; 3. Academic and scientific discourse; 4. The importance of vocabulary and choice of materials in ESP; 5. "We only learn language once": the omnipresence of the mother tongue; 6. The use of translation in ESP teaching; 7. The survey, 7.1 Objectives, 7.2 The questionnaire, 7.2.1 Results analysis, 7.3. The interviews, 7.3.1 Results analysis; 8. Conclusion; Bibliographical references.

Sumario: 1. Introducción y metodología; 2. Perfil y objetivos de los estudiantes; 3. El discurso académico y científico. 4. La importancia del vocabulario y de la elección de los materiales en ESO; 5. "Solo aprendemos inglés una vez": la omnipresencia de la lengua materna; 6. El uso de la traducción en la enseñanza del ESP; 7. La encuesta, 7.1 Objetivos, 7.2 El cuestionario, 7.2.1 Resultados del análisis, 7.3. Las entrevistas, 7.3.1 Resultados del análisis; 8. Conclusión; Referencias bibliográficas.

1. INTRODUCTION AND METHODOLOGY

The contents of this article build up against the background of a teaching experience in a context of English for Science and Technology (EST), to students of several Engineering fields at a Polytechnic Institute. The teaching and learning of a language for specific purposes fosters some teaching and learning strategies particularly devised to meet the learners' immediate goals. After presenting the learners' main features and asserting their top priority in learning English, as well as the main characteristics of the linguistic subsystem which is dealt with here, and the set of competencies that are required from an EST teacher, attention will be focused on the use of pedagogical translation as a complementary strategy for learning English for Specific Purposes.

For the purposes of this study, a survey was conducted on 180 students from the first year of first-cycle engineering degrees on Food Science and Technology, Livestock and Plant Production, and Organic Farming. Two different methods were used, complementing each other. Firstly, a close-ended questionnaire was administered. It aimed at collecting information on the students' understanding of their needs as far as communication skills in English are concerned, as well as their perception of ESP/EST special features, ESP teachers competencies and ESP learning and teaching strategies. Secondly, a number of qualitative, semi-structured interviews were performed on twelve students in order to gather more information and better understand the learners' use of translation. As the English proficiency level might influence the use of

translation, four learners from each level – low intermediate, intermediate and advanced – were interviewed.

2. LEARNERS' PROFILE AND GOALS

The students are taking first-cycle Engineering courses and have Technical English for six months, a three-hour class once a week which adds to a total of 130 contact hours. It does not allow for a very ambitious syllabus but, as it is not an optional subject, attendance is rather constant.

The students' top priority in learning English is to attain academic and professional communication skills in order to be able to deal with authentic academic texts and professional situations. That is also the main goal of those of us who design the programme. There are, however, a few setbacks to overcome to attain success in this difficult task, which requires much to be learned in a rather short period of time.

They are science students and most of them are not very inclined to learning languages and, in fact, they lack much linguistic background knowledge and etymological information which could be very useful in better understanding the dynamics of the language. So, exercises such as morphological analysis of the structure of words or the processes of word formation will not serve these students. They also lack knowledge, both in the mother tongue and in English, of more complex syntactic structures such as conditionals and passives or embedding, which really are very common in the kind of texts they have to cope with. They do not engage in much extensive reading in English outside class, either because they lack the time to do it or out of a feeling of frustration as they do not grasp the meaning of what they are trying to read.

At the same time, there are also good reasons for them to successfully learn a technical or specialised language. Their learning of English is purposeful and the language is not dissociated from their real interests as they apply what they learn in English classes to their main field, which is highly motivating. Moreover, they are already familiar with a set of terminological units related to their field of study, sometimes in the mother tongue but easily recognizable (particularly, words of Latin and Greek origin). Being adults they are more likely to take advantage of previously acquired learning skills.

As teachers we must, then, take advantage of the students' characteristics which may favour their learning process and create

strategies to circumvent those that present themselves as serious obstacles to it. Given our shorter and shorter period of contact time with them, “shortcut” is certainly a keyword here.

3. ACADEMIC AND SCIENTIFIC DISCOURSE

The first shortcut consists of creating awareness of several issues in the students. The first one being awareness of what it is they are learning, a specialised language (a language for specific purposes), that is, a linguistic subsystem which is an extension of the general common language and which makes use of its grammatical code in a very simple and economical way with particular syntactic and rhetorical patterns.

According to Dudley-Evans *et al.* (1998: 4-5), ESP can be thought of as having absolute characteristics, which always apply, and variable characteristics which may depend on particular circumstances. The absolute characteristics are as follows: ESP is designed to meet specific needs of the learner; ESP makes use of the underlying methodology and activities of the disciplines it serves; ESP is centred on the language (grammar, lexis, register), skills, discourse and genres appropriate to these activities. This amounts to what Hutchinson says in other words: “ESP is an approach to language teaching in which all decisions as to content and method are based on the learner’s reason for learning” (Hutchinson *et al.*, 1987: 19).

That is the reason why it is so important that the students become aware from the very first class that they will be working in a linguistic meaningful context, that is, they will be dealing with materials similar to those they will be working with later in their professional lives. They must know that they will be learning strategies to overcome their lack of proficiency in such a way that that lack of proficiency will not totally impede access to the core meaning of the texts they have to deal with.

Then, the students should be made aware of the most common types of academic and scientific texts according to their production and dissemination circumstances. Therefore, the students should be able to distinguish a lab report from a chapter in a textbook, an article for a scientific journal from a paper or a poster to be presented at a conference.

Then, they should be made aware of the main function of those texts which is to communicate information on particular branches of knowledge and, finally, as they are expected to reproduce it, they have to be able to recognize basic characteristics of scientific and technical

discourse. By being familiar with these features, after the analysis of some texts, the learner understands the specialised language and is able to identify patterns of functioning of such texts, which is very effective as a preparatory procedure for the subsequent construction of the meanings of a particular text.

In short, it can be stated that these texts are concise, objective and impersonal, the emotive or expressive function (Jakobson, 1963) being neutralized and ambiguity reduced to the minimum. As said above, these texts maximize the communicative, informative and classifying uses of the language, displaying as such easily identifiable discourse features such as definitions, descriptions, classifications, ratings, comparisons, analogies, instructions, etc. They have a low syntactic density, where the declarative sentence predominates, often expressing cause-effect, purpose or result and sequence.

Therefore, after recalling general structure words such as modal verbs, pronouns, linking words, prepositions, and relatives, among others, it is important that students manage academic vocabulary which is used commonly in all the science fields such as causal, purpose and sequence connectives as well as words that are needed for classifying and defining operations. As said before, in ESP there is no need for much stress on grammar issues. Nevertheless, the very characteristics of academic and scientific discourse demand that certain grammar items be clearly focused upon. That is the case of certain syntactic constructions such as passive and embedding, as well as common ways of word formation such as derivation.

Then, they have to concentrate on the specific set of vocabulary units that are proper to the scientific field in question, bearing in mind that, unlike general language words, technical words tend to be mono-referential, which makes them easier to learn.

4. THE IMPORTANCE OF VOCABULARY AND CHOICE OF MATERIALS IN ESP

To learn a new word – and retain it – entails much cognitive effort on the part of the students. The effectiveness of the many different strategies and techniques we may use depends on many variables and one of the most important of them is the extent to which the students engage in active and independent study of the target vocabulary. As it is, from the very first lesson, students' attention should be drawn to the

continuous nature of vocabulary acquisition and learning and therefore to the important role of memory and systematic practice.

And so, another important shortcut is to call the students' attention to the importance of vocabulary learning in a context of English for Specific Purposes, particularly in the context of English for Science and Technology, which are good instances of the use of English as a *lingua franca* for communication in the globalized world – “globalish” to use Gibson Ferguson's word (Ferguson, 2007).

Students should be made aware that there are differences between Standard English and the various “Englishes” they will encounter both in written materials and in spoken communication in which non-native speakers interact in international contexts. In teaching ESP we should, then, according to the same author, somehow try to achieve greater pragmatism and flexibility regarding norms and models and seek to change emphasis from correctness to intelligibility (Ferguson, 2007).

This no man's-land language receives interference from phonological, morphological, lexical, syntactical, semantic and discourse features of all the languages that are mother tongues of the speakers who use it. Kachru (1992) calls this process “nativization”. “When English – or any language for that matter – is transplanted to a new sociolinguistic and sociocultural environment, it goes through a process of *nativization* – adaptations and changes that allow the language to be more appropriate in the new context” (*Apud* Matsuda, 2012: 3).

The development of multiple varieties of English, which is a result of the global spread of English, means that in the context of international communication any of these varieties can be used. This poses interesting questions related to the concept of communication competence being something more than just linguistic knowledge, involving also socio-political awareness of the language (Matsuda, 2012: 7). At the same time, the pedagogical stance on the part of English teachers, particularly ESP teachers, should also incorporate those issues.

In the globalized world, the ESP branch of English for Science and Technology (EST) has gained more attention as students of Science, Engineering and Technology, who will seek employment all over the world in multinational industrial companies, need to develop English and international communication competencies to be able to succeed in their education and future professional careers.

This leaves EST teachers with additional responsibilities compared to the functions of teachers of English as General Language. First of all,

the EST teacher must be able to identify the linguistic needs of a particular group of students, that is to say, s/he must be able to carry out needs analysis so as to, accordingly, design an appropriate syllabus. Then, the EST teacher must be able to carefully choose or produce materials for language teaching from science and engineering origin.

When in the actual teaching process, the EST teacher must draw the students' attention to the different rhetorical and syntactic features of scientific and academic discourse, the different types of texts they are bound to encounter, the characteristics of English as an international *lingua franca* which can be performed in several varieties, the correct use of linguistic and grammatical features as well as general, academic, semi-technical, scientific and technical vocabulary.

5. "WE ONLY LEARN LANGUAGE ONCE": THE OMNIPRESENCE OF THE MOTHER TONGUE

Not long ago, translation was still banned from the classroom and with that the mother tongue was thought to have disappeared from the process of learning a foreign language. But that is not really possible. The mother tongue pervades all our cognitive acts; it is always present, even if it is a silent presence. As Hurtado Albir says:

[...] la lengua materna está presente porque es el punto de referencia del alumno con el mundo del lenguaje; por esto, sobre todo al principio del aprendizaje, descubre y construye la lengua extranjera a partir de la experiencia de su lengua materna, aplicando un mecanismo que podríamos calificar de 'traducción interiorizada' (Hurtado Albir, 1988: 42).

In learning a foreign language, comparing with the mother tongue is unavoidable. And that is not necessarily bad.

We all have a mother tongue, or first language. This shapes our way of thinking, and to some extent our use of the foreign language (pronunciation, choice of words, tone, word order, etc.). Translation helps us to understand better the influence of the one language on the other, and to correct errors of habit that creep in unnoticed (such as the misuse of particular words or structures). And, because translation involves contrast it enables us to explore the potential of both languages – their strengths and weaknesses (Duff, 1989: 6).

Our first language plays a role so important that it determines the way we learn other languages, as it builds the first base for reference. As Butzkamm (2003) puts it, “we only learn language once” and he presents his theory:

Using the mother tongue we have (1) learnt to think, (2) learnt to communicate and (3) acquired an intuitive understanding of grammar. The mother tongue opens the door, not only to its own grammar but to all grammars inasmuch as it awakens the potential for universal grammar that lies within all of us. This foreknowledge is the result of interactions between a first language and our fundamental linguistic endowment and is the foundation on which we build our Selves. It is the greatest asset people bring to the task of foreign language learning. For this reason, the mother tongue is the master key to foreign languages, the tool which gives us the fastest, surest, most precise, and most complete means of accessing a foreign language (Butzkamm, 2003: 1-2).

Some of the authors that are making a case for the return of the mother tongue to the classroom in teaching and learning a foreign language defend that it is particularly useful in an early age and at the beginning of the learning process (Green, 1970; Atkinson, 1987).

I have shown elsewhere (Figueiredo, 2005, 2007) that translation is an efficient pedagogical tool particularly in the learning of a specialised language, and most useful at intermediate levels and in an adult stage, as students may take advantage of their cognitive abilities which they already use in their native language learning.

6. THE USE OF TRANSLATION IN ESP TEACHING

The debate over the controversial theme of using translation in language teaching has been widely presented and summarized by several scholars, *inter alia* Richards *et al.*, 1986, Stern *et al.*, 1992, Malmkjaer, 1998, Cook, 1998, 2010, Mahmoud, 2006, Butzkamm & Caldwell, 2009 and Hall *et al.*, 2012, 2013.

Most criticisms to the use of translation in language teaching apply to (1) the limited grammar-translation method, (2) the absolute defence of the direct-method and (3) the questionable theories that defend that

second language acquisition (SLA) follows the same patterns of first language acquisition (FLA), in which translation has no place.

However, these opposing stances toward translation overlook the fact that grammar-translation does not cover the whole range of activities that can be carried out using translation. They overlook the political and demographic reasons that underlie the arguments for the using of the direct-method and the concomitant idea that the best English teacher is the native English speaking teacher who, most of the time, does not have any command of the students' first language. The third line of arguments also disregards the fact that adults SLA cannot repeat the patterns and stages of children FLA, because their acquired knowledge of a mother tongue cannot be denied as it determines and benefits their learning of a second language by the possibility of activating cognitive skills already apprehended.

Mahmoud (2006: 30) argues that translation can be used as a productive means to learn new vocabulary in a second language and he advances a number of principles which support the use of translation in second language acquisition, namely, that translation uses authentic materials, is interactive, learner-centred and promotes learner autonomy.

Translation can work as an effective tool in creating a friendly environment, when it is used to explain tasks or the class process or to explain language structures and grammar, enhancing spontaneous personal involvement and avoiding frustration.

Translation can work as an alerting tool by way of showing similarities or difference and contrast, as in the case of collocations and false friends. As such it draws students' attention to the fact that there are no one-to-one correspondents for every word or structure in English and the mother tongue. Atkinson (1993: 53) claims that translation use draws the students' attention to the nonparallel nature of languages and enriches the learning process as using translation is also "real life activity".

But most importantly, translation can work as a conscious learning tool. In the teaching of ESP, translation cannot be used randomly or as an end in itself but as an educational resource that can be very useful and helpful in both its pedagogical and interpretative dimensions.

Pedagogical translation means the translation of texts used in language teaching and its main objectives are: 1) learn to avoid interference by providing confrontation between the two languages which allows us to recognize and identify similarities and differences between the two linguistic systems; 2) achieve language improvement

through the use of cognitive and communicative strategies already developed in the mother tongue; and 3) understand historical and socio-cultural differences.

Explanatory or interpretative translation – the one that best serves the teaching of a specialised foreign language – is the deliberate and conscious use of translation as a mechanism or shortcut to access the meaning of an unknown word, sentence or text allowing for the immediate construction of meaning.

We believe in using translation as a complementary tool in approaching a technical or scientific text after a first moment of textual analysis in which conceptual paragraphs or text blocks, that is, those which present the main ideas, are identified. Translating those paragraphs leads inevitably to the establishment of relations of similarity and contrast between the mechanisms involved in the functioning of the text in both languages. All new vocabulary items are also translated and bilingual glossaries can be built. A debate can also be initiated among students in their mother tongue, over the various meanings attributed to the text.

Translation can be used as another “shortcut” to get quickly to the meaning of an unknown word or sentence or, as it so happens many times, to confirm the already grasped meanings of core statements in specialised texts. The first and most obvious advantage of using translation is to save time. Translation serves to clarify concepts, ideas, terminology, and to confirm the meanings of the text that were built during the first phase of textual analysis activities, particularly meaning inference from context, while serving to evaluate the relevance and success of those activities.

As follow-up tasks, students usually annotate the translations on the margins of texts or build bilingual glossaries or personalised dictionaries, as associations between target vocabulary and the equivalent mother tongue words will help them to remember.

Sometimes they can translate one or several paragraphs from English to their mother tongue which is always a welcome exercise as it gives them the opportunity to show native linguistic proficiency and extra-linguistic competence and that may help to build self-confidence.

Moreover, these activities can be reproduced by the students afterwards with other texts, so we are equipping learners with strategies to expand their vocabulary knowledge on their own, which is part of our emphasis on working for autonomy.

[...] autonomy has been defined as the capacity to control one's own learning. At the most basic level, fostering this capacity in the classroom begins with the teacher's own decision to become more actively involved in the students' learning in order that the students may also become more actively involved in making choices and decisions (Benson, 2003: 305).

Students must take responsibility for their own learning and be able to evaluate performance and progress. That requires, first of all, that they develop a strong awareness of what they have to learn and the best ways to achieve their goals. Translation can work as a reading comprehension assessment technique when combined with others such as multiple choice, short answer questions, true/false statements, etc.

As teachers we should not discard our function in evaluating the students, because they rely on us to help them to identify their biggest difficulties and show possible solutions but also to give them information on how they are or are not making progress. We must not forget that, after they finish the English course, they must be equipped with the tools that will help them to continue to work on their own as autonomous learners.

7. THE SURVEY

7.1. Objectives

Almost all the ideas advanced so far have already been to some extent referred to and defended by expert scholars working or researching in the field. These ideas have also been confirmed by my own long experience in teaching ESP. Nevertheless, there is not much research work or data to confirm them, and for my part I had never conducted formal research on this subject. That is why, for the purposes of this article, a survey was conducted on 180 students from the first year of first-cycle engineering degrees on Food Science and Technology, Livestock and Plant Production and Organic Farming. Two different methods were used, complementing each other. Firstly, a close-ended questionnaire was administered. It aimed at gaining information on the students' understanding of their needs as far as communication skills in English are concerned, as well as their awareness of ESP/EST special

features, ESP teachers' competencies, and mother tongue and translation use in ESP teaching/learning activities. On a second stage, a number of qualitative, semi-structured interviews were conducted on twelve students in order to better understand the learners' strategic use of translation. As the English proficiency level might influence the use of translation, four students of each level – pre-intermediate, intermediate and advanced – were interviewed.

7.2. The questionnaire

The questionnaire was designed in order to collect information from students on a set of key questions, aiming at validating or invalidating the premises this study stemmed from, which are considered to be determinant of a successful teaching and learning process. Those premises include the students' awareness of their needs for EST, their awareness of certain features characterizing EST texts and discourse, their awareness of a set of specific competencies that EST teachers should display and the importance of some particular teaching and learning strategies.

Questionnaire:

1) Why do you need EST for? Rank the following in order of importance, from 1 to 5, where 1 is the most important and 5 is the less important.

- A. To be able to communicate internationally within the scope of Science and Technology;
- B. To understand written technical and scientific texts;
- C. To understand technical/scientific texts delivered orally;
- D. To be able to write academic/professional texts (reports, papers, projects, proposals, job applications, curricula vitae, etc.);
- E. To be able to carry out academic/professional activities (oral presentations, debates, job interviews, defining and describing objects and operations, etc.)

2) Are you aware that EST texts and discourse have particular features?

- A. No, I have no idea;
- B. Yes, I am.

3) Should the ESP teacher have specific competencies, compared to general English teachers?

- A. No.
- B. Yes.

3.1 In case you answered “yes”, rate the following in order of importance:

- A. Is able to perceive learners’ needs and design a concordant syllabus;
- B. Makes the learners aware of the various ESP text typologies;
- C. Makes the learners aware of the various functions and features of ESP discourse;
- D. Gives priority to the teaching of semi-technical and technical vocabulary;
- E. Teaches how to design and conduct oral presentations.

4) Rank the following teaching and learning techniques in order of importance, where 1 is the most important and 10 is the least important:

- A. Pedagogical translation
- B. Short answer questions
- C. True/false statements
- D. Multiple choice questions
- E. Cloze exercises
- F. Skimming
- G. Scanning
- H. Summary writing
- I. Oral presentations
- J. Role playing

5) In teaching activities should teachers of EST

- resort to mother tongue and (explanatory) translation?
- use only English?

7.2.1. Results analysis

As far as question 1 is concerned, students said that it was hard for them to rank their needs of ESP as they would consider all the options

very important. Nevertheless, in the end, option B was ranked the highest by the majority of respondents, followed by options C, D, A and E. We must not forget that these are first year students and are certainly more concerned with their immediate needs: understanding texts to be able to read English written bibliography indicated by teachers and to be able to produce academic texts. This probably explains why options A and E were ranked the lowest, as their professional lives are still a little far away as is finding themselves in an international job situation.

To the question on awareness of EST texts and discourse having particular features, 89% of students responded having no idea compared to 11% declaring otherwise. This came up as a surprise, but when we think that these are science and engineering students, it is understandable that they are not very attuned to aspects of text structure or rhetorical issues. This highlights the importance of not overlooking this issue in the first lessons.

The great majority of respondents (82%) think that the ESP teacher should have specific competencies, compared to general English teachers. Furthermore, they rate option A – the ability to perceive learners’ needs and design a concordant programme – as the most important function of an ESP teacher, followed by D – teaching semi-technical and technical vocabulary and E – design and conduct oral presentations. Once again the alternatives related to ESP text typologies and discourse features were ranked the lowest.

We know that there are popular teaching and learning techniques that the majority of students always prefer and that was confirmed by the answers given to question 4 where respondents clearly showed their preferences for multiple-choice questions, true/false statements, cloze exercises, skimming and scanning. These kinds of exercises are more interesting for most students because they require little output on their part and are like a game they play. On the other hand, techniques that require written or oral activities such as all the others listed – pedagogical translation, short answer questions, summary writing, oral presentations and role playing – received a lower preference rate. Nevertheless, of all these more demanding activities pedagogical translation gained the 6th position for 130 students which represents 70%.

As to the last question – should the EST teacher resort to mother tongue and explanatory translation or use only English – only 9 out of 180 students responded “use only English” which amounts to merely 5%.

7.3. The interviews

The above results widely confirm that students do resort to their mother tongue in the process of learning a language for specific purposes. A few interviews were then conducted on a group of twelve students (four learners from each level: low intermediate, intermediate and advanced) to further investigate to what extent they use mother tongue, and the advantages, as felt by the students, of the use of teaching and learning strategies involving translation.

The semi-structured interviews evolved from four main questions, but students were encouraged to state all their ideas and opinions about translation use in the English classroom. The basic questions were the following:

- 1) How do you feel about the ESP teacher and the students using their mother tongue and/or translation as a teaching/learning strategy?
- 2) In your opinion, which language skills can best be enhanced by that strategy?
- 3) In your opinion, what are the main advantages of using the mother tongue and/or translation as part of a teaching/learning method?
- 4) Can you think of any disadvantage of using the mother tongue and/or translation as a teaching/learning technique?

7.3.1. Results analysis

The interviews were conducted individually, in a relaxed manner, over more than half an hour with each interviewee and both the interviewer and the students used their mother tongue whenever it was felt necessary to guarantee that the right message was conveyed.

After going through all the answers, direct and indirect, an effort was made to categorize the huge amount of information collected and the roles that were ascribed to the use of mother tongue and translation in the teaching and learning of English for Science and Technology are thus classified in the following manner.

Translation can play an **instrumental role**, like when it is needed to understand task instructions or the purpose of a class activity. More than one student referred to this advantage of using their mother tongue:

Even at an intermediate level, if the teacher asks the class a particular or unusual task speaking only in English it can well happen that he/she is partially or fully misunderstood and this can jeopardize the entire objective that he/she had in mind. In such cases, the use of the students' mother tongue is a simple way to safeguard the success of an activity.

The idea that translation can play an **alerting role** was also mentioned during the interviews by at least two students, who believe that it is almost indispensable in the case of false friends and collocations:

In the case of false friends, in most cases, the words are so similar that it doesn't even occur to me that the meaning might be different. The translation helps to realize that sometimes the meaning is exactly the opposite.

All the interviewed students stressed the fact that learning through translation requires a cognitive effort which amounts to a **conscious learning role** that translation can represent, particularly in what concerns the definition of new vocabulary items or difficult, abstract terms, idioms or sentences, in confirming (or invalidating inferred or guessed meanings) or in resolving ambiguity:

The translation of a simple word or a short sentence is fast and can represent an enormous saving of time during a lesson. In the case of abstract or very technical terms a monolingual explanation is usually even more confusing.

Translation activities can also play a **consolidation role**, as attested by all the interviewed students:

Activities such as the building of bilingual vocabulary lists help to memorize new words, because the exercise of reading and rereading this list requires a cognitive effort, but also functions as an activator of memory.

Translation used as an **explanatory tool** is also very productive in approaching grammar issues.

Some linguistic structures of English are so different from those of Portuguese that it is essential that teachers use the mother tongue to explain

them and use contrastive examples too. The perception of both similarities and dissimilarities between linguistic systems helps in understanding how they work and facilitates assimilation.

A final and most important quality that students ascribed to translation is the **affective and socialising role** that it can represent:

In the activity of translating one or two paragraphs into our native language, which can be done in pairs or larger groups, the exercise itself provides an opportunity for interactive work and for establishing a connection among classmates which reduces anxiety that we sometimes feel and also gives us the opportunity to show some knowledge (content knowledge, which we are not always able to convey in English), which increases self-esteem. At the same time, it may increase motivation.

None of the interviewed learners found any disadvantage in using translation as a complementary strategy in the process of teaching/learning English for Specific Purposes.

Moreover, within the context of EST, in a syllabus that allows very few contact hours in class, as it is a time-saving device, its use was defended by all students regardless of their English proficiency level.

8. CONCLUSION

The results of the survey, either those revealed by the answers to the questionnaire or the information collected through the semi-structured interviews, both results confirm something that has been intuitively perceived through practical experience over the years. Moreover, the results of this survey allow for a rethinking of ESP pedagogy in the sense that teaching and learning methodology ought to intentionally include the use of translation, either pedagogical or explanatory.

What has been said applies to the teaching and learning of a second language, but it does more so to the teaching and learning of ESP/EST in the learning situation described above, wherein the students are adults, know what they need and have much to learn in a very short time. These students use their knowledge of the world and, in particular, their knowledge of the scientific area they are in, through resorting to their mother tongue, including for the learning of English for Specific Purposes.

BIBLIOGRAPHICAL REFERENCES

- Atkinson, D. (1987), "The mother tongue in the classroom: a neglected resource?" *ELT Journal*, 41 (4), pp. 241-247.
- Atkinson, D. (1993), *Teaching monolingual classes*, London, Longman.
- Benson, P. (2003), "Learner autonomy in the classroom" en David Nunan (ed.), *Practical English Language Teaching*, New York, McGraw-Hill, pp. 289-308.
- Butzkamm, W. (2003), "We only learn language once. The role of the mother tongue in FL classrooms: death of a dogma", *Language Learning Journal*, nº 28, pp. 29-39.
- Butzkamm, W. y Caldwell, J. (2009), *The Bilingual Reform. A Paradigm Shift in Foreign Language Teaching*, Tübingen, Gunter Narr Verlag.
- Cook, G. (1998), "Use of Translation in Language Teaching", en Mona Baker (ed.), *Routledge Encyclopaedia of Translation Studies*, London, Routledge, pp. 117-120.
- Cook, G. (2010), *Translation in Language Teaching*, Oxford, Oxford University Press.
- Dudley-Evans, T. y M. St John (1998), *Developments in English for Specific Purposes: A Multi-disciplinary Approach*, Cambridge, Cambridge University Press.
- Duff, A. (1989), *Translation*. Oxford, Oxford University Press.
- Ferguson, G. (2007), "ESP and English as a European Lingua Franca (EELF): the prospects and problems of a complex relationship", paper delivered at AELFE Conference, Lisbon.

- Figueiredo, V. (2005), “A tradução como recurso no ensino do Inglês técnico-científico”, *Specific. Revista de Inglês para Fins Específicos*, 2, pp. 93-100.
- Figueiredo, V. (2007), “A dimensão pragmática da tradução no ensino-aprendizagem da língua estrangeira especializada”, *Tradução e Comunicação. Revista Brasileira de Tradutores*, 16, p. 101-107.
- Green, J. (1970), “The use of the mother tongue and the teaching of translation”, *ELT Journal*, 24, pp. 217-223.
- Hall, G. and G. Cook (2012), “Own language in Language Teaching and Learning: State of the Art”, *Language Teaching*, 45/3, pp. 271-308.
- Hall, G. and G. Cook (2013), *Own language in ELT: Exploring Global Practices and Attitudes*, London, British Council.
- Hurtado Albir, A. (1988), “La traducción en la enseñanza comunicativa”, *Cable*, 1, pp. 42-45.
- Hutchinson, T. y Waters, A. (1987), *English for Specific Purposes: A Learner-centred Approach*, Cambridge, Cambridge University Press.
- Jakobson, R. (1963), *Essais de linguistique générale: Les fondations du langage*, Paris, Les Editions de Minuit.
- Kachru, B. (1992), “Models for non-native Englishes”, en B. Kachru (ed.), *The Other Tongue: English across Cultures* (2nd ed.), Urbana, University of Illinois Press, pp. 48-74.
- Mahmoud, A. (2006), “Translation and Foreign Language Reading Comprehension: A Neglected Didactic Procedure”, *English Teaching Forum*, n° 4, pp. 28-34.
- Malmkjaer, K. (Ed.) (1998), *Translation and Language Teaching. Language Teaching and translation*, Manchester, St. Jerome Publishing.

Matsuda, A. (2012), “Teaching English as an International Language” en A. Matsuda (ed), *Principles and Practices of Teaching English as an International Language*, Bristol, Multilingual Matters, pp.1-14.

Richards, J. y Rodgers, T. (1986), *Approaches and Methods in Language Teaching*, Cambridge, Cambridge University Press.

Stern, H.; Allen, P. y Harley, B. (1992), *Issues and Options in Language Teaching*, Oxford, Oxford University Press.