

SUBJECT ORIENTED AND PROBLEM BASED TEXT MATERIALS AS A SUBJECT OF FLEXIBLE FOREIGN LANGUAGE READING IN RESEARCH PROJECTS

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Abstract. The article introduces the academic research work of students with- in the competence based approach, the models of academic problem based re- search projects taken up as a means to develop flexible foreign language read- ing skills. The authors reveal selection principles and corpus didactic design of text materials in the form of a macrotext, hypertext, and video course.

Keywords: problem based research projects; skills; flexible reading; selection principles; macrotext; hypertext; video course.

Currently research work is considered one of the main types of profes- sional activity of any specialist that is taken into account in the third genera- tion federal state educational standards and is deemed as an important task in higher institutions of different profiles. I.A. Zimnyaya stresses that “the task of training students in research goes in line with the general European goal of improving the quality of higher professional education in general” as re- search work of each student is a must at this academic level; only in this sit- uation can education be determined as vital and considered as a driving de- velopment force of economics, culture and the society in general [1: 8].

Information basis is considered as a necessary part of any research ac- tivity. The necessity for students to study information search strategies is highlighted in competence oriented program of teaching bachelor students and specialists when “the students are supposed to master the skills of work- ing with profession oriented foreign language texts, be able to perceive, ana- lyze and summarize information” [2].

When doing research we have to refer to text materials of different types (printed, e-media) that contain required information. That is why it is crucial for students to study efficient reading strategies in order to share this information and hence make an individual or team based decision.

Through the organization of academic research activity of future engi- neers it is essential to create a corpus of didactically designed texts as a sub- ject of flexible foreign language reading [3]. The necessity of viewing the text as a communication unit and main exercise component lays the funda- mentals for designing the corpus of a problem based material [4: 43]. Re- searchers believe that the text is a “short instant of time (moment) of a crea- tive linguistic process presented as a particular product” [5: 524], “the unity

of more or less complete content (meaning) and speech that generates and expresses this content” [6: 13], which is determined by “a semantic and structural completeness and a certain attitude of the author to the given content” [7: 4].

Being considered as a communication center within communicative approach for teaching process the text initiates mediated interaction of a person with other individuals that results in the exchange of thoughts, knowledge, information and leads to the mutual enrichment of individuals. Talking about the role of a text as a training material unit E.I. Passov underlines that it is considered as “food” for discussions, as “any good text bears a gold-mine of situations” [8: 200]. In the policy of teaching foreign languages texts are considered particularly as an important training content component along with situations, topics, language means of all levels, skills, and abilities.

In the research dedicated to the issue of teaching profession oriented reading, including a flexible foreign language one, the following principles were introduced and implemented for the didactic design of text corpus: profession and information significance, problem orientation, novelty, topic linkedness, notional synonymy, the presence of different and many authors, maintenance of author’s own intellectual creation, functional dependency, genre adequacy and representativeness, functional-semantic language consistency, quantitative sufficiency [9: 46-48].

The design of subject and problem oriented text corpus is required for providing the process of flexible foreign language reading and building particular speaking skills. Text corpus should be designed in accordance with didactic targets taking into account semantic, linguistic and composition components as well as the general principles applied in macro- and hyper-text. Besides it is essential to link these types of texts with the main tool of building flexible foreign language reading skills and namely problem based research projects.

Through the implementation of problem based research projects the principles of subject linkedness and problem based selection of corpus are especially essential for building flexible foreign language reading skills.

By the actualization of subject and topic linkedness of corpus, by the selection, analysis and assessment of information value as well as the sequence of the use of textual information logical and semantical topic pattern (LSTS) represented as a diagram gets a special value. For example we have selected for the students of the Oil and Mining Faculty at Perm Tech LSTS based texts (fig. 1) in English and Russian linked by the general subject content “Oil and Gas as Energy Sources” as the students got especially interested in the issues related to the methods of mineral exploration, enhanced oil recovery, offshore drilling, environmental impact of oil and gas production etc.

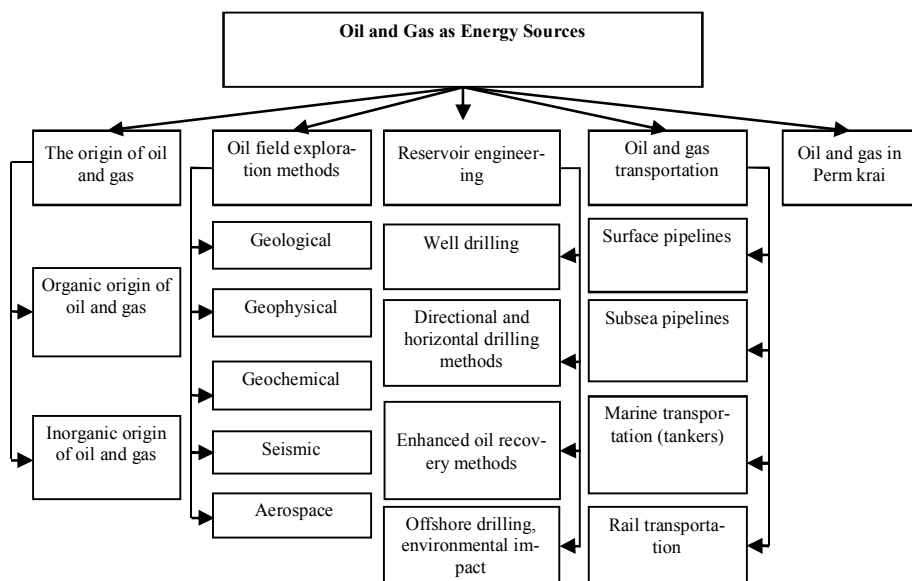


Fig. 1. Logical and semantical topic pattern “Oil and Gas as Energy Sources”

Based on such a figure the students learn perceive the information of a particular nature, specific information from texts, based not on the design of each particular text itself but on logical and semantical patterns of high generalization level [10: 78]. By the perception of information students go from general to the specific and back to a higher level of generalization that contributes to building flexible reading skills.

Due to logical and semantical pattern based reading the students start to use the internal mechanism of “generalization” [11], which means they understand the coherence of links and relations between objects and phenomena of the world around. As scientific research activity is impossible without generalization skills we believe that logical and semantical topic pattern can be deemed as a basis for creating didactic corpus of texts in order to build flexible foreign language reading skills by the implementation of problem based research projects. Thus foreign language and Russian texts or their fragments can be used as an external information basis required for performing problem tasks on the phase of moving from goal-task to goal-outcome within a particular problem based research project.

According to the principle of topic linkedness the whole text corpus is considered as a content whole unit that contributes to gaining specific knowledge about real objects, phenomena and processes. The topics as a subject of an academic activity help integrate selected original texts designed for reading in accordance with the subject content as well as manage the identification process in terms of content. By reading we can identify the

topic in the subject matter of the text and linguistic material, and then based on the title of the text we can predict its content [12: 86; 13: 90]. When selecting the topic we should consider the level of foreign language proficiency, the level of foreign language reading skills built, and future professional activity of students.

It should be noted that the work on the subject matter of text increases mental activity of students, which results in a purposeful and meaningful nature of information perception. Besides if thematic pattern of any topic or the whole field of knowledge represented as some ordering of speech elements is formed in memory, then it will be possible to appropriately forecast particular text events by reading [10: 84].

Thematic pattern kept in a long-term memory will operate as an internal information basis for the development of all the types of speech activity. By the design of an intellectual product of a problem based research project these patterns can turn into the program of a notional development of a statement from the general to the specific and vice versa. In the teaching process we should recognize that the students will be able to use in problem situations logical and semantical topic patterns in order to solve their research problems [14: 109].

The didactic corpus of printed texts is defined as macrotext (T.S. Serova, E.V. Krylova, A.S. Balakhonov, N.K. Syulzhina, S.G. Ulitina, T.G. Agapitova, I.V. Perlova, L.P. Raskopina, M.A. Mosina, T.A. Kovaleva etc.) that presents according to notional, language and composition components derived from different types of texts of many authors a part of the total information about the topic.

When talking about the consistency of each particular text and the corpus of text materials it is necessary to differentiate between their notional, communicative and structural consistency [15]. Notional consistency of macrotext is defined as a theme unity of all the units of its external pattern; communicative consistency is determined as the presence of all the constituents when each following text of macrotext adds, specifies, clarifies, or summarizes the contents of the previous one; and structural consistency is specified as macrotext divided into its component parts, units, interconnected by subject, logically and compositionally. Based on the external pattern of a foreign text the consistency of two macrotext patterns (external linguistic and internal notional) is actualized in the possibility to penetrate into it deep pattern, to understand the notional content and perceive meaningful information [16: 7].

We use professionally oriented texts in our research as we deal with future engineers and their academic and research activity should be focused on studying a specific professional area and gaining professional competences. That is why reading should also be professionally oriented together with its special features and functions [17].

The organization of an academic research activity requires actual and diverse text information derived from different materials (journal articles, leaflet texts, newspaper articles, technical manuals, conference materials, excerpts from legislative articles). It should include different views on the same issue; meet information needs of students, lead to the assignment and the subsequent use of the information in order to create an intellectual product in the form of a website as an information resource, e-training material, video, brochure, conference presentation, article and others.

Novelty and diversity of information in synonymous texts for a single topic is defined as a communication process between text authors and readers and provokes the exchange of this information. The creation of own information, fixation of thoughts, ideas, knowledge during interaction process brings about the formation of new concepts [11], which means new knowledge that is a must for the research work in any scope of activity.

Developed and theoretically grounded arguments, functions and the pattern of e-didactic text corpus for teaching foreign language reading is considered as hypertext which presents a special method, size and the technology for presenting, organizing and designing information. Digital texts have several characteristics that set them apart from traditionally printed linear texts; it is a supertext, a new way and method to capture information, a personalized world cognition model [18: 25]. Hypertext comes out as a technology of presenting designed information, the set of interlinked elements via key words of e-text hyperlinks or text fragments.

Being an available information source hypertext is determined as a reading object that gives students the opportunities to find, select information and thus engender individual micro-hypertexts on research topics for the following in-depth studies in order to create own intellectual product. A didactically designed hypertext refers to the scope of knowledge, includes pattern units of macro-hypertext, information fragments interrelated on the level of theme and rheme relations as well as global, basic and local key semantic points as hyperlinks in a form of words and word-combinations [Ibid: 8].

Student research activity is directly connected with Internet information resources; hence hypertext taken as a didactically designed text corpus is defined as an essential object of flexible foreign language reading. Internet information resources have certain advantages over printed texts: access to Internet information resources at any time, rapid transmission of data of any amount and type for any distance, long-time storage of information, images and video in computer data, editing, processing etc., the transfer of the materials obtained on own media and rapid exchange of materials, working with the materials in convenient places, data search from diverse resources and data use for educational purposes; more than that it gives the possibility to use teaching audio and video records, animation, graphic inserts, slide-show, training classes on Skype, etc.

For the students who are involved in problem based research projects there should be a didactically designed hypertext both in English and Russian because when doing research a student needs to study and compare different points of view for the same topic. Scientists from different countries usually carry out research on similar topics, thus the more information the better project outcome. The study of research topic materials in the native and foreign language helps students express their own point of view on the issue with confidence and assess the thinking of other students.

Quantity specifications of text materials required for performing problem based research projects are stipulated by flexible foreign language reading where different authors present diverse views on the same topic as only "the synthesis of information from many resources and its translation into the native language helps get knowledge and polish the opinion about the object" [17: 3]. Thanks to the accumulated experience of methodologists who studied the functions and specifications of macro and hypertext we can suggest combining subject and problem based designed printed texts together with digital texts (on discs, flash cards etc.).

Problem based text materials are a necessary part of work on academic research projects as up-to-date information lets students search, assign new information and use it in their project work. Speech is determined as "an act in a problem based situation", as "speech act starts with a need. This act-engendering link complies with the break out of a problem based situation" [19: 25-29]. "Thinking along with the speech is grounded on a problem based situation" [20: 19]. By comparing different thinking experience, the system of evidence and argumentation derived from different texts students learn deploy the idea about same issue in different ways and distinguish new contrasting data.

Problem based text material and its value help students greatly activate the process of flexible reading as in academic process all the attention of students is focused on identifying the main idea, real phenomena and processes. Selected texts should represent diverse statements of authors on debated issues. Students should read the texts very attentively, grasp the meaning of how different authors handle the issue, take most efficient ways of solving the problem and produce individual or team based creative ways for dealing with a problem. Only active interaction of a student with text authors and their joint thinking activity engendered by reading, the process of solving mutual professional issues and problems of social value contribute to the development of new ideas, new intellectual product and flexible reading skills.

In our research we have selected for the students of the Oil and Mining faculty the issues related to the general subject content "Oil and Gas as Energy Sources" that lets the students find a way to handle the key issue stated in the text title:

- The age of hydrocarbons or information technologies?
- Exploration of hydrocarbons and the selection of field development methods.
- Enhanced oil recovery of deep depleted reservoirs.
- Economic impacts of oil and gas industry.
- Environmental impact of oil production.
- Geopolitics and energy resources.

Thanks to the diversity of types of chosen problem based research projects, and namely: **1) academic information and linguistic, 2) academic information and cognitive, 3) academic communicative and information projects** - we can ensure a constant involvement of students in the process of information exchange in speech communication. Developed and theoretically proven models of flexible foreign language profession oriented reading guarantee efficient information exchange [21]. It is defined as “a dynamic interaction of the subtypes of reference and informative reading that shows up in their shifting and matching and is specified by an individual and team based goal-task and goal-outcome” [Ibid: 35].

Interaction form, the value and urgency of different student research project topics, orientation on the joint result that involves each team participant altogether create the conditions for active students' involvement into working process, subject-subject interaction, and active information exchange. Selected texts and problem oriented tasks performed during academic research project work expand students' knowledge in the professional area, contribute to the development of professional discourse and build flexible foreign language skills.

Based on research carried out in the sphere of video discourse [22] we can say that video discourse can be taken as an information basis (video fragments about oil and gas transportation, mineral exploration methods) as well as one of the ways to design the corpus of text materials. The content of video materials has informational, practical and emotional value for students and helps consider individuality as one of the leading teaching characteristics in terms of individuality and activity based approach [23: 98].

Thus didactically designed corpus of subject oriented and problem based texts as well as theme designed video course which are used in academic research projects for building flexible reading skills represent content and emotional fundamentals for searching, assigning and transferring data that helps determine information and identify communicative-cognitive needs of students. Thanks to subject and problem orientation of given information we can ensure the involvement of individuals into interaction in order to achieve mutual outcome in a form of a joint intellectual product. This process intensifies academic research activity, improves flexible foreign language reading skills and determines efficient and purposeful professional activity of students.

References

1. ZIMNYAYA, I.A., 2010. *Student research activity in a higher institution as a design object in competence based general academic program of higher professional education / For the advanced training of the instructors of higher institutions in the sphere of the design of general academic programs that execute federal state educational standards of higher professional education*. Moscow: Research center of the quality of teaching specialists, 38 p.
2. *Third generation federal state educational standards of higher professional education (bachelor)*. URL: <http://window.edu.ru/recommended> (date of access: October 14th, 2014)
3. SEROVA, T.S. and RASKOPINA, L.P., 2011. Business intercultural communication in the professional activity of a specialist. *The bulletin of Perm national research polytechnic university. The issues of linguistics and pedagogics*, 5 (36), 247 p.
4. KOLSHANSKY, G.V., 1984. *Communicative function and structure of language*. Moscow: Nauka, 175 p.
5. GALPERIN, I.R., 1977. Text Grammar Category. *Proceedings. APN USSR. The series of literature and language*, 36 (6).
6. GOLOVIN, B.N., 1980. *The fundamentals of speech culture*. Moscow.
7. LOSEVA, L.M., 1980. *How text is designed: the manual for teachers*. Moscow.
8. PASSOV, E.I., 1977. *The basics of foreign language teaching methods*. Moscow: The Russian language, 216 p.
9. SEROVA, T.S., 1989. *Theoretical background of teaching profession oriented reading in a non-linguistic higher institution*: Thesis of Doctoral of Pedagogical Science. Perm.
10. SEROVA, T.S., 2001. *The psychology of interpreting as a complicated type of communication activity*. Perm, 210 p.
11. VYGOTSKY, L.S., 2008. *Thinking and speech*. Moscow: Labyrinth, 352 p.
12. MOSINA, M.A., 2001. *Teaching profession oriented informative reading - the dialogue of English scientific methodological texts*: Thesis of Candidate of Pedagogical Science. Perm, 160 p.
13. KOVALEVA, T.A., 2005. *Handling communicative and cognitive tasks by teaching future teachers profession oriented reading*: Thesis of Candidate of Pedagogical Science. Perm, 207 p.
14. MITRYUKHINA, I.N., 2010. *The methods of building communicative and cognitive interest by teaching interpreters foreign language speaking in the sphere of professional communication*: Thesis of Candidate of Pedagogical Science. Yekaterinburg, 236 p.
15. MOSKALSKAYA, O.I., 1981. *Text grammar*. Moscow, 183 p.
16. KRYLOVA, E.V., 1994. *Didactic basics of macrotext design for teaching foreign language informative reading / English language, first level*: Synopsis of PhD Thesis in Pedagogics. Moscow.
17. SEROVA, T.S., 2013. Characteristics and functions of profession oriented reading in the academic and research activity of students, PhD students and instructors of higher institutions. *The bulletin of Perm national research polytechnic university. The issues of linguistics and pedagogics*, 7 (49), pp. 3-12.
18. SYULZHINA, N.K., 2006. *Development and didactic design methods of hypertext based on studying theoretical subjects in the professional training of an interpreter (specialist)*: Synopsis of PhD Thesis in Pedagogics. Perm, 25 p.
19. LEONTYEV, A.A., 1972. Foreign language thinking as a psychological and methodological issue. *Foreign languages at school*. Moscow, 1.
20. KOVALEVSKAYA, E.V., 1999. *Problematical character of teaching foreign languages: current situation and perspectives*. Textbook for higher institutions. MNPI, 120 p.

21. SEROVA, T.S. and RASKOPINA, L.P., 2009. *Teaching flexible profession oriented foreign language reading in business intercultural communication*. Perm: Publishing House of Perm State Technical University, 242 p.
22. RUZKAYA, E.A., 2012. *Building information based speaking skills by listening activity for future interpreters*. PhD Thesis in Pedagogics. Nizhny Novgorod, 221 p.
23. KOVALENKO, M.P., 2003. *Information basis of speaking activity in building lexical listening skills based on a foreign language monologic utterance*: Thesis of Candidate of Pedagogical Science. Yekaterinburg, 210 p.
24. SYSOYEV, P.V. and KOKOREVA, A.A., 2013. Teaching students profession oriented vocabulary on the base of parallel texts. *Language and Culture*, 1 (21), pp. 114-124.
25. MINAKOVA, L.U. and PILUYKOVA, A.V., 2014. Innovations in EFL curricula in a non-linguistic higher institution. *Language and Culture*, 3 (27), pp. 157-165.
26. MAKSAEV, A.A., 2014. Methods of students sociocultural interaction skills development by means of International Academic Language Projects. *Language and Culture*, 3 (27), pp. 146-156.