
Exploring Scientific Language in Biologists' Academic Course of English

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Abstract:

The article is devoted to the questions connected with teaching English to students of non-linguistic specialties. For example, teaching professionally focused reading and writing scientific articles and organization of listening on professional topics. In these cases, as it is mentioned teacher must choose teaching materials carefully and very often use discursive analysis.

The methods used in the article are questionnaire and observation.

The main purpose of the article is to correlate results of the questionnaire which was connected with expectations of foreign language course and which was done by the first-year students of the Institute of Fundamental Medicine and Biology and some features of teaching "English for specific purposes" which can help to satisfy expectations.

Materials of the article can be useful for university foreign language teachers during elaboration of "English for specific purposes" course.

Keywords: *Learning, Students, Education, English Language, Teaching.*

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1. Introduction

Nowadays English is one of the most important means of professional communication, allowing to the specialists speaking different languages to exchange their experience. Because of this it is necessary to pay special attention to teaching English not only to linguistic students but also non-linguistic ones. However, the approaches to these both groups of students should be different.

According to the syllabus the purpose of teaching English to non-linguistic students is to use foreign language as a means of communication in the framework of chosen specialty and there is a task connected with given purpose is to develop the ability to read professional literature and to converse on professional topics.

2. Methodology

In the framework of teaching foreign language, it is important to pay attention to different aspects: listening, reading and writing.

First of all, it is necessary to say about listening which is usually neglected during teaching professional language. This aspect is active mental action because it is focused on perception, recognition and understanding of new speech patterns, that means creative combination of skills and active usage of them in accordance of changing situation. These skills can be divided into following groups: skills of subconscious recognition of grammatical forms of speech, skills of understanding of words and words combinations, skills of subconscious perception and recognition of sound form of speech.

There are four main approaches to teaching listening:

1. According to the first approach firstly warm-up exercises are done and only after them speech exercises.
2. The other approach to teaching listening consists of doing warm-up exercises during the work on speaking. In this case students learn to subconsciously distinguish grammar forms of words, word combinations, grammar structures aurally. Moreover, they develop the auditory span and understand different phrases and native speakers' speech.
3. The next approach combine listening and reading, and also listening and writing. This approach can be used formastering of difficult syntaxes models, which are difficult to perceive aurally.
4. During teaching listening the approach of multiple listening of the same text is often neglected, but this approach can be useful while creating monological saying.

It is necessary to say that in the framework of teaching English the purpose of listening is formation of the strategies of information perception and understanding

aurally (extract information from the sound speech) with the later use of received information in foreign written and oral communication (Levendyan, 2013). Tasks on listening can be used as a means of new vocabulary drill and must promote skill of perceive some terms and word combinations connected with different scientific areas aurally. Thus, not only usual tasks such as true or false, choose the correct answer can be linked with listening, but also another ones like fill in the gaps in the text with necessary words in accordance with the listened monologue or dialogue.

Obviously while both organizing listening on professional topics and teaching professionally focused reading it is difficult to choose teaching materials. In common two questions arise in terms of reading: How to teach professionally focused reading? and What texts should be chosen?

According to some researchers, e.g. Zdanovskaya (2008), methodology of teaching reading can rely on the next two statements: treatment of the text as common structural and meaningful unit and teaching different types of reading professional literature to extract the information from given texts (Zdanovskaya, 2008, p. 180). Thus, it is possible to say about inductive text analysis and deductive ones.

Such types of tasks promote solving different problems which arise during teaching professionally focused reading:

- Development the capability to guess the meaning of unknown words;
- Development the capability to disregard unknown words and word combinations, if they don't hinder common understanding of the text;
- Teaching perception of new combinations of known language units.

Therefore, while teaching professionally focused reading it is important to study texts in the correct order in accordance with their level of complexity, so that language units represented in every new text should be partly connected with the material studied before and partly new. On the one hand, such approach allows checking how students learned previous lesson, and on the other hand, it gives students the opportunity to build up a knowledge system and understand the material better.

In general, the full answer to the question about selection criteria of the foreign languages texts was given by Korsakova (2014), who suggested to use following criteria during choice of teaching material: information richness, culturological marketness, communicative value, pragmatic value, actuality, accessibility, authenticity, demonstrativeness, motivational and cognitive value, variation and diversity (Korsakova, 2014). However, if mentioned research deals with choice of teaching materials in common, researchers of Kazan Federal University such as Madyakina and Nazarova (2016) determine the criteria of choice of scientific texts.

Inherently, reading is not only aspect, which should be touched while working with students of non-linguistic specialties. The fact is that the main purpose of teaching English to non-linguistic students is to give them opportunity to communicate with future colleagues, to share best practices and learn from each other. It means that one of the most important is written communication, writing. This aspect is mentioned as one of the most important by a lot of the scientist, for example, Kirby and Crovitz (2012), Anson and Wilcox (1988), Beach *et al.* (2015), and Anderson *et al.* (2015).

Generally, during skill-training of both reading professionally focused texts and writing scientific texts the discursive analysis is important. Its importance in teaching foreign language and especially English language to the students of non-linguistic specialties was mentioned by different researchers: Kondrateva and Ibatulina (2016), Brown and Yule (1983), Chouliaraki and Fairclough (1999), Fairclough (1992), Stubbs (1952), Harris (1952). The most important is that discursive analysis assists to develop students' capability to carve out hierarchic elements of the scientific text, which means to understand its structural and semantic organization better.

So written communicative competence which serves professional communication relates to discourse competence, i.e. depending on linguistic personal structure and changing communication context correlation of the role of creative and the role of stereotype in social communication builds up. Planned written outcome can be reached by the person who writes by way of correlation of his/ her verbal/nonverbal behavior with expectations of the partner - native speaker (Leschenko, 2003). It means that while teaching written communication it is necessary not only to explain structure, e.g. of formal letter and introduce some lexical units but also give a general idea how some inaccuracies in written speech can be perceived by native speaker and what mistakes can lead to misunderstanding and communication failure.

3. Results

Based on the results of questionnaire which was done by the first-year students of the Institute of Fundamental Medicine and Biology it is possible to say that students are interested in studying professional English to communicate with their future colleagues. 140 students were interviewed and major parts of respondents (56 people – 40 %) said that among the expected results of foreign language course there is the ability to work for international company. 47 students (34%) said that the main results would be the academic mobility. Among the popular answers there were also foreign education (24 % – 33 students), language placement (21% – 29 students), capability to successfully pass International Exams (12 % – 17 students).

It is significant that 40 % of respondents are ready to improve their English level by choosing *Conversational Foreign Language Course* and it means that it is necessary to pay special attention to this aspect during teaching. The students who did the questionnaire pointed out the interest in *Intensive Foreign Language Course* (14 % –

20 people), *Advanced Foreign Language Courses* (14 % – 20 students). Moreover, some students chose the courses *Translator in the Field of Professional Communication* (11 % – 16 students) and *Teacher of Foreign Language* (5% – 7 people).

Such educational priorities of the students of the Institute of Fundamental Medicine and Biology have remained stable over the last few years.

It is remarkable that students estimate their level of English as Intermediate (64% – 89 students) and Pre-Intermediate (36 % – 52 students). According to entrance test which all the students pass before studying English at Kazan Federal University they underestimate their own knowledge and there are some Upper-Intermediate students. However, it is necessary to say that even students who have similar entrance test scores and study in one group usually vary in level of knowledge: it happens because the test estimates their grammar level but there are no tasks which help to check speaking or listening skills.

In general, observation on progress which was done by the first and the second-year students of the Institute of Fundamental Medicine and Biology allows us to draw some conclusions about necessity of using not only students' books and manuals but also articles and podcasts from different popular science web-sites while teaching English for specific purposes.

In terms of listening, for example, podcasts from the site *Scientific American* and tasks from the site *Listen a minute* can be useful because there are so many audio recordings on different scientific and other popular topics. Moreover, YouTube hosting can be helpful too because of huge number of scientific videos. There are two main examples of such videos: one of them is *Photosynthesis* (2012) and another one is *Career Profiles – Biology* (2011). Undeniable advantage of such videos is the opportunity to use them with English subtitles for weaker students. As to video tasks it is possible both to discuss the common meaning (make up a dialogue) and to do more usual exercises: true or false tasks, complete the text with necessary words in accordance with the video, etc.

Moreover, mentioned web-site *Scientific American* can act as the source of professionally focused texts. It is necessary to say that in the work with text not only vocabulary but also grammar exercise can be done, and grammar skills can be improved too. For instance, it is possible to practice word-building exercises, etc. Even though *English for specific purposes* is not supposed to be closely connected with grammar, the possibility to practice some grammar rules such as features of passive voice or sequence of tenses exists.

However, while teaching professional English only one key book is: *Essential English for Biology Students* (Arslanova et al., 2012), where many different tasks are represented. So *Quick check* tasks when students are suggested to find the necessary

information in the text are linked with reading for specific information, i.e. with inductive text analysis. On the other hand, work with finding English equivalents for the following Russian words and word combinations can be concerned as deductive text analysis.

Turning to the next aspect it is necessary to say that only Master students of Kazan Federal University Study *Academic writing* course in the framework of which they get acquainted with the formal structure of scientific articles (the formal division into parts like *Methods*, *Results*, etc. and language units which allow giving the examples, building arguments, etc.) and develop writing skills. Meanwhile, skills of written professional communication are practiced by students of non-linguistic specialties too. Here such skill as writing CVs and cover letters should be mentioned.

In fact, so many texts which can be considered as written professional communication exist and among them there are not only CVs and cover letters but also scientific articles, formal letters, etc. That why it is impossible to point out that students get acquainted with some features of communication at the certain stage of studying, they learn it during their university life.

4. Discussion

One of the main features of teaching English to students of non-linguistic specialties is usage of individual and differentiated approach which a lot of articles are devoted to, e.g. article by Tusupbekova (2009).

The problem of implementation of individual and differentiated approach is touched in scientific works by Aksenova (2006), Zhukova (2006), Ivanova (2003), Nikolaev (2006), and Rothenberg and Fisher (2006). So, Aksenova (2006) defines organizational and pedagogical conditions of implementation of level-sensitive differentiation of training in adaptive gymnasium, finds out components of psychology and pedagogical readiness of teacher and students to educational process under conditions of individual and differentiated approach.

Zhukova (2006) elaborates criteria of increase in efficiency of individualization and differentiation in higher school teaching. Ivanova (2003) establishes main methods of differentiation of teaching in American colleges and universities (differentiation in accordance with type of educational institution, differentiation of content of learning and organization of educational process), determines the boundaries of usage of individual and differentiated approach in higher school. Nikolaev (2006) in his book *Differentiation as pedagogical technology of increase in interest in knowledge* finds out the rational pedagogical conditions for effective organization of individual and differentiated approach of teaching foreign language, suggests a pedagogical technology of realization of individual and differentiated approach

system which improves academically performance and student independence while studying foreign language.

5. Conclusions

On the one hand, *English for specific purposes* motivates students to study language, and on the other, the teacher's aim is to choose teaching materials relevantly and to use discursive analysis.

From the point of view of teaching scientific language some podcasts and articles from English and American popular science web-sites can be helpful. Moreover, one of the most important parts of teaching scientific language is home reading when students work with scientific articles from English magazines themselves.

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