

FROM ANALYSIS TO TEACHING TYPES OF FOREIGN LANGUAGE SCIENTIFIC DISCOURSE

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Abstract: The article argues for discourse approach to teaching postgraduates to foreign languages for scientific purposes. In supporting this idea, the term ‘scientific discourse’ is specified, a clear distinction between ‘genre’ and ‘discourse type’ is made, the existing classifications of discourse types are analyzed, basic types of written scientific discourse are singled out, the sequence of teaching stages as well as the framework of techniques and activities are proposed.

Modern methodology of foreign language (FL) teaching which is based on the principles of communicative language teaching makes us appeal to such a phenomenon as discourse. Recent years have seen increased consideration being given to discourse embedding in the process of teaching which is thought as a requirement of the communicative approach realization. Some authors argue that discourse as a “live” language and a “grammar above the sentence”, can inform the process of communicative language teaching in a far better way and enrich its content with real world functional features that are typical of natural language use [16]; the use of discourse as a sample of realization of certain communicative intentions in a specific communicative situation and addressed to a particular recipient can help learners get ready to participate in real life communication [3]. Discourse types alongside with text types are indicated as essential components of instruction content in the up-to-date conception of specialism-oriented English language learning and teaching at tertiary school [6].

Sharing the above-mentioned viewpoints, we suggest embedding the concept of scientific discourse in the process of FL teaching of magistrates, post-graduates and young researchers at the stage of their post-diploma

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language education. The aim of this paper is to analyse existing types of written FL scientific discourse and to outline the ways of their rational teaching.

To develop the mechanism of embedding scientific discourse in the process of teaching we consider it necessary to: 1) define initial positions in understanding the nature of scientific discourse; 2) make a clear distinction between “genre” and “discourse type”; 3) analyze existing classifications of discourse types; 4) establish the basic types of written FL scientific discourse; 5) propose sequence of stages of teaching them; 6) introduce a framework of techniques and activities.

It's seems reasonable to start with definition of scientific discourse. In this paper it is understood as:

- a specific way of verbal behaviour shared by the members of international scientific community reflecting their conventions, norms, stereotypes, values and ideology and requiring special setting for its realization;

- a special type of activity – discursive activity – implying a dynamic process of unfolding an idea into text predetermined by a set of epistemistic and communicative factors;

- a product in the form of a coherent organized scientific text of a definite genre reflecting cognitive structuring of scientific knowledge [5].

The above mentioned interpretation of research discourse results in essentially important inferences for methodology of teaching:

- the dual nature of research discourse implies that its parameters both as an activity and as a product should be reproduced in the process of teaching;

- the notion of activity involves both discourse production and discourse reception;

- understanding research discourse as a product requires teaching it as a functional-semantic-structural unity having particular rules of organization, cohesion and coherence;

- the fact that research discourse is determined by context (cognitive, situational, social and cultural) implies taking into consideration extralinguistic factors including both communicative and epistemistic ones [17].

Research discourse is realized through its genres (research papers, monographs, dissertations, theses, scientific reports, conferences proceedings, posters, scientific and technical reports, review articles, abstracts, summaries, etc.). Written genres of research scientific discourse are clearly classified into primary and secondary genres. Monographs, dissertations and journal articles are said to refer to primary genres of research discourse, while abstracts, resumes, annotations, synopses, reviews are referred to secondary genres (that is derived from primary ones).

At present there is growing interest in the concept of ‘genre’ and ‘genre approach’ to teaching FL. But the point is that the terms “genre” and “discourse type” seem to have been conflated, with the term “genre” being used to include both of the notions. In this paper we keep to Swales’s, Martin’s, Bhatia’s and Biber’s point of view of “genre”. Swales defines genre as “a class of communicative events, the members of which share some set of communicative purposes” [20]. For Martin, genre is “a staged, goal-oriented, purposeful activity in which speakers are engaged as members of our culture” [15]. For both

authors it is communicative purpose which brings any genre into being, shaping the “schematic”, or “beginning – middle – end” structure of the discourse, and influencing choices of content and style [11]. According to Biber, the term “discourse genre” categorizes texts on the basis of external criteria, it describes types of activities “which regularly occur in society”. “Discourse type”, on the other hand, represents groupings of texts which are similar in the way of unfolding the idea into content, irrespective of genre [7]. Paltridge states that confusion of these concepts is not very helpful for language teaching purposes as they are two distinct, but complementary features of text [18].

We define “discourse type” in terms of rhetoric as the way of choosing and organizing information for a specific set of purposes and a specific set of readers, when “organization” means:

- the sequencing of the items of information in a piece of written discourse,
- the expression of the kinds of relationships that exist between these items.

In L. Trimble’s theory, EST (English for Science and Technology) rhetoric exists at four levels in a piece of discourse:

Level A gives the purpose of the total discourse, this information being usually found in the introductory section of the discourse (in, for example, a technical article).

Level B consists of those major pieces of text which, when added together, make up the complete discourse. This level is usually marked in scientific and technical writing by section headings or sub-headings. The rhetorical process is best seen operating at Levels C and D.

Level C is made up of the specific rhetorical functions that are found most commonly in written EST discourse: description, definition, classification, instructions, and visual-verbal relationships between a visual aid and its accompanying text. Most commonly the discourse at this level is presented either in groups of closely related paragraphs or in single paragraphs. A finite number of such paragraphs at Level C add up to one of the sections of Level B.

Level D consists of one or more of the rhetorical techniques a writer chooses as the most functional for presenting the framework into which the items of information given at Level C, fit or the most functional for showing the relationships between these items. Although the markers showing the relationships between items of information can consist of paragraphs, as a rule they are found within paragraphs, in single sentences or clauses or phrases [21].

Specific rhetorical functions and rhetorical techniques (Levels C and D in Trimble’s theory) form the subject of our research, namely, scientific discourse types and a set of relationships between their items.

There are many other different ways of rhetorical structuring of EST discourse. For instance, Hoey discusses *problem-solution*, *general-particular* types. Crombie presents examples of *problem-solution* and *topic-restriction-illustration* types of EST discourse [8, 17]. Valgina N.S. marks out such scientific discourse types as *description*, *narration*, *definition*, *argumentation*, *instruction* [2].

Benyaminova V.N. constrains scientific discourse to two types – *description* and *reasoning*. She argues that description may be *static* (when the

subject of speech is a set of qualitative-quantitative speech characteristics of a described object) and *dynamic* (when the subject of speech is actions and processes). Alongside with pure description – static and dynamic – there is a transitive form – *description-characteristic*, and two combined forms – *statico-dynamic* and *dynamico-static* descriptions.

Reasoning is subdivided into *argumentation* and *inference*. Argumentation starts with a *thesis* the validity of which needs to be proved with the help of *arguments*. Logical structure of inference consists of *conclusive proposition* and some set of *premises* [1]. Johnson-Laird presents reasoning as a chain of logical operations that result in a conclusive proposition: *Premises* → *Propositions* → *Argumentation* → *Inference* → *Conclusion*. According to his viewpoint, reasoning can be of the following types: 1) categorical, based on indisputable solid facts; 2) alternative, based on controversial knowledge and 3) subjective, based on individual understanding of the situation [12].

Morozov V.E. asserts that description and narration are the two primary types of discourse. As for reasoning, it is referred to the secondary type of discourse being constructed on the basis of either description or narration. In his opinion, it is description and reasoning which are inherent in the majority of sciences. This can be explained by the fixing character of description, with the help of which a scientist states the facts. For their understanding, comparison, and justification of a new truth the reasoning is used [4].

Developing ideas of the above-mentioned authors, we argue, that basic scientific discourse types which should be included in the content of post-graduates teaching, are *description* and *reasoning*. In our opinion, they correspond to the very structure of scientific knowledge consisting of two levels: empirical and theoretical. The empirical knowledge represents a set of statements about empirical objects formed by means of cognitive data processing of observations and fixed by certain language means. Theoretical knowledge is a set of statements about ideal objects constructed by thinking. Therefore the two interconnected invariant speech forms realizing functions of scientific research and communicative intentions of the researcher are *description* and *reasoning* aimed at fixing external and manifestation of internal essential relationships of an investigated object respectively.

To develop a framework of techniques and activities for teaching types of scientific discourse, we used an *integrated approach* which combines process-oriented, product-oriented and genre-oriented approaches.

Process-oriented approach is individual-oriented. Objectives are more general and are stated in terms of developing an individual's skills so that a learner can adapt to and function in any situation. Postgraduates are educated to be independent learners: they learn how to set objectives, define problems, generate hypotheses, gather information, make decisions, and assess outcomes. The emphasis is on the process, not the result. Since objectives are more open-ended, assessment is based on the progress students have made toward meeting the objectives. Success is more relative than absolute.

Product-oriented approach is situation-oriented. Since the trainer can customize the training to the situation, finite objectives can be specified. The content of this approach is matched to the finite objectives. The information is

transmitted from the trainer to the trainees. Trainees are expected to do as the trainer (or the acknowledged model) does. The emphasis is on obtaining results that conform as closely to the model as possible. Criteria for success can be specified. Measurement of these and therefore knowledge of the degree of the trainer's success is immediately attainable [14].

Genre-oriented approach is the best-known approach to the analysis and teaching of EST discourse. This approach is based on an examination of the constituent parts or "move structures" (Swales's term) of text which represent the writer's communicative purpose. It serves for making learners aware of how genres differ one from another and within each other, and how they can go about discovering these differences. Or, to put it another way, we should show learners the parameters which shape genre and the sorts of ways in which these parameters affect discourse structure and linguistic encoding. Types of activity which might contribute to such a procedure should seek to develop sensitivity to the subtle interplay between the various parameters affecting genre and how a change in any one of the parameters is likely to affect discourse structure and linguistic encoding [10, 11].

The methodology of teaching types of scientific discourse being developed by us assumes the following sequence of stages:

1) getting acquainted with properties (such as cohesion, coherence) and semantic structure of description and reasoning through presentation of texts-samples;

2) analysis of texts-samples, including finding out the elements of semantic structure and lexico-grammatical means of realization of description and reasoning;

3) practice in use of language means of manifestation of description and reasoning through a system of preparatory exercises;

4) independent text writing of a given type of scientific discourse by post-graduates under teacher's supervision (by means of pre-writing (rehearsing), drafting, editing (revising), preparation of final version);

5) independent text writing of a given type of scientific discourse.

Realization of methodology being proposed assumes the employment of various teaching techniques, such as: identification, analysis, comparison, correlation, transformation, expansion, filling the gaps, reconstruction and completion.

To develop writing skills conforming to the norms and stereotypes of a scientific discursive community, the following preparatory exercises aimed at analysis and imitation of model texts are suggested:

– identification of cohesion means (pronouns, conjunctions, markers, repetitions);

– analysis of grammatical features (tenses, articles, passive constructions, modal verbs);

– identification of key lexical phrases;

– identification of semantic structure elements (class-type, general-particular, cause – effect, arrangement in space and in time, etc.);

– reconstruction of a deliberately deformed semantic structure;

– logical regrouping of structure components.

To develop creative writing skills, we propose speech exercises assuming an independent choice of the subject matter, gathering of information, its critical analysis, organization, draft writing and subsequent editing.

To conclude, this paper has proposed the conception of embedding scientific discourse in the process of teaching postgraduates. The definition of scientific discourse has been specified from the perspective of teaching purposes. Basic types of scientific discourse – description and reasoning – have been singled out and analyzed. An integrated approach to developing writing skills and a framework of techniques and activities have been proposed.

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От анализа к обучению типам иноязычного научного дискурса

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Ключевые слова и фразы: обучение аспирантов иностранному языку; система приемов обучения и заданий; типы письменного научного дискурса.

Аннотация: Приведены доводы в пользу дискурсивного подхода к обучению аспирантов иностранному языку в научных целях. Для этого определены исходные позиции в понимании сущности научного дискурса, четко разграничены понятия «жанр» и «тип дискурса», проанализированы существующие классификации типов дискурса, выделены основные типы письменного научного дискурса, предложены последовательность этапов обучения им, а также структура заданий и лежащих в их основе приемов обучения.

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