A Didactic Approach to Writing Skills in a Technical Learning Environment

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Abstract

The present paper is a theoretical approach to the component of English language didactics which deals with the practice of writing skills in the context of an English lesson for engineering students. At the same time, the paper suggests some activities, strategies and methods which a language instructor may use during the class for an adequate achievement of teaching objectives for a lesson focused on the development of writing skills.

Keywords: English for engineering; writing skills; didactics; methodology; integrated teaching approaches.

1. Introduction

The practice of writing skills within the context of a technical university requires an adapted approach. While observing all the theoretical conventions and the practical recommendations imposed by the methodology of teaching foreign languages outside the framework of the specialized languages, the specific context of the study engineering imposes some requirements which a language instructor must take into account. The present paper is an approach to the component of English language didactics which deals with the practice of writing skills in the context of an English lesson for engineering students. At the same time, the paper suggests a series of activities, strategies and methods which a language instructor may use during the class for an adequate achievement of teaching objectives for a lesson focused on the development of writing skills.

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The paper includes a theoretical presentation of the place of technical text writing as part of the academic curriculum and its importance in relation with the learning objectives and also in relation with the practice of the other language skills, as an argument of what is methodologically known as the integrated approach to teaching foreign languages. The practice of writing skills in English classes for engineering students is analyzed in terms of the advantages and disadvantages encompassed by this didactic approach given the technical academic profile.

A practical part of the paper consists of the demonstration of possible writing tasks which may reinforce writing skills in ESP classes for engineering students. It contains a series of activities which may be used to fulfill various teaching objectives through writing practice.

2. Developing writing skills as part of the academic curriculum

The development of writing skills is one of the components of any language teaching curriculum, regardless of the students’ particular field of study. What matters in terms of curriculum design is not the general or specialized language which students need to acquire. The post-communicative turn in English methodology has reconsidered the importance of writing skills for language acquisition, after a period in which writing was neglected during English classes to the detriment of speaking. While not denying the outmost importance of oral communicative activities in the learning process, it also fair to assert that writing skills are equally relevant to a future engineer’s preparation. Although engineering is a largely practical activity, engineers find themselves confronted with a wide variety of writing tasks, many of them in English. They must write product descriptions, product catalogues, instructions, operating procedures, technical manuals, technical reports, web content. If they work as part of a team, they must master the requirements of functional writing: in order to communicate with their superiors, the other team members, the managerial team, the clients etc. they need to write letters, memos or emails. They need to write descriptions of projects, of graphs, of other visual elements which are specific for the engineering career. It is therefore essential that they have consistent exposure to writing activities which should equip them the necessary skills and attributes required by an adequate performance at the workplace.

The communicative and especially the post-communicative didactic principles of teaching English language (starting from the second half of the 20th century) share the belief that language must be taught as a whole. This new vision came to contradict the previously favoured practice which either completely neglected certain parts of language (for example oral communication in the grammar-translation method) or fragmented language teaching into the acquisition, reinforcement and practice of completely separate skills / aspects of language. This new perspective on language teaching is in agreement with the reality of language speaking: languages are not practised in isolation, one cannot learn to speak without also listening and one cannot be a good writer unless they can also read texts. This pragmatic view of languages seen as facilitators of communication between human individuals – was firstly used by Widdowson [1] as an argument for an integrated approach of the language skills in the curriculum for English for specific purposes in universities. He argued that an integrated approach of the language skills is the most suitable way of creating meaningful discourse in a foreign language rather than artificial linguistic productions. He also perceived the social context of language acquisition (i.e. the discourse community to which the acquired language serves) as an important factor which determines the need for a learning process based on a combination of skills, as an emulation of genuine communicative needs. According to such communicative needs imposed by special social contexts, language comprehension and production does not take place in isolation, or in “discrete units”.

Consequently, the language instructor may choose to integrate the practice of the basic skills (reading, writing, speaking and listening) in what is referred to as content-based instruction, which involves students in highly integrated activities while studying content based on specific technical subjects. According to the teacher’s assessment of the students’ needs, he or she may choose a variety of language aspects to be practised / reinforced together with the practice of skills. In this context, practising writing skills can never occur in isolation, during purely writing classes, but in an integrated approach which combines a variety of language objectives. This method of practising skills is a more natural experience of acquiring language structures which is at the same time likely to increase students’ motivation for learning.

Apart from the clear advantages of practising writing skills with engineering students (motivation being one of the main factors which impact student learning due to the practical approach to specific engineering texts) there are
also some challenges which the language instructor must face. First, the challenges are similar to those encountered
by writing activities in any English language class, not necessarily in an ESP one, among which we mention only
the most common ones identified by Jeremy Harmer [2]: the greater pressure for written accuracy, the disadvantage
of not getting immediate feedback, the greater need for logical organization, problems of spelling and handwriting.
Additionally, the language instructor teaching ESP has a list of other possible problems to counteract. Among these,
the fact that in Romanian universities for non-philology students foreign languages are taught only in the first one or
two years of study is a definite challenge. In some cases, students may not fully understand the scientific content of
texts and may therefore have problems writing paragraphs / texts on subjects which are not completely familiar to
them. Another potential problem is the heterogeneity of the group in terms of language awareness and knowledge.
There are groups in which some students are of level B2 and above but also A1 or A2, which makes the instructor’s
task difficult. One way of addressing the issue of level difference would be differentiated tasks and individual work.

3. A practical application: writing activities

In this chapter we will present a series of writing tasks which have been used in ESP classes for engineering
students. The tasks are grouped according to Adriana Vizental’s classification into controlled writing tasks, guided
writing tasks and free writing tasks. We should note that that in order to practise writing skills it is not necessary to
always ask students to create complete texts. This task is suitable only for more advanced levels, for two reasons:
first, the linguistic challenge of writing tasks is a complex one, requiring more advanced knowledge in terms of text
structure and cohesion, spelling and grammar, choice of vocabulary and register. Second, in the specific case of
functional writing – defined by Vizental [3] as “writing tasks that have a specific purpose behind their production”-
which includes ESP texts, the challenge is not purely linguistic, but also of a more technical nature. That is why the
instructor’s expectations should not exceed students’ real possibilities both in terms of language and in terms of
specialized knowledge.

3.1. Controlled writing tasks

Controlled writing tasks facilitate comprehension of specific linguistic structures. It is suitable to use controlled
writing tasks with lower-level students, but also when the teaching objective is for students to practise certain
construction / aspect of language in a technical context. Among the possible writing activities which fall into this
category we mention the following:
• Name the object in the image (students are given graphic representations of common engineering products /
equipment / processes and they are asked to label the picture with the appropriate name);
• Fill in the blank spaces in a text (an extremely versatile type of exercise, as it can aim to reinforce a wide variety
of structures: grammar, vocabulary, language functions, text cohesion / coherence etc);
• Dictation (dictoglos). Dictation is an efficient method of exercising students’ writing skills if the text and the task
are adjusted to students’ interest. Dictoglos is a technique which combines traditional dictation with note-taking
abilities, which are important in an ESP class. The teacher reads a specially selected text at a normal speed while
the students make notes of the relevant information contained in the text. The students are later required to re-
compose the original text based on the notes which they have taken.
• Put the verbs in the text into the right tense / voice;
• Join two sentences using appropriate connectors etc.

As an exemplification of some possible controlled writing tasks, we suggest the following input text:

Biomass has a variety of forms, and the two important ones are woody material like willow and miscanthus,
which grow fast and can be easily burnt, and oil like sunflower oil, soy and palm oil, which has a high calorific
value when burnt. An instance is ethanol, which can easily be fermented from grain or sugar and can be mixed with
petrol in the ratio of one part ethanol and nine parts petrol. Also, ethanol doesn’t need the vehicle to be changed
when it is used in cars. Other forms of biomass are cow-dung, chicken litter and bedding, olive oil cake and
methane from agricultural waste like manure, used cooking oil wood and pellets, which are now proving cheaper
ergy alternatives.
Although using biomass has many benefits, there are several major arguments against using fuel produced from biomass. The main one is that both the transport system and the whole energy infrastructure are organized around the use of fossil fuel. And, biomass oils like palm oil and wood from biomass materials can cause unpleasant smells and smoke. Bio-fuels can be difficult to use outside industry, as the supply of biomass and development of the necessary specialist equipment are in their infancy. And a shift in people’s perception is required if using biomass is to take off. (Source: www.onestopenglish.com) [4]

Starting from this text, a series of possible activities may be performed with students, practising various language aspects while exercising writing skills.

**Activity 1.** The students are asked to put the verbs in brackets into the right form. The objective of this activity is to reinforce grammar structures (verb tenses) in a technical context and to illustrate the specific use of passive voice in specialized writing.

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**Activity 2:** students are asked to complete the text with new words derived from the words in capital letters. The objective of this activity is to reinforce vocabulary structures, to practice word formation and lexical sets in a technical context.

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**Activity 3:** students are asked to join the following groups of sentences to create complex sentences. The activity is intended to develop students’ ability to produce longer, more complex sentences and to use appropriate cohesive devices.

- Using biomass has many benefits. There are several major arguments against using fuel produced from biomass. **ALTHOUGH**
- Bio-fuels can be difficult to use outside industry. The supply of biomass and development of the necessary specialist equipment are in their infancy. **AS**
3.2. Guided writing tasks

This type of activity allows more freedom than the previous activities and requires a more creative application of knowledge while still providing guidance and support. A selection of possible guided writing activities to be implemented in an ESP lesson are the following:

Activity 1: Make up sentences including the new vocabulary to illustrate the meaning of the words. Possible target language: „biomass”, „calorific value”, „energy alternatives”, „energy infrastructure”, „specialist equipment”.

Activity 2: Expand the following simple sentence into a more complex one, adding a number of words. „Consumers are supplied with electricity.” Possible answer: „Domestic consumers are usually supplied with electricity at a lower voltage than industrial consumers.”

Activity 3: Complete the following text with the logical information which is missing: “The main forms of renewable energy are ………………………….. Among the main advantages of using alternative sources of energy, one may mention …………………………… Additionally, renewable energy is also………………………… However, we still have to face the problem of ………………………...”

Activity 4: Answer the following questions to check your understanding of the text:
Which are the main forms of biomass?
Which are the major arguments against using fuel produced from biomass?
Why is it difficult to use bio-fuels outside industry?

3.3. Free writing tasks

In this phase, which implies both a higher level of English and a certain expertise in terms of the subject matter, students are asked to explore ideas and information actively and produce their own pieces of writing. The type of writing task required from students is still within the limits of functional writing – i.e. specialized types of texts with a practical application in the students’ domains of interest. The writing task may therefore range from descriptive paragraphs of product parameters to safety instructions, product manuals or technical reports. When performing their writing task, students need to be reminded of the features which give a text its technical character [5]: technical accuracy, usefulness, conciseness, completeness, clearness, consistency, correct spelling, grammar and punctuation, a targeted audience. Additionally, students should also be given advice regarding the general stages of the writing process described, among others, by Roger Gower et al [6]: an introduction created by the teacher, meant to create interest in the writing task (a speaking activity, a visual etc), followed by brainstorming for ideas (noting ideas down, developing ideas, choosing essential ideas, ordering ideas), planning (with due attention paid to the layout of the writing task, adequate register and structure), drafting (following notes or a plan), reviewing / editing (content, language accuracy, organization, style), re-writing and word processing if necessary.

An interesting categorization of free writing tasks, one which pays particular attention to the role played by the student in the creation of specialized discourse is the one suggested by Tony Dudley-Evans and Maggie Jo St John [7]. They differentiate between the product –approach (the presentation of a model text, its analysis followed by the writing of a model, parallel text); the process-approach (divided into the thinking stage and the productive stage) and the social-constructionist approach, in favour of which they argue, which sees writing as a social act in which writers need to be aware of the social context in which they write and respect the established practices of writing within a certain discourse community.

4. Conclusions

The practice of writing skills in foreign language classes for engineering students can be turned into a rewarding activity both for students and teacher, provided that a set of specific conditions are met. First, the particular needs of
engineering students must be taken into consideration and respected. Writing tasks requiring students to produce types of texts which are specific of the engineering profession are likely to be successful, as they create and maintain motivation. Second, the characteristics of the group are important when assigning writing tasks. A good assessment of the students’ level, of their professional and personal interest as members of the engineering discourse community and an accurate adjustment of linguistic objectives are good prerogatives of a successful activity. Finally, the instructor’s wise selection of didactic tools, materials and resources as well as a thorough knowledge of ESP methodology will ensure a successful language experience.

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