ESP Teaching Practice at Technical Faculties

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Abstract

The paper offers an insight into the highlights of the ESP teaching practice at the University of Zenica, the university with the longest ESP tradition in the country. This type of language instruction started as part of an optional course at the Faculty of Metallurgy in 1970s. During the following decades – especially in recent times – the teaching has been developed and organized into several obligatory ESP courses that are taught during the final four semesters of undergraduate studies at technical faculties. The training finishes with so called Public Lecture – a series of presentations delivered by the students themselves. The main characteristics of ESP instruction at these faculties are total flexibility and adaptability. This means the ESP teacher not only tends to follow the most recent findings in the realm of the ELT, but also observes the specific educational and social circumstances within which the learning/teaching process takes place. In a country such as Bosnia and Herzegovina, where the legacy of war includes a brain drain and a complex situation at all three educational levels, it is important to design innovative practices that can compensate for the aforementioned deficiencies. By being responsive to students' needs, we try to bridge and/or fill in the gaps in their knowledge. In the course of our ESP instruction the students are equipped with the most appropriate and practical tools they can use when they encounter the problem of translating a technical text – a simplified 'translation technology'. Thus, they are encouraged to enter the language arena. Without such a scaffold, they would most probably remain only spectators.

Key words: ESP, translation technology, vocabulary, syntax, morphology

Introduction

We are all aware of a growing tendency for universities to provide courses in English. In his book, *The Future of English*, a British linguist David Graddol describes this trend and its consequences in the following words:

> *'One of the most significant educational trends world-wide is the teaching of a growing number of courses in universities through the medium of English. The need to teach some subjects in English, rather than the national language, is well understood: in the sciences, for example, up-to-date text books and research articles are obtainable much more easily in one of the world languages and most readily of all in English ... English-medium higher education is thus one of the drivers of language shift, from L2 to L1 English-speaking status' (Graddol 1997: 45)*

Indeed, such education presents an invaluable advantage for those who can afford it. But the question remains: Is such education possible in most countries? If not - What should be done? How can the grounds for such education be set or how can we speed up its implementation?

Having been a language teacher at different technical faculties for fifteen years now, I have become quite familiar with the situation in B&H education. The University of Zenica provides more English teaching at its technical faculties than any other university in Bosnia and Herzegovina. It was the management of the Faculty of Mechanical Engineering that first recognized the importance of the English language for their students and their professional development. They introduced English as a subject during each year of studies. Soon afterwards, the other faculties, i.e. the Faculty of Metallurgy and Materials and The Faculty of Polytechnics, followed suit. Due to these actions, conditions were met for an adequate instruction in *English for Specific Purposes* (hereinafter: ESP). The results of such a praxis proved to be so good that the University opened its 'doors' to quite modern approaches in foreign language teaching such as *Content and Language Integrated Learning* (CLIL). During the academic year 2012/2013, CLIL was tested at technical faculties and the outcome was exceptionally good. However, CLIL is not the topic of this paper. I mention it only because one of the researchers' conclusions was that CLIL would not have produced such good results at our faculties had it not been supported by the ESP teaching in the first place.[1] In other words, the time is not ripe for modern approaches such as CLIL at the majority of our universities. This is because students who enrol in the faculties generally arrive with poor English proficiency. This situation is mainly the legacy of war. Over the last 10 years, some of the deficiencies in English teaching have been overcome, but many of them remain, particularly those related to vocational or technical schools. The majority of students recruited by technical faculties have graduated from schools where English doesn't have the status it deserves.

[1] This paper's discussion of ESP instruction focuses exclusively on the kind that is currently practiced at our technical faculties.

Therefore, we wish to share our experience, particularly in terms of *ESP*, in order to help others find their way to contemporary types of English language teaching.

Is a Different Approach to ESP Teaching Needed at Technical Faculties?

There is nothing new about the idea that ESP is reserved for professional discourse and university-level education. Although ESP instruction is also offered in certain secondary schools and in companies that prepare professionals for tasks that require proficiency in English, universities pose a special challenge for ESP.
There are few reasons for this. It is expected that students' proficiency at this level of education is high – *intermediate* at the very least. Also, students are expected to demonstrate a significant level of enthusiasm for studying English, because it is the language that will help them understand the content of the books and texts from their reading lists in the course of their studies as well as in their further specialization through *Life Long Learning* (*LLL*).

However, the situation in B&H falls far short of these expectations. When referring to foreign language knowledge, we must appreciate that students studying at these faculties typically come from rural areas where, up until recently, foreign languages at primary school level were taught by unqualified staff. The same goes for teaching the mother tongue.

A similar situation prevails in secondary technical schools, which supply the most students to the technical faculties.[2] The language instruction has been deficient, substandard and irregular, which has generated resistance amongst students towards learning foreign languages in particular. Turnover among teachers is often high, which adds to the students' uneasiness about dealing with foreign language texts.

However, aware of the importance of the English language, these students are keen to fill in the gaps in their knowledge. Given a low number of hours allocated to teaching foreign languages (2 hours per week) and a high number of students, it was not possible to apply the usual foreign language teaching methods and expect high achievement rates across the student population. Therefore, we decided to:

a) introduce the *General English* classes in the first two years of studies,
b) start with the ESP in the third year (when there are fewer students compared to Years 1 and 2) and to
c) offer 'a new beginning' to students by adopting an approach that is designed to give them a badly needed boost.

[2] The number of students coming from gymnasiums (general secondary schools) is negligible.

In other words, we knew that students needed a different, or *enstranged*[3] approach to reading technical texts. More precisely - they required a different 'language narrative'.

Bearing all this in mind, we designed the ESP, which includes, amongst other things, an analysis of a limited range of simple sentence structures, as well as some phrasal forms, which is necessary for basic understanding of a technical text. Particular focus is given to simple sentence forms, such as SV, SVO, SVA and SVSC, and to simple and easily recognisable phrasal forms, such as NP, PP, and VP. This seemed to be the only way to give students a sense of a new beginning and motivation to start learning and using English in a practical manner. Our current experience of teaching ESP suggests that students with basic foreign language knowledge find this aspect of ESP most helpful in gaining confidence when translating an English technical text.

A Short Overview of ESP Activities at the University of Zenica

At the time the ESP starts, students are supposed to have already passed their exams in General English (1, 2, 3 and 4). The General English courses take place during the first four semesters and are designed to provide an elementary basis for students' further development in the field of *Technical English* (ESP).

In the fifth semester, students are instructed to use the basic vocabulary and syntax related to technical English, both orally and in writing. In this semester, they translate simple technical texts while using bilingual dictionaries.

In the sixth semester, the texts to be translated are more complex, both in terms of vocabulary and in their morphological and syntactic structures.

In the seventh semester students are developing their oral skills by means of repetition, reformulation, substitution of certain elements in given constructions etc. Writing skills are developed mainly through translating longer texts from English into *BHS*[4] and vice versa. Students are expected to master vocabulary and grammar typical of technical-register sentence constructions. Special attention is paid to writing summaries of different technical texts.

[3] This term, quite appropriate for the purpose, was coined by a literary critic and theorist V. Shklovsky. The term is found in *Russian Formalist*s who posited that something attracts attention only if it is *'enstranged' or unusual*. (see: Petković, N. 1988: 71-111).

[4] BHS stands for Bosnian-Croatian-Serbian. It is the mutual language of the people of Bosnia and Herzegovina.

The eighth semester is reserved for assignments that lead to *Public Lecture* - the final activity where students deliver their own lectures in English on different technical topics.

The Technology of Translation

From the overview, it is evident that translating technical texts from English into *BHS* and other way round is one of the priorities for ESP teaching at the technical faculties in Zenica.[5] In an attempt to bring the process of translating closer to the students' experience, we sometimes call it 'Technology of Translating a Technical Text'. Namely, the use of this technical term (*technology*) has a significant positive effect on removing the barriers that the students have towards language teaching and on raising their motivation levels, which very often result in high achievement.

In the following paragraphs we will explain how using the ESP methodology can help students overcome problems they encounter when translating technical texts. In this process, the grammatical explanations are adapted to technical discourse that these students are familiar with, and the use of technical vocabulary and descriptions resonate with the familiar content of technical subjects that they have learnt in their mother tongue.

As typical for any technology, the starting point is basic materials. In our case, basic materials are *word classes* (*parts of speech*). This is one of the most difficult problems our students must overcome, as they are not sufficiently familiar with the word classes and their functions. Therefore, at the very beginning of the course we introduce word classes and provide basic information about them. During this process we try to avoid overburdening the students with unfamiliar linguistic jargon or excessive information. Our aim is to achieve maximum results with minimum means. We therefore carefully assess the quantity of information, or technically speaking 'the volume of information input', in order to avoid excess information that may discourage students from continuing, or even cause them to drop out.[6]

In the next phase we try to address the structure of sentences. Our starting point is the foundation, i.e. basic 'materials', which are then combined into more complex 'structures'. In order to bring these language phenomena to life, we often use graphic representations, such as diagrams, graphs, tables, technical drawings, photographs, etc. This approach has very positive results on students' motivation. Grammar stops

[5] The ESP Curriculum Plan at the technical faculties places the greatest emphasis on building students' knowledge and skills to enable them to translate technical texts.

[6] The academic strength of individual student cohorts is often a deciding factor for selecting ESP teaching materials.

being a collection of prescriptive rules that must be learnt in order to translate a technical text and becomes a toolbox that facilitates translation. That is what the students need. Successes during this phase of teaching encourage students to achieve more later on.

It is important to emphasise that initially students are not expected to translate paragraphs. Instead they concentrate on singular simple sentences, which are then broken down into smaller constituent parts. For that purpose it is important for students to learn how to move from the sentence level down to a phrase level.[7] In order to learn this, the students have to understand how phrases are connected into sentences, i.e. how lower-level constituent parts link together to form higher-level parts, thereby forming a sentence structure. Students are introduced to the simplest sentence types, e.g. SV, SVO, SVA, SVSC, and SVOA, which are selected from textbooks suitable for this level.[8]

In the process of identifying sentence types, or their individual constituent parts that perform certain functions within those sentence types, students are advised to use certain 'road signs' or ' signals'. Learning to recognise them makes it easier to divide sentences into smaller constituent segments (phrases), which are then individually translated before they are connected again and translated as a whole sentence. The following are examples of these 'road signs':

A) Students are asked to start analysing a sentence by identifying ***the predicate*** in the main sentence. They are advised to first identify all verbs, both finite and non-finite ones, and after that to exclude the following[9]:

1. all non-finite forms i.e. those verbs that they identify as incomplete to form a Tense and then:
2. finite forms appearing in dependent/subordinate clauses after the dependent clause markers, such as *which, that, when, because, where, who, when, if,* etc. with which they would be familiar from the previous year of study.

The remaining verb is then identified as *the predicate* of the main sentence.

[7] In our explanations we often use technical terminology the students have already learned in their Machine Elements syllabus, which is as important for their chosen study as Anatomy is for medicine.
[8] The textbooks used in our ESP classes are: *English for Metallurgy and English for Mechanical Engineering*. See: Šestić, L. (1985.), (1994.)
[9] It is worth noting that during lessons we do not use linguistic terminology, such as *constituent, finite or non-finite* verb form, or *markers*, because this would create barriers and disengage the students.

Here we are only referring to selected examples. The students are never given difficult sentences. The examples we give our students illustrate the above methodology very clearly[10]. Here are a couple of examples:

1) *The factory produc**ing** steel needs iron ore.*
2) *The conveyor belt **which** carries raw material to the plant is very expensive.*

Applying the above methods the students will exclude from the first sentence the non-finite form *producing* and will deduce that the predicate can only be *needs*, which is also confirmed by its affix –s. In the second sentence, the students will exclude the clause beginning with the marker *which,* thereby concluding that *is* is the only finite form of verb, which therefore represents the main verb (*linking verb)* and introduces the *subject complement.*

B) The identification of ***the subject*** in the sentence is made easy by explaining the fixed word order in English sentences in which the subject precedes the predicate, especially in affirmative sentences. Such sentences are typical in technical texts. For instance,

A vast quantity of energy has been lost in the process.
S V A

C) Students are also alerted to the possibility of ***adverbials*** appearing at the beginning of the sentence, which can also be positioned in the middle or at the end of the sentence.

The comma is cited as the most common 'road sign', albeit not the only one, for differentiating an *adverbial* from the *subject*. However, technical texts are often riddled with mispunctuation, which makes the comma an unreliable 'road sign'. For that reason, the students are asked to check if an adverbial is placed at the very start of the sentence before they mark another segment as the subject of the sentence and start translating it as such.

The students are also advised that it is possible to have an adverbial in the form of a *prepositional phrase* at the beginning of the sentence, or a dependent clause starting with e.g. *when, how, which,* or *if* which precedes the main clause. At this point, we

[10] The aim is to provide simple examples for sentence analysis, which would boost the students' confidence. Otherwise, it would become obvious very quickly that such 'road signs' are not always present in more complex examples.

do not introduce the notion that clauses with the aforementioned markers can act as the subject of the main sentence, as that may cause a degree of confusion.

Let us look at some examples we use in the syllabus:

Over the past few years, *the laboratory* *has been performing* *regular inspections*.
A S V O

If the temperature does not rise, *the speed of molecules* *will not increase*
A S V

When this ideal condition is obtained, *we* *start* *the process*.
A S V O

It is, of course, possible to have an adverb, functioning as an adverbial and ending with -ly at the start of the sentence, which the students recognise easily, such as the following example:

Usually, *the process* *starts* *upon the completion of the prerequisites*.
A S V A

In parallel with learning how to identify *the subject*, the students are also introduced to ***noun phrases*** and the functions they perform in the sentence. The basic elements are covered as well as the importance of their meaning for the correct translation of a sentence. By using the technical terminology, the noun phrase is referred to as a subsystem 'meshing' with other similar subsystems to form a whole sentence, which is a system in itself.

To help identify a noun phrase, the students are introduced to signals such as ***determiners*** that precede it.[11] Students can easily remember that this function is performed by indefinite and definite articles, *a, an* and *the*. In order to help them memorise as many determiners as possible, we draw a parallel between the indefinite article *a* and number one, which also introduces numbers, as well as quantifiers such as *some, any, much, little, many, few* etc. as possible determiners. Similar methodology is used with the definite article *the*, and the students are taught to regard demonstrative pronouns *this* and *that* as determiners. This number of words signalling a noun phrase is enough for the students' translation needs. From our experience it is evident that the students have no difficulties in identifying other similar determiners, although they were not explicitly mentioned during the course.

[11] In the ESP syllabus, the term *determiner* is used to designate both a pre- and a post-determiner in order to avoid unnecessary confusion that such complexity may cause amongst the students.

The absence of determiners is also referred to, but not elaborated on. The students accept the possibility of nouns not being signalled by determiners. They regard the presence of a determiner as an aid for easier identification of a text segment, such as a noun phrase.

In the next step students are informed that the following element within the noun phrase can be a ***noun premodifier*** (usually adjective), the task of which is to modify i.e. to change the meaning of the noun while preceding it. In other words, we explain that the premodifier unites its meaning with the meaning of the noun, whereby the reference of the noun is narrowed down.

In order to reduce the probability of their making mistakes in determining the noun head within a noun phrase, students are made aware of a possibility that the noun head can be preceded by another noun (*noun adjunct*) that also functions as a premodifier (e.g. *metal part*). The majority of students make mistakes while translating such phrases. When they encounter two nouns, one next to another, they usually go in the wrong direction and use the first noun as a noun head of a phrase. Then they try to adjust the rest of the phrase to the initially inaccurate translation. Such errors normally occur in the series of nouns that the students are not familiar with. When informed of a possibility that a noun can be a premodifier to a noun head, they become more careful and consequently make fewer mistakes. It becomes evident to them that the second noun to the right in the linear series of two is actually the noun head of the phrase. Of course, this refers to situations when there is neither a preposition nor a hyphen between the nouns.

As far as ***the intensifier*** is concerned, we explain to the students that it has the same influence on the premodifier as the premodifier has on the noun. Namely, the premodifier inherently modifies and narrows down the meaning of the related noun, so does the intensifier modify the meaning of the premodifier. For instance, in the phrase *very successful production* the premodifier *successful* modifies the meaning of *production* and the intensifier *very* further modifies the preceding premodifier.

Most common intensifiers are identified, such as adverbs with the suffix -ly (e.g. *successfully conducted experiments*). However, as students expand their vocabulary over time, they begin to recognise other, non-derivative forms of adverbs. In this phase of their learning, it is important to help the students understand the linear nature of language, where the words appearing in a linear order are interconnected and interdependent. In this respect, our approach has had positive results.

Because we provide a short repository of word classes (*parts of speech*) at the beginning of ESP teaching, the students become quite successful in identifying them.

Although they are not expected to have an extensive vocabulary, these students display a fairly good grasp of morphological markers, which enables them to identify the key word classes. Therefore, we pay particular attention to affixes of derived nouns, adjectives and adverbs, which also has positive results on student attainment. In this phase, the students become very aware that the knowledge of basic elements of noun phrases will be very useful for their future work.

As to the role of ***noun postmodifiers***, students are told that they modify meaning of a noun, similarly to noun premodifiers, the only difference being that they are placed after, not before the noun. The students are acquainted with the most frequent postmodifiers:

1. Relative Clause with its markers: *which, where, who, that* (*N+ which...*)
   e.g.: the conditions <u>which/that can be obtained</u>
2. Reduced form of Relative Clause in Active Voice (*N+Ving*)
   e.g.: the power plant <u>producing energy</u> (obtained by reduction of: *the power plant <u>which produces energy</u>*)
3. Reduced form of Relative Clause in Passive Voice (*N+Ved)*
   e.g: metallurgical <u>phenomenon observed</u> in cold worked metals (obtained by reduction of: *metallurgical phenomenon <u>which was observed</u> in cold worked metals*)
4. Prepositional Phrase (*N + PP*)
   e.g: a support <u>for rotating elements</u>

A special attention is paid to the last type of postmodification (*N + PP*). When we first introduce a prepositional phrase in our classes, students are told that this phrase consists of preposition and a new noun phrase. This information usually arouses a feeling of satisfaction among the students because it brings them back into the noun phrase domain, which – in their opinion – they know well by then.
Also, the students are constantly warned to be careful about the scope that a noun phrase can take within a sentence. The warning makes them more concentrated and analytical, especially when a more complex noun phrase is in question – particularly the one with prepositional phrase as a postmodifier to a noun head, i.e. *N + PP*. It should be highlighted that this type of postmodification is rather frequent in technical texts.

It is interesting to note that students easily discern the difference between the noun head in a noun phrase and the noun in the noun phrase within a prepositional phrase that serves as a postmodifier to noun head. Namely, the students immediately observe that the position of a noun after a preposition indicates that the noun is not

the head noun of the phrase (*N+PP*) but only a part of its postmodifier (PP=prep+NP).

With regard to the appositive adjective phrase and infinitive phrase, we rarely mention them as possible postmodifiers in order to avoid information overload, which could have negative effect on students.

D) When identifying **the object** (O) of a sentence, the emphasis is given to its position after the sentence predicate. Nevertheless, this position can be occupied by an adverbial in the form of a prepositional phrase (e.g. *The slag layer remains on the surface*), or by an adverb (e.g. *The process develops slowly*). For that reason, students are advised to analyse closely what comes after the predicate before they move on to translating the sentence. Thus, if the position is taken by a noun phrase, the students know it can only be the object of the sentence.

It is well known that sentences of the SVOA structure are quite frequent. It is difficult for the students to quickly determine where the object ends and where the adverbial starts, which slows down their translation process.

However, a number of them manage to do this correctly thanks to their knowledge of noun phrases as well as the context of a subject area with which they are familiar. One of the things that we always insist on is for students to rely on the context and general technical knowledge.

E) Finally, when introducing **the *subject complement*** (SC) to students, we underline that the best indicator of its presence in the sentence is the linking verb *to be*.[12] It is also stressed that this verb, as the main verb in the sentence, is followed by either noun phrase or adjective phrase.[13]

The name of subject complement is derived from the word *subject*, as they can be interchangeable in function. Therefore, this relation is easily explained by using the 'equals' sign between the subject and its complement, as in the following example:

Arcelor Mittal is the biggest company in this region. →
Arcelor Mittal = the biggest company in this region.

[12] In the initial phase of the ESP course we do not mention other linking verbs such as *seem, prove, appear* etc.

[13] Of course, other constructions that may serve as subject complements, such as: *infinitive, gerund or noun clause*, are not mentioned at this stage, because the complexity of information could potentially confuse students.

Although seemingly simple, this sentence type (SVSC) leads to plethora of incorrect translations. Namely, students that are not acquainted with it see the verb *to be* as an auxiliary verb, i.e. as a part of predicate. While looking for the main verb of the predicate, they identify the coming word (usually noun or adjective) as a verb, and translate it accordingly. Then, confused by the remainder of the text, which obviously does not fit the translation, they start improvising and end up with inaccurate translations. It is for this reason that a special attention is paid to the SVSC type of sentence.

We should mention here that once the students get enough skill in translating simple sentences, more complex structures are introduced.

In the end, it is worth mentioning that the students are warned of exceptions to all rules, including the ones provided by the course, as well as of the necessity to always check out the truth-value of their translations. If they feel that their translation does not fit the logic of the text, they are advised revise it.

Conclusion

Our approach to teaching English for Special Purposes (ESP) focuses on functional sentence analysis with the aim of simplifying the translation process. We try not to overburden our students with more linguistic information than they would find useful in their future engineering careers. With that in mind, we have introduced relatively simple examples of individual sentences, or texts specifically adapted for this purpose.

When introducing this teaching methodology, we were concerned that the 'technology of translating technical texts' might be problematic, but we were prepared to take the risk in consideration of other factors such as the students' very low level of English proficiency. We were pleased to note very positive results.

Our experience, as well as numerous student surveys, confirmed that the students are very satisfied with this approach. They are mindful of the fact that they are future engineers, not linguists. They are aware that their linguistic knowledge will be limited but they are still keen to learn. The students approach translations with pragmatism and logic. The methodology used in ESP classes enables them to engage in the process of translation without fear, and to translate simple texts independently. This is a good basis for translating more complex texts in the future. Their progress is evident even after the initial translation exercises. This boosts the students' motivation, as well as self- confidence.

In conclusion, the approach described above empowers the students to translate technical texts from and into English with a degree of confidence and ease. Our experience confirms that it is better to encourage students to use their limited linguistic knowledge than not to try at all for fear of the reaction of their tutors or peers. The guidance we offer them, and continue to do so, is not aimed at producing proficient translators but at enabling future engineers to take important steps towards interrogating technical literature in English with confidence, thereby using the language as a tool for furthering their professional knowledge.

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