

The Appropriate English for Engineering Qualifications

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Abstract - The present paper focuses on the varieties of English which should be included into the language education of future engineers. It is obvious that the globalized world lays demands not only on their specific engineering education but also on their foreign language competence. The foreign language knowledge can mediate better access to adequate jobs, stabilizing at the same time good social position of graduates. The author tries to define the varieties of English which should preferably be taught to students of engineering. Besides their specific English of electrical engineering, which has currently been investigated by the author, there are other varieties which should be presented to undergraduates. It is English as an international language, serving for global and also professional communication and, of course, general English. All the varieties of English enable the users firstly to perform their qualifications in an international milieu and secondly to survive in a different social and cultural background. These varieties of English have different qualities, the characteristics of which will be outlined in the present contribution. While the purpose of English of electrical engineering is to mediate specific information among a specific group of users i.e. its purpose is transactional, the purpose of English as an international language is to maintain communication in professional and also a generally comprehensible standard with both purposes transactional and also interactional.

The changing needs of students resemble in the constantly changing curricula of English courses at the Faculty. The Department of Languages offers its undergraduates and postgraduates well-designed and innovated courses of English which take into account the development in science and technology but also the social development in the globalized world. On the other hand, the courses are built on local conditions and students' cognition which is specific due to their specialization in engineering. Apart from changing the contents of English courses, electronic support has been designed to facilitate students' access to texts and specially designed homework.

Index Terms – Appropriateness, Course design, Varieties of English, Qualification skills

INTRODUCTION

Much is spoken about globalization and its impact on present life of individuals. Undergraduates at universities take advantage of their education which can facilitate their orientation in the ever-changing world. Engineering education as well as that of humanities must necessarily offer subjects where students find explanation of present reality and instructions how to cope with it. Thus we find it important to design for students of engineering subjects based on the present philosophy of postmodernism where essential rules of postmodernism are elucidated, especially the fact that the most prominent commodity in postmodern society is knowledge. One of the skills facilitating the existence of individuals in the present globalized world is the knowledge of languages. Languages are media opening new horizons, new cultures, new fields of science. But which languages are those most useful for students of electrical engineering? This question has partially been answered in my previous contributions in ICEE conferences in 2004 and 2005 – the language of electrical engineering is undoubtedly English. The question is which variety of English is the most appropriate for engineering education? The first variety occurring readily is English of science and technology, namely English of electrical engineering. The occupational language, the jargon of experts which cannot be understood without difficulties by laymen. It is the specific language of a specific field of science transferring specific information comprehensible only to experts in this scientific field. Its qualities set limits on its use which is only transactional i. e. its purpose is to inform about facts. Nevertheless factual information is not the only purpose of communication, not even among engineers. They, as the other people do, intend to express feelings, social solidarity, the intention of their communication is also motivated by sharing reality. It means that even technical experts need language for transactional, phatic use.

THE ENGLISHES

1) *English of Electrical Engineering*

To illustrate the concepts of a professional language and the global standard – lingua franca, I consider it necessary to mention here once more the essence of my investigations in English of electrical engineering. It is, as typical for language of science, a written medium and displays the following specific features:

- a) Formal and traditional **format** which corresponds with the concrete medium where the texts were published. It has an explanatory function supported by a well-arranged formal system that indicates the logical succession of information. The format of scientific texts produced in the style of science and technology does not take full advantage of the possibilities offered by computers. The formal i.e. traditional format corresponds with the formality, objectivity and scientificity of information delivered.
- b) High **density** of terms, which subdivide into 1) general English expressions, 2) general scientific terms, 3) general electrotechnical terms, 4) branch-specific electrotechnical terms, create a logical component of the style of science and technology.
- c) Branch-specific electrotechnical terms fulfil frequently the function of **lexical cohesive items** which are an important quality of style of science and technology. They are mostly expressed by superordinates or the same item which corresponds with the transactional purpose of the discourse.
- d) The **style** of science and technology is characterized namely by the crucial importance of logical succession of facts (supported by the format). Written discourse is mostly formal, while spoken variety can vary in its range of formality from formal to neutral, informal or even colloquial. This province also manifests a range of modality, since it is required for various purposes e.g. a technical report, a conference contribution, a scientific book, a textbook etc.
- e) Target groups of **recipients** differ according to the range of formality, the density of general electrotechnical and branch-specific electrotechnical terms, according to the range of specificity of the information. Their successful comprehension of the texts depends on their knowledge of electrical engineering and correlates with the measure of their specialization in the discipline. The more instructed readers they are, the more easily they are able to understand. This implies a prior knowledge of electrical engineering and personal experience with the discipline which have created schemata in recipients' minds that function as a proxy in decoding and perception of the message in English. This is the great advantage which substantially facilitates the perception of English electrotechnical texts by non-native (Czech, in our case) students.

These features of professional English of electrical engineering elucidate clearly that it is the language which is not bound to national, social, cultural and historical background. It is an objective, explanatory, non-emotive medium, which serves for transmitting facts, mostly very specialized facts, independent on place of origin as science as such is international. This facilitates comprehension of this province, as its users are not confused by any national habits, history or social clichés. Moreover, they can profit from the

fact that English terms are used as loanwords in other languages, creating thus an intelligible net in English electrotechnical texts. Due to such qualities of this province of occupational English, the professional schemata of recipients can be fully relied on and no misunderstanding can be caused. The professional language is unambiguous, the referencies are clear with no cultural misleading implications. It is a professional province – register. Moreover, it is a register which can be unintelligible to native speakers who are not instructed in electrical engineering.

Example 1: English of Electrical Engineering – professional English

Output stages are specially designed to deliver large signals (as close to rail-to-rail as possible) and a significant amount of power to a specified load. The load to be driven is often very low-ohmic in nature, for example, 4 to 8 ohms in the case of audio loudspeakers. Therefore, output stages must possess a low output impedance and be able to supply high amounts of current – without distorting the signal. The output stage also needs to have a relatively wide bandwidth, so that it does not contribute major frequency limitations to the overall amplifier. Equally desirable is a high efficiency in the power transfer.

2) *English as Lingua Franca*

It is undeniable nowadays that English has spread all over the world. No matter what the causes have been, no matter how it has been achieved, it is the reality. Nevertheless language holds not only the linguistic system but the whole complex of social, cultural beliefs, habits and rules, which are embedded in it. Some of them become changed by the multiple and varied psychological and social approaches of foreign users, however the others remain the same and must be respected by those who use English as their second language. They are especially the so-called “material” qualities of language – its grammar and basic vocabulary – which usually are conformed to. On the other hand, new expressions in English can be coined by foreign users, what undoubtedly happens during research. In literature and arts generally, grammatical structures of English can be innovated and adopted by foreign users as well. The spread of English subjects it to changes initiated not only by native speakers. “Whether you are a native speaker of the language or not is irrelevant. It is what you now are that is important, not where you have come from.”... In case of registers “there is no need of native-speaker custodians.” (Widdowson, 2003:55). English for international purposes is characterized as a genre, a specific discourse, which is bound to a professional community not to local community, but it is restricted by its purpose of use. So it is used for communication among academics, researchers, politicians, businessmen etc. who operate all over the globe.

English has become an international language through its usage in scientific community, which is international and is not bound locally. However, apart from its functioning as a register for specific use, it holds a **global standard** variety comprehensible all over the world, which is based on written

medium (as this is the mode mostly used in science), and preserves its standard even when spoken. Its illegibility is based on professional contents, on schemata derived from professional knowledge.

English in our local conditions of central Europe must be included in curricula as it increases graduates' qualifications and thus gives them a sort of **power** through its knowledge. Mastering English, an individual becomes a member of a global community, usually focused on a certain and special working activity. The reason for learning English is generally not the effort to understand native speakers but to share knowledge of profession along with global i.e. human beliefs in what is generally acceptable. It is true, as Widdowson (2003) admits that the spread of English may be hostile to language diversity as the knowledge of it implies power and that is motivating and tempting.

3) *General English – socio-cultural background*

The English course must also take into consideration the encoding of **pragmatic meaning**. Meaning in professional variety of English is not ambiguous, as it is constrained by the specific scientific field and its specialised topic, denoted by specific branch terms. Contrary to this, general language functions on its pragmatic meaning which is neither constrained by a special field of science, nor expressed by specific terms. Opposite to this, words and collocations, even the whole sentences do not bear the detailed meaning of utterances. This is conveyed by socio-cultural background. References in such a general variety of English are vague, not precisely defined. They imply social and cultural habits of native speakers who need not be inferred properly by speakers who do not share them. The language here resembles social behaviour. Native speakers are the custodians of general English standard, as it is nationally and locally restricted.

The obvious objective of English courses is therefore to train students in decoding pragmatic meaning, to teach them the appropriate means of expressing themselves under various social and cultural conditions. Unlike in English of electrical engineering, in using general English foreign users cannot rely on their schemata because those are based on a different socio-cultural background. Deprived of their proxy, learners can fail in expressing themselves. Here is the place for an experienced and educated pedagogist to mediate what is similar in both languages and in social behaviour and to select what must be adopted from English to evade misunderstanding.

When teaching general English it is most valuable to use the functional approach. The functions of language are a more amusing way how to learn grammar and even vocabulary. Supporting the learning process by video courses is motivating and gives students clear instructions how to behave in various social situations, where it is necessary to use formal language and what its means of performance are or where it is appropriate to use informal or colloquial expressions. When learning English outside English speaking countries, the use of

visual media – video, film, TV is efficient. They provide not only a good lesson in listening but also a practical demonstration of social behaviour and cultural habits.

Let me demonstrate a lack of **socio-cultural awareness** showed by myself during my first stay with an English family on a language course. On Sundays the landlords were obliged to give us lunch, which I usually took in the university canteen. The first Sunday of my stay I was asked by my landlady if I would like to have some lunch and according to the Czech social tradition and cultural habits, said that not really, which means in Czech culture that I would, and expected further offers and encouragement to take the lunch by the landlady. To my utter surprise she understood precisely what I had said : “No“. And I was hungry till supper was served.

The same situation and the same words carry a different pragmatic meaning in a different socio-cultural milieu.

Example 2: General English

Travelling can be very exciting, especially when you have wanted to visit the place for a long time. I remember the first time I arrived to Hong Kong and saw the buildings along the waterfront – the skyline was familiar because I had seen it in pictures so many times, but I couldn't believe that I was really there at last ! Many people say that they have had the same feeling of disbelief when they travel. But this partly depends on where you live. What seems exciting to people from one part of the world can seem more ordinary to those who live in a similar area. For example, people from New Zealand might be excited to go to Hong Kong, but less excited to visit Australia, because it is nearer and more familiar.

CONCLUSION

As I have demonstrated students of engineering have to be skilled users of all the varieties of English I have mentioned. It is crucial for them to master their professional language which enables them to approach resources of information in their specific scientific field. With this knowledge they can take part in international research and are able to perform their profession under international conditions and circumstances. Thus they gain access to global opportunities and secure for themselves a social power which provides them with a dignified living standard. As English has been adopted as an international means of communication, they are considered to be emancipated users with rights to innovate the language. Finally, with their socio-cultural awareness they can cope with everyday life situations where they have to prove the ability to survive in a different social milieu.

To teach all these varieties of English properly lays great demands on both theoretical and practical background of a language department. Teachers are in permanent need of further linguistic and methodological education which is brought about by the everlasting development and position of English. We use sources from development projects for designing electronic supports for our courses. They are not only electrotechnical texts with tasks, newly designed tests of

REFERENCES:

all skills, but also electronic homework supporting self-study. Students can use language software to train their skills outside classroom and newly they can borrow CDs and textbooks they use in lessons.

We plan to move in a brand new building in two year time where a new reading room with library equipped with computers, all in one specially designed room with all IT support will be even more comfortable for self-study and will rise students' motivation for learning.

- [1] Bauman, Z., *Globalizace*, 2000 (translated from the English original *Globalization*, 2000)
- [2] Cook, G., *Discourse*, 1999
- [3] Krhutova, M., *English of Electrical Engineering as a Special Province*, 2003
- [4] Seidelhofer, B., *Controversies in Applied Linguistics*, 2003
- [5] Spolsky, B., *Sociolinguistics*, 1998
- [6] Widdowson, H.G., *Defining Issues in English Language Teaching*, 2003
- [7] Widdowson, H.G., *Linguistics*, 2000
- [8] Yule, G., *The Study of Language*, 2002