

PAPER • OPEN ACCESS

A SHORT GUIDE TO DEVELOPING COMMUNICATIVELY ORIENTED TEXTBOOK ON SPEECH CULTURE

To cite this article: Anisina Natalya *et al* 2020 *IOP Conf. Ser.: Mater. Sci. Eng.* **940** 012145

View the [article online](#) for updates and enhancements.

You may also like

- [Online classification of imagined speech using functional near-infrared spectroscopy signals](#)

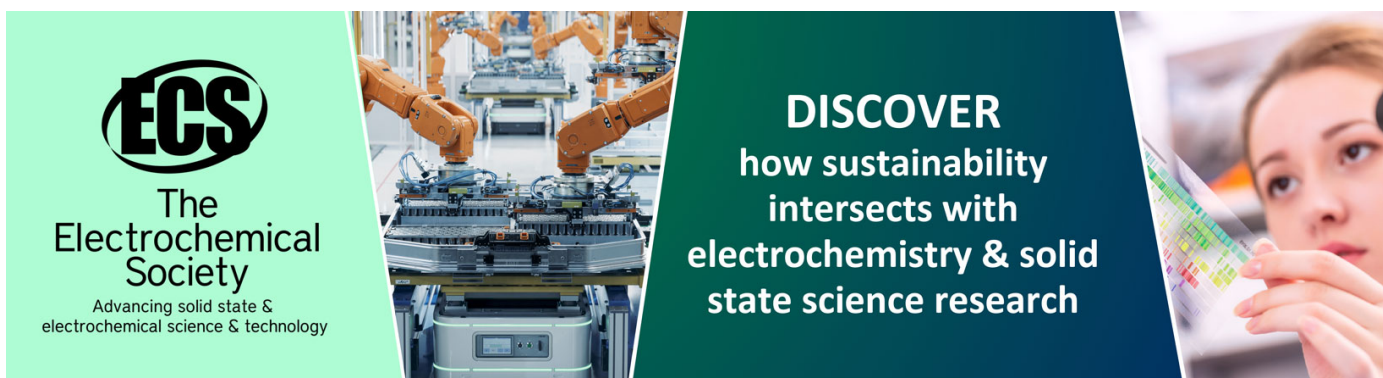
Alborz Rezazadeh Sereshkeh, Rozhin Yousefi, Andrew T Wong *et al.*

- [An auditory brain–computer interface evoked by natural speech](#)

M A Lopez-Gordo, E Fernandez, S Romero *et al.*

- [Imagined speech increases the hemodynamic response and functional connectivity of the dorsal motor cortex](#)

Xiaopeng Si, Sicheng Li, Shaoxin Xiang *et al.*



ECS
The
Electrochemical
Society
Advancing solid state &
electrochemical science & technology

DISCOVER
how sustainability
intersects with
electrochemistry & solid
state science research

A SHORT GUIDE TO DEVELOPING COMMUNICATIVELY ORIENTED TEXTBOOK ON SPEECH CULTURE.

Anisina Natalya, Bolshakova Anna, Voloshinova Tatyana* and Ganapolskaya Elena

Peter the Great St. Petersburg Polytechnic University, St. Petersburg, Russian Federation

*E-mail: voloshinova_tyu@spbstu.ru

Abstract. The article describes the longitude experiment on creating the communicatively orientated textbook on Russian speech culture. The problem of the majority of modern textbooks on speech culture is the lack of communication potential as they are usually based on texts from classical literature and that is why the language material is far from the professional needs of the university students (and especially the students of technical, mathematical and economical directions of education). The authors of the article conducted the linguistic researches in different language levels and proposed the principles of creating the textbook on speech culture with orientation on the professional needs of the university students. Then the principles were realized in the textbook "Russian Language and Speech Culture". The efficiency of the principles is affirmed during the experiment; students who studied the speech culture with the help of the textbook showed better results than the control groups. The textbook became one of the most popular manuals for practically orientated university students.

1. 1 Introduction

According to the electronic catalogue of the Russian National Library in Saint Petersburg (editions from 2005 to the present day), there are more than 700 books entitled "The Russian Language and Speech Culture" and more than 800, according to the Russian State Library electronic catalogue. The number of published textbooks may vary (26 items in 2016 according to the RNL and 94 items in 2009 according to the RSL). We may consider it to be a proxy measure, as according to the law, a copy of every officially registered publication is presented at RNL and RSL. The most common type of publication is a textbook (457 items). Thus, it can be concluded that the textbook in the Russian language and speech culture is in demand in the book market, which in turn shows the demand for this type of publications in the educational process.

However, there is a problem that has been identified after carrying out cursory editorial and methodology-educational analysis of the relevant publications. As modern educational frameworks are aimed at development of the human capital asset [1-3], communicative principles should unlock creativity of a person and teach him or her language and speech culture [4, 5, 7-22]. However, the vast majority of textbooks are designed for language professionals-to-be. Only a few textbooks were published to teach non-philologists, for example: Russian language for non-philologists / Fedosyuk M.Y., Ladyzhenskaya T.A., Mikhailova O.A., etc. M.: Flint, 1997 (15th, stereotypical, 2012), A manual on the scientific style of speech for non-humanitarian universities / edited by I.G. Proskuryakova. St. Petersburg, 2002 (2nd, 2004). There are also some manuals aimed at teaching foreign non-philologists. These textbooks do not often meet the communicative needs of non-philologists as they are based on fiction and feature texts, and nonfiction texts of various genres which are not of academic interests for such students.

That was the main reason for a group of Peter the Great Saint Petersburg Polytechnic University lecturers to undertake a longitudinal study aimed at development of principles that can be applied when creating a communicatively oriented textbook on the speech culture for non-philologists. Such books are to be based on the selection of communicatively significant language units of different levels (from word to text).



So, the aim of the research was to develop the principles of creating a communicatively orientated textbook on Russian speech culture for non-philologists. To reach this aim we set the number of objectives:

- to study the communicative needs of the university students;
- to explore the orthological difficulties in communicative samples (single word level, collocation and sentence level, microtext level) and to find out the principles of their realization in the communicatively orientated speech culture textbook;
- to show the effectiveness of the textbook created according to these principles.

The study was launched in 1999. Findings of its initial stages resulted in the preparation and publication of "The Russian Language and Speech Culture" textbook (St. Petersburg: Piter, 2005). At the final phase of the study the authors conducted a pilot test to check effectiveness of the proposed solutions and reissued the manual in "Juright" publishing house in 2019.

2. Study materials and methods

Due to the fact that the study consisted of several stages, the description of the specific forms of analyzed language units will be given below, for each of the stages separately. At the initial stages, the authors used the data of the expert survey and the texts selected as a result of this survey as study material. Other sources of information were as follows: orthological dictionaries, books of reference and updated academic literature dedicated to orthology. At the final stage we analyzed the results of students (of humanities, engineering and physics and mathematics departments) who studied "The Russian Language and Speech Culture" course. To conduct the analysis, we provided them with the material that complied with (or did not) the communicative approach.

3. Research stages and results

3.1. Stage 1. Analysis of communicative needs of students studying speech culture.

3.1.1. Materials and methods. Expert survey was the main method of inquiry at this stage. The analysis of educational and methodological resources (academic course working programs and regulatory documents) was chosen as an additional method of our inquiry.

3.1.2. Description of the study. As the textbook was created at Peter the Great Saint Petersburg Polytechnic University, the authors interviewed 12 engineering professionals (heads of engineering departments and heads of departments' scientific and advisory councils). The results of the survey reflected the outlook existing at engineering and mathematics and physics departments (seven out of nine) of the university.

3.1.3. The results. The results of the survey showed the ideas concerning competences, knowledge and skills required from students of engineering and physics and mathematics departments after studying "The Russian language and speech culture" course. The results of the analysis are presented in table 1.

Table 1. Expected results of "The Russian language and speech culture" course

	Very important	Important	Important enough	Not very important	Not important
Knowledge of pronunciation, morphological and syntactic norms of the Russian language	33%	33%	33%	-	-
Knowledge of spelling and punctuation norms of the Russian language	75%	25%	-	-	-
The ability to express ideas correctly when writing academic texts (answers to theoretical questions, essays, abstracts, course projects, graduation thesis)	17%	83%	-	-	-
The ability to verbally express ideas on professional issues in an academic	17%	50%	33%	-	-

situation (conversations with lecturers, graduation thesis statement)					
The ability to create and edit scientific texts within the scope of the studied area	8%	17%	58%	17%	-
The ability to communicate correctly in the scientific environment (within the scope of the studied area)	8%	25%	33%	33%	
The ability to maintain business correspondence, draw up organizational and administrative and guidance documentation	8%	8%	17%	50%	17%
The ability to conduct oral business communication (ability to organize and participate in business meetings and negotiations)	8%	17%	25%	43%	8%
The ability to write publicistic texts (media articles, promotional materials)	-	25%	25%	42%	8%
The ability to use publicistic style in oral (verbal) communication (public speaking concerning social, political and economic problems)	8%	33%	42%	17%	-

As sampling analysis of academic course programs (36 documents with a total volume of 724 pages) revealed, textbooks and reference books (78%), research monographs (6%), scientific articles and scientific conferences abstracts (16%) were the main sources of information for students.

3.1.4. Discussion of results. Having generalized the information, it was possible to draw the following conclusions:

1. The main competence that is formed is non-communicative (knowledge of spelling and punctuation norms of the Russian language). However, this does not mean that the need for communication skills is completely negated. Relevant competencies are often presented as answers to inducing questions (such as "What, in your opinion, should a graduate of your department be able to speak/write?").
2. The need of communicative skills development (mainly in the field of the academic style of speech) is obvious.
3. Texts and textbooks, as well as articles and conference abstracts, can be used as positive examples for the development of communication skills. Students' general theoretical and specific essays, abstracts, course papers and graduation theses may be considered as negative sample texts.

3.2. Stage 2. Orthological analysis of communicative samples at a single word level

3.2.1. Materials and methods. The authors chose texts of two standard textbooks on mathematical and natural science disciplines as orthological analysis material (Kudryavtsev L.D. Course of Mathematical Analysis. M.: High school, 1981; Glinka N.L. General Chemistry. - L.: Chemistry, 1985). At the time of our research these textbooks were studied by first-year students and were recommended in course programs of the relevant training disciplines for engineering departments.

The textbooks were computer-processed, resulting in a 12,078 item glossary. Subsequently, the glossary was compared with the data of orthological dictionaries and reference books (Rosenthal D.E., Telenkova M.A. Dictionary of difficulties of the Russian language. M.: Russian, 1985. Gorbachevich K.S. Dictionary of the difficulties of pronunciation and stress in the modern Russian language. St. Petersburg: Norint, 2000; Ageenko F.L., Zarva M.V. Dictionary of stress for radio and television workers. M.: Russian, 1985; Ivanova T.F. Cherkasova T.A. Russian speech is in the air. M.: Russian language, 2000). As the authors didn't pursue the idea of analyzing the system of language, currently important orthological dictionaries and reference books were preferred to general purpose dictionaries and grammar books.

3.2.2. The results. Statistical analysis of the results is presented in Table 2.

Table 2. Statistical distribution of orthological difficulties in texts of mathematical and natural science textbooks

	Noun	Adjective	Verb
Pronunciation difficulties, number of words	113	70	13
Accentual difficulties, number of words	153	219	84
Lexical difficulties, number of words and collocations	228	192	49
Morphological difficulties, number of words	234	113	57
Syntactic difficulties, number of words and collocations	70	12	81
Total	798	414	284

3.2.3. *Discussion of results.* The analysis revealed that the most problematic areas in the noun usage are morphological and lexical difficulties (29.3% and 28.6%), especially in the case-form formation area (*vektory-vektora*, *korpusy-korpusa*, *volt-voltov*, *kulon-kulonov*, etc.) and paronym usage (*dobavka-dobavlenie*, *sushchestvo-sushchnost'*). The most difficult area in using adjectives is accentuation (52.49%; mainly in short forms, such as *vrEdny* – *vrednY*, *vAzhny* – *vazhnY*) and the use of paronyms (46.3%; *skhematichny* – *skhematicheskii*, *yedinichny* – *yedinstvenny*). Accentology (29.6%; forms of short participles (*prInyata* – *prinyatA*) and –*irovat'* verbs (*blokIrovat'* – *blokirovAt'*) and syntax (28.6%; verb government (*nablyudat' kogo* – *chego*, *za kem* – *chem*, *nad kem* – *chem*) are the most problematic areas in the verb usage.

In general, it should be noted that the percentage of language difficulties associated with particular language units in the academic and research texts is relatively small (12% of the total number of words). Some of the language aspects are studied within school curriculum (e.g. case-form of nouns, accentuation of adjectives and verbs); therefore, the university course of speech culture only requires their revision. Nevertheless, we paid extra attention to the use of paronyms and government of verbs.

Having taken the results of the study into account, the authors decided to fill the first section of the textbook with orthological norms revision and to train students to identify mistakes in the text and check them with dictionaries and reference books. We allocated paronyms into a separate unit of the textbook and dedicated a whole paragraph to the problem of government of verbs. Furthermore, an orthological reference guide (containing language units that are most frequently used in academic communication) was developed and placed in the textbook as appendix.

3.3. Stage 3. Orthological analysis of communicative collocation and sentence samples.

3.3.1. *Materials and methods.* The analysis of academic texts was chosen as the main research method at this stage. When developing the Russian language course curriculum, the authors intended to perfect students' knowledge of a language and to make them start their academic research. That was the reason for us to pay attention to speech mistakes that scholars make (as they are highly-qualified engineers and involved in the intellectual activity). Furthermore, they belong to one of the main target groups of professionals who teach and train future engineering specialists. Speech mistakes of these professionals are difficult to eradicate. So, we chose "Fundamental Research in Technical Universities: Materials III All-Russian Science and Technology Conference, June 10-11, 1999" (International Academy of Higher School Sciences; St. Petersburg State Polytechnic University Spb.: SPBG TU, 1999 - 269 s.) anthology as our research material. We thoroughly analyzed these texts applying the continuous sampling method and selected the ones that contained various speech mistakes. Later these materials were examined with the use of reputable speech norm reference books (Russian grammar: in 2 volumes M.: Science, 1982; Rosenthal D.E. Handbook on Spelling and Literary Editing. M.: Iris Press, 2002; Rosenthal D.E. Russian Language Handbook. Government: Dictionary-reference. M.: EXMO-Press, 1998, etc).

3.3.2. *The results.* Statistical analysis of the results is presented in Table 3.

Table 3. Statistical arrangement of orthological difficulties in collocations and sentences in the conference anthology texts.

Type of mistake	Example	Percentage of mistakes out of
-----------------	---------	-------------------------------

		the total amount (100%)
1. Lexical mistakes		
1.1) mistakes in fixed expressions usage	<i>naibolee bolezennym</i> (instead of <i>bol'nym</i>) <i>voprosom yavlyaetsya...</i> , <i>eta operaciya imeet pod soboj</i> (instead of <i>imeet svoej</i>) <i>cel'yu...</i> , <i>predstavlyayushchij garantii</i> (instead of <i>predostavlyayushchij garantii</i>)	4%
1.2) failure to express the idea correctly	<i>izyskanie i vydelenie ogromnyh usilij obshchestva, dannaya tema prinyata kak odna iz prioritetnyh oblastej razvitiya...; predlagaetsya razvivat' ideyu vyrabotki resheniya...</i>	8,7%
2. Morphological mistakes		
2.1) gender identification of compound nouns	<i>blok-skHEMA, primes'-defekt</i>	8%
2.2) mistakes in nonprepositional and prepositional government		
2.2.1) misuse of a case-form (after a preposition, a noun or a verb)	<i>glavnaya prichina tormozheniyu dislokacij; imet' carapiny, identichnye s temi, chto byli na drugom oskolke</i>	4,7%
2.2.2) use of a wrong preposition after a noun or a verb	<i>Eti dannye byli podtverzhdeny v rezul'tate izucheniya tonkoj struktury elektricheskikh polej</i>	4,5%
2.2.3) choosing a wrong preposition in terms meaning or stylistic norm (согласно чему/ чего/ с чем; преуспевать в чем-л./ в деле чего-л.)	<i>способ магнитного контроля за ферромагнитными materialami</i> (instead of <i>способ магнитного контроля ферромагнитных materialov</i>)	8,6%
2.2.4) use of prepositional phrase instead of a prepositional one (and vice versa): a) violation of government norms; б) without violation of government norms (a chosen form has a wrong meaning or stylistically incorrect)	<i>eto kasaetsya vsekh studentov – eto kasaetsya do vsekh studentov</i> (old fashioned); <i>otgruzit' komp'yutery predpriyatiyu (dlya predpriyatiya) – otgruzit' komp'yutery v adres predpriyatiya</i> (in formal language)	4,3%
3. Syntax mistakes		
3.1) mistakes in the use of homogeneous sentence parts:		
3.1.1) in the government of dependent words case-forms when there are homogeneous sentence parts;	<i>vybor sposoba i razrabotka istochnikov vodoroda</i>	4,9%
3.1.2.) wrong choice of homogeneous sentence parts forms (when they belong to different parts of speech)	<i>Poetomu uzhe na stadii proektirovaniya poyavlyaetsya neobhodimost' opredeleniya granic ekologicheskikh i social'nyh ograničenij, t.e. provesti kvotirovanie izmenenij v prirodnyh i social'nyh sistemah...</i>	4,5%

3.1.3) wrong case form of a generic word and homogeneous sentence parts	<i>V poslednie desyatiletia chelovechestvo stolknulos' s nastupleniem dvuh krizisov: krizis ekologicheskij i krizis samogo cheloveka, ego otnosheniya k ideyam, idealam, tradiciyam, sistemam cennostej.</i>	4,8%
3.2) mistakes in the use of participle phrases	<i>Matematicheskaya model' vklyuchala v sebya sistemu uravnenij, opisyyayushchaya turbulentnoe techenie gaza okolo krivolinejnoj poverhnosti</i>	12,9%
3.3) mistakes in the use of transgressives	<i>Na fone usilivayushchegosya zagryazneniya okruzhayushchej sred promyshlennymi i bytovymi othodami, a takzhe uchityvaya neobhodimost' vovlecheniya rekul'tiviruemih zemel' i gruntovyh vod v antropogennoe ispol'zovanie, sformirovalis' trebovaniya obshchestva k kachestvu pochv i gruntovyh vod</i>	17,2%
3.4) excessive use of chains of ambiguous attributive modifiers	<i>Raschet razlichnyh tipov krivyh svobodnoj poverhnosti privodit k pogreshnosti v opredelenii gidravlicheskih elementov...</i>	12, 9%

3.3.3. *Discussion of results.* The analysis revealed that mistakes in the government in collocations (22.1%) are the most common ones (a wrong choice of a preposition or an incorrect form of a dependent word (the most widespread mistake)).

The most common mistake in sentence construction is misuse of transgressives (17.2%). The rest of mistakes are equal in number.

In general, syntax mistakes prevail in number. The analysis of academic texts allowed us to identify typical syntax mistakes (misuse of homogeneous sentence parts, excessive use of chains of ambiguous attributive modifiers, wrong usage of participle phrases and transgressives, etc) and specify their use in academic texts.

For example, chains of ambiguous attributive modifiers are common in the academic language but they are often used in a wrong way. The analysis of texts showed that it is difficult to understand the meaning of a text if such chain contains 17-18 nouns (*Razrabotany metodiki i algoritmy dlya rascheta po rezul'tatam naturnyh izmerenij v dejstvuyushchih setyah s nelinejnymi i izmenyayushchimisya vo vremeni nagruzkami parametrov skhem zameshcheniya na osnovanii trekhfaznoj cifrovoj informacii o mgnovennyh znacheniyah faznyh napryazhenij i tokov v issleduemom uzle*).

Wrong usage of participle phrases and transgressives in the texts of the conference abstract is a characteristic of formal language. The examples of such mistakes are: wrong cooccurrence of a participle and its main word because of their distant position in the sentence, wrong use of a participle phrase if subject of a sentence is functional entity.

So many syntax mistakes occur if the author of the text pays little attention to the meaning of the words that in turn, makes them difficult to understand.

The analysis of academic texts also revealed the following:

- shifting forms of a main word and a definitive one (*poluchennyh/ poluchennye tri veshchestva, metallicheskie/ metallicheskaya vtulka i krestovina*, etc);
- shifting of a subject and verb agreement when the subject of a sentence is a quantifier (*bol'shinstvo prishlo..., bol'shinstvo rabot vpolneno/ vpolneny..., bylo provedeno/ byli provedeny dva opyta*)), homogeneous subjects (*v kachestve istochnikov elementov III gruppy ispol'zovalsya/ispol'zovalis' trimetilgallij i trimetilaluminij*)), sequenced unifications in singular (*mahovik s preobrazovatelem energii smontirovan/ smontirovany*)).

This analysis resulted in developing a set of exercises (lessons 9- 11) aimed at preventing scholars from making such mistakes in their works. According to the reference books mentioned above, we arranged a set of recommendations to help avoid these mistakes.

3.4. Orthological analysis of communicative microtext samples.

3.4.1. *Materials and methods.* At this stage we selected more than 1000 microtexts from university textbooks (technical, academic and natural science courses). The linguistic profiling and the text perception experiment were the main methods of our study at the stage.

3.4.2. *Research descriptions* We can define the following communication needs for students:

- to understand the main idea of an academic text;
- to produce a secondary text (abstract or synopsis of a graduation paper);
- to make lecture notes or plans.

According to our examination of different types of microtexts or super phrasal units, we may conclude that there is no generalized classification of microtexts. For example, “description, narration, discourse” classification is based on the quality of the described object; “description, definition, instruction, proving, explanation, etc” classification of functional and communicative units of academic texts is based on speaker’s intentions and peculiarities of the described object. These scientists stated that they can be applied both to a microtext or a separate sentence (or its part). There are also microtexts that cannot be classified. Therefore, the ability of people to understand and create academic texts is not studied enough.

According to what has been said above, we decided to:

- 1) study the structure of a microtext and peculiarities of its organization connected with brainwork in text production and comprehension;
- 2) identify the main idea of the microtext based on cognitive psychology theory;
- 3) decode the message of the text;
- 4) confirm the theory and prove the results of microtext analysis by means of experiment;
- 5) develop techniques to improve text comprehension skills in order to write summaries and abstracts.

3.4.3. *Linguistic studies.* The first (theoretical) stage [6] was dedicated to analysis of the academic text structure. We found that in terms of psychology, problem solving is a sign of cognitive mechanism. To describe this process, we studied the works of scientists and creativity process. In the pedagogical framework such a process is considered to be a part of a learning comprehension process. Linguists tried to discover a microtext in learning the text that helps readers solve problems (Doblayev, L.P. (1982) *Smyslovaya struktura uchebnogo teksta i problema yego ponimaniya* [Semantic Structure of an Academic Text and Problem of its Understanding]. [Monograph]. Moscow: Pedagogika.). Yet, Doblaev L.P. believed a microtext to be no more than 2 to 18 sentences. In the microtext structure he separated only the first stage of the problem-solving process when a reader feels necessity to include new information into an overall scope of his or her knowledge. Doblaev L.P. did not consider other stages of the microtext structure because for him the text generation process was that of problem solving. So, there was introduced a hypothesis that other stages of problem solving can be found in the microtext. This idea can also help justify the use of lexical and grammatical forms, development of the microtext content and the algorithm of main idea detection.

At the second stage there was launched the research into a manual text for higher institutions, which helped put microtext unity and coherence down to the level it reflects a dilemma solving, with such microtexts being within working memory limits of an individual (no more than 7 sentences, 3 to 5 sentences on average). The research proved the fact that the core part of a microtext always stands out in terms of vocabulary and grammar on the background of encompassing sentences, and renders new information comparing to the previous sentences. Such a new idea will be developed in the following sentences. We compiled A, B, C, D (A, B, B, Γ) classification of microtexts on the basis of interconnection between core and encompassing sentences [6]. The textbook analysis showed that this microtext typology can be applied to any kind of a microtext, including “quasemicrotext” expressed in a single sentence. Relying on the above-mentioned facts, we put forward a hypothesis that the main idea of a microtext should capture such logical interconnection among the sentences (except for B-type of a microtext which does not meet the demand for this logical coherence).

3.4.4. *Experiment 1.* In 2001 four hundred students of engineering and humanities departments of Saint Petersburg Polytechnic University participated in the experiment aimed at proving the hypothesis. The students were given a microtext to read and summarize it in a single sentence.

3.4.5. *Experiment results (1).* The experiment proved the hypothesis, revealing 65% of students to summarize the main idea of a microtext in case its logical coherence is explicitly expressed by means of inter phrase connection. Since these summarizing skills were not well developed at a school period at that time, the students failed to show good results in a single sentence summary. Therefore, we had to develop a set of new additional tasks on improving microtext comprehension skills (look at “Lesson 12. Summary writing”).

3.4.6. Experiment results (2). Moreover, the experiment showed that all the students can succeed in summarizing and text outlining, finding the latter the most difficult. Some previous experiments included text outlining (headings, questions, quotes, and synopsis). We found out that almost half of students cannot ask a question to the whole microtext, or to its separate paragraph.

3.4.7. Method research. At the third stage of our research we developed a set of exercises aimed at perfecting information consolidation skills. We included a number of tasks that require making a plan of the text in the form of a table in "Section 3. How to master the main part of a report". The procedure is as follows: 1) express the main idea of this part of the text in one sentence; 2) ask a question to his sentence; 3) derive a noun form of a predicative verb and add dependent words to produce a prop collocation that can be transformed into a sentence or a part of a text (e.g., «Obychno k nikotinu otnosyatsya kak k yadu» - «Kak obychno otnosyatsya k nikotinu?» – «Otnoshenie k nikotinu kak k yadu»).

At the fourth stage of our research we analyzed educational texts to understand criteria of information distribution. The analysis resulted in the development of "A Guide to Academic Text Contents Analysis" that is presented in "Lesson 12. Summary writing". Taking the described objects into account, we classified texts into three groups: 1) texts about subjects, qualities, features, processes and events; 2) texts on theory, research techniques and methods of calculation; 3) texts dedicated to a scientific issue. In terms of meaning, information units were divided into three types: 1) features of the essence of an object; 2) description and evaluation of an object; 3) source of knowledge about an object. These units can be marked by a question («Pochemu proiskhodit, sushchestvuet? »), or by a noun («Prichina»). The following question may explain the essence of an object: What happens/ exists (definition of concept)?, Why does it happen/ exist?, What its existence may cause?, What are the reasons of its existence?, What does it consist of?

This universal scheme is recommended for the use in analytic-synthetic text reworking while revising for exams, preparing a speech, drawing up plans for a text of a report, writing an abstract or a reference part of a bachelor's work or dissertation. Tasks in "Lesson 14. Abstract writing" enables students to evolve their skills in the text content analysis and grouping of the material in the secondary text on the basis of our scheme.

At the fifth stage of the study, it was necessary to identify typical errors in student abstract writing. To do this, experiment 3 was conducted. Students were asked to write an abstract using three texts. Then these written works were analyzed.

3.4.8. Experiment 3 results. The analysis revealed that it is difficult for students to express their own cognitive actions (рассмотрим, сравним, следует выделить, можно сделать вывод, etc.) and to describe cognitive actions of the author of the abstract original source (avtor sravnivaet, analiziruet, etc.). Nevertheless, grouping information from different sources appeared to be the most complicated aspect for students.

At the sixth stage of the study we analyzed scientific article abstracts. This analysis allowed us to indicate three grouping types: principle of dependency (the general – the particular), principle of interconnection (concepts of one logical level: cause – effect, condition – consequence, application, nature of an object), compare and contrast principle (several explanations, several methods, two viewpoints on the matter. The textbook also provides lexical means for each of these grouping types.

3.5. Experiment on effectiveness of the textbook.

The first limited edition of our textbook was published in 20001 and was used only by students and lecturers of our university. After a testing period, we corrected some errors, improved methodological back matter and after that the textbook was published in "Piter" publishing house in 2005, 2006, 2008, 2009 and 2012. Since 2005 this textbook has been applied in teaching and learning process in Saint Petersburg Polytechnic University. The authors have been monitoring effectiveness of the textbook use.

Students of the following departments took part in testing: Department of Humanities (Institute of Humanities); Department of Civil Engineering (Institute of Civil Engineering); Electrical and Mechanical Department, Mechanical Engineering Department and Materials Engineering and Research Department (Institute of Metallurgy, Mechanical Engineering and Transport); Department of Engineering Cybernetics (Institute of Computer Science and Technology); Radio and Physics Department (Institute of Physics, Nanotechnology and Telecommunications); International Graduate School of Management (Institute of Industrial Management, Economics and Trade). Every year from 500 to 1000 students studied the subject. It is worth mentioning, that the textbook completely met communicative needs of engineering students

(principles of text selection and orthological basics materials). Communicative needs of students majoring in humanities and economics were partly satisfied (only sections aimed at public speech training and business communication). Consequently, we were able to evaluate effectiveness of approaches to communicative textbook creation through comparing academic results of students who paid particular attention to mastering academic style communication.

3.5.1. Materials and methods. Under intermediate assessment students were bound to undergo two tests on these sections: a test on academic proofreading and a test on abstract writing. The former would be an original text (extracted from students' abstracts and term papers) which contained some grammar and speech mistakes and incorrect formatting that did not comply with requirements of Lessons 8,9,10,11 and 13 of the textbook. They were supposed to find, check and explain various mistakes. If the mistake was spotted, checked and explained, a student would be awarded a single score. All these scientific and technical texts were understandable even to the first year students. The latter (test) expected from students to write a micro abstract based on three given texts. These (all humanities) texts were adapted for students of engineering, physical and mathematical, economic and humanities departments in accordance with their curriculum. We evaluated the quality of these abstracts on the basis of the following criteria: introduction and conclusion accuracy, quality of sources, layout accuracy, originality of a student's own text, compliance with scientific language/ style requirements, absence of any mistakes, and correct presentation of the text.

3.5.2. The results. We made a decision to show both general results and results of individual groups (according to five mark grading system). The results of academic proofreading test are presented in Table 4. We present the results of the Department of Engineering Cybernetics students (three random groups), and the Department of Humanities students (three groups of Public Relations division students). We also indicate the number of students. The results of micro abstract writing test can be seen in Table 5. We present the results of Radio and Physics Department students (three random groups), and the Department of Humanities students (three groups of Public Relations division students). Public Relations division was the only in the Department of Humanities that provided students with "The Russian Language and Speech Culture" course. Summarized data for all the departments for the period from 2005 to 2019 are displayed in Table 6. Percentage of students who failed to pass the tests at the first try is also presented in Table 6.

Table 4. Results of the academic text proofreading test

Students of the Department of Engineering Cybernetics	17	7	1	12	8	2	3	3	1
Students of the Department of Humanities	6	3	4	4	3	8	3	0	25

Table 5. Results of micro abstract writing test

Students of the Radio and Physics Department	5	26	17
Students of the Department of Humanities	25	26	9

Table 6. Summarized data

Academic proofreading test	Students of humanitarian and economic departments	10%
	Students of engineering and physics and mathematics departments	2%
Test on abstract writing	Students of humanities and economic departments	5%
	Students of engineering and physics and mathematics departments	7%

3.5.3. Discussion of results. The results presented in these tables can be considered as a proof of our textbook effectiveness. It should be noticed that if contents of a text satisfy professional communicative needs, then test results are better than predicted (technical texts proofreading ("excellent" and "good" grades): 81% for engineering and physics and mathematics students, and 29% for humanities students). The results are completely opposite if students are to deal with all humanities type of texts (65% of good and excellent grades for engineering students, 85 % for humanities students). We need to point to the fact that in 2014 "The Russian Language and Speech Culture" course was replaced by the "Contemporary

Russian Language” course (which is not focused on orthological difficulties) at the Public Relations division owing to changes in the State Educational Standard. Therefore, we have not been able to conduct a comparative analysis ever since.

4. General conclusion.

So, studying the communicative needs of the university students shows that the most relevant communicatively orientated positive text samples are textbooks, research papers and conference abstracts. The most relevant negative samples are essays, abstracts, course papers and graduation theses.

The research of the text samples allowed to create the main principles of presenting the orthological material in the Russian speech culture textbook. The most important principles are:

- to train the competence of location the potential orthological mistakes in the scientific or educational text;
- to develop the special orthological reference guide containing language units that are most frequently used in academic communication (it can be placed in the textbook as an appendix);
- to pay attention to the problems in using the participle phrases and transgressives as well as subjects and predicates coordination and excessive using of chains of ambiguous attributive modifiers;
- to use the universal scheme in analytic-synthetic text reworking.

Effectiveness can only be reached if teaching and learning materials are thoroughly selected (texts, analysis, detection of orthological and communicative difficulties). The study also revealed some peculiarities of the microtext structure that are to be taken into account while developing student's professional communication skills.

The experiment conducted in St. Petersburg Peter The Great Polytechnic University proves the effectiveness of the textbook created according to these principles.

References

- [1]. Golikov, A., Kudaka, M., Sergeev, V., Sergeeva, I., Tishin, P., & Tumakova, E. (2018). Human Capital as a Basis for the Development of a Modern University. *MATEC Web of Conferences*, 193, [05059]. <https://doi.org/10.1051/mateconf/201819305059> https://www.matec-conferences.org/articles/mateconf/abs/2018/52/mateconf_esci2018_05059/mateconf_esci2018_05059.html
- [2]. Kharlamov, A.V.; Kharlamova, T.L.; Koroteeva, O.S. Development of the educational system and the priorities of the knowledge economy. In *Proceedings 30th International Business Information Management Association Conference - Vision 2020: Sustainable Economic development, Innovation Management, and Global Growth*; Madrid; Spain; 8 - 9 November 2017; Soliman K.S. (ed.); IBIMA; pp. 4270-4277.
- [3]. Klochkova, E.S.; Bolsunovskaya, M. V.; Shirokova, S. V. The Significance of Humanities for Engineering Education. In *Proceedings of the 2018 XVII Russian Scientific and Practical Conference on Planning and Teaching Engineering Staff for the Industrial and Economic Complex of the Region (PTES)*; St. Petersburg; Russian Federation, 14 - 15 November 2018; IEEE, 2018; pp. 265–268; 8604199.
- [4]. Akhmetshin, E.M.; Mueller, J.E.; Yumashev, A.V., Kozachek A.V.; Prikhodko A.N.; Safonova, E.E. Acquisition of entrepreneurial skills and competences: Curriculum development and evaluation for higher education. *JEE* 2019, 22 (1), Available online: <https://www.abacademies.org/articles/acquisition-of-entrepreneurial-skills-and-competences-curriculum-development-and-evaluation-for-higher-education-7814.html> (accessed on 11.04.2019).
- [5]. Aleshchanova, I. V., Frolova, N. A., & Zheltukhina, M. R. (2019). Teaching resources in professionally oriented foreign language learning. Paper presented at the *IOP Conference Series: Materials Science and Engineering*, , 483(1) doi:10.1088/1757-899X/483/1/012038
- [6]. Anisina N.V. (2018) An Academic-Scientific Technical Text As A Means Of Pedagogical Communication. *The European Proceedings of Social and Behavioural Sciences. 18thPCSF 2018 - Professional Culture of the Specialist of the Future. 28-30 November.* P. 1304-1313 <https://www.futureacademy.org.uk/publication/EpSBS/18thPCSF/page-7>
- [7]. Batang, B. L. (2019). Language learning strategies and communicative competence of public elementary teachers. *Asian EFL Journal*, 23(3), 271-289.

- [8]. Bourina, H. V., & Dunaeva, L. A. (2019). Role of hypertext in teaching foreign languages. *E-Learning and Digital Media*, 16(2), 110-121. doi:10.1177/2042753019828358
- [9]. Giday, W. G., & Sarangi, I. (2019). The effect of communicative approach on students' speaking skills: The case of wolaita sodo university, ethiopia. *International Journal of Innovative Technology and Exploring Engineering*, 8(7), 77-82.
- [10]. Huang, P. (2019). Textbook interaction: A study of the language and cultural contextualisation of english learning textbooks. *Learning, Culture and Social Interaction*, 21, 87-99. doi:10.1016/j.lcsi.2019.02.006
- [11]. Kim, Y. M. (2019). E-learning assisted dramatization for communicative language ability and collaborative learning. Paper presented at the *Multi Conference on Computer Science and Information Systems, MCCSIS 2019 - Proceedings of the International Conference on e-Learning 2019*, 317-320.
- [12]. Kruchina, O., & Mikhaylova, A. (2019). Formation of professional and communicative skills in the study of foreign languages in maritime specialties. Paper presented at the *E3S Web of Conferences*, , 110 doi:10.1051/e3sconf/201911002004
- [13]. Lavrova, N. A. (2019). The principled eclecticism approach to teaching english and its integration into the russian system of education. [Подход избирательного эклектизма к обучению английскому языку и его интеграция в российскую систему высшего образования] *Perspektivy Nauki i Obrazovania*, 39(3), 423-431. doi:10.32744/pse.2019.3.32
- [14]. Mohd-Asraf, R., Hossain, M. T., & Eng, T. K. (2019). Fifty years of communicative language teaching: A synthesis of critical implementation issues. *Asian ESP Journal*, 15(1), 147-175.
- [15]. Necheukhina, N.S.; Matveeva, V.S.; Babkin, I.A.; Makarova, E.N. Modern approaches to the educational process aimed at improving the quality of highly qualified personnel training. In *Proceedings of the 2017 IEEE VI Forum Strategic Partnership of Universities and Enterprises of Hi-Tech Branches (Science. Education. Innovations) (SPUE)*; St. Petersburg, Russian Federation, 15 - 17 November 2017; Shaposhnikov S. (ed.); IEEE, 2017; pp. 192–195.
- [16]. Perez, Y., & Poole, P. (2019). Making language real: Developing communicative and professional competences through global simulation. *Simulation and Gaming*, doi:10.1177/1046878119869756
- [17]. Ruiz, M. R., & Spínola, N. O. V. (2019). Improving the intercultural communicative competence of english language students. *Journal of Intercultural Communication*, 2019(49)
- [18]. Sergeeva, M. G., Zotov, V. V., Tsibizova, T. Y., Skovorodkina, I. Z., & Tereshchenko, A. G. (2019). Technology of integrated foreign language teaching at university. *International Journal of Engineering and Advanced Technology*, 8(6), 4586-4592. doi:10.35940/ijeat.F8888.088619
- [19]. Timkina, Y., & Khlybova, M. (2019). Quasi-professional tasks in the foreign language education. Paper presented at the *IOP Conference Series: Materials Science and Engineering*, , 483(1) doi:10.1088/1757-899X/483/1/012064
- [20]. Trostinskaia, I.R.; Safonova, A.S.; Pokrovskaya, N.N. Professionalization of education within the digital economy and communicative competencies. In *Proceedings of the 2017 IEEE VI Forum Strategic Partnership of Universities and Enterprises of Hi-Tech Branches (Science. Education. Innovations) (SPUE)*; St. Petersburg; Russian Federation, 15 - 17 November 2017; Shaposhnikov S. (ed.); 2017; pp. 29–32.
- [21]. Winch, J. (2019). Does communicative language teaching help develop students' competence in thinking critically? *Journal of Language and Education*, 5(2), 112-122. doi:10.17323/jle.2019.8486
- [22]. Zemlinskaya, T.Ye.; Fersman, N.G. Modern Learning Technologies: Empirical Analyses (On the example of teaching foreign languages and intercultural communication). In *Proceedings of the 29th International Business Information Management Association Conference, 2017 – Education Excellence and Innovation Management through Vision 2020: From Regional Development Sustainability to Global Economic Growth*, Vienna, Austria, 3 - 4 May 2017; Soliman K.S. (ed.); IBIMA, 2017; pp. 4087-4094.