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#### SCIENTIFIC AND METHODOLOGICAL ASPECTS OF CREATING QUANTIZED EDUCATIONAL TEXTS AND THEIR INTEGRATION INTO CHEMISTRY DISCIPLINES TEACHING

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The article discusses the issues of creating pedagogical content based on the reconstruction of educational texts by the method of their quantization. The leading research method was a statistical survey of students to assess their level of satisfaction with the method used in the process of mastering chemical disciplines.

The authors presented a model of scientific and methodological foundations for the creation of quantized texts, which includes basic rules, principles and algorithms. The verification of the scientific and pedagogical robustness of the developed quantized content for chemical disciplines was carried out at the universities of Kazakhstan (Abai Kazakh National Pedagogical University, Sh.Ualikhanov Kokshetau University). This enabled the authors to scale the process of implementing educational technology more effectively.

The authors describe the steps and recommendations for creating materials, taking into account the target audience, the level of detail, the structuring of the material and the choice of appropriate technological tools. An expert assessment of the possibility of using the quantization method in teaching other disciplines of natural science and humanities has been carried out.

The scientific and methodological component of this topic is also of particular importance, including the development of optimal strategies for integrating quantized texts into the educational process, adapting the content to modern educational standards and evaluating the effectiveness of such teaching methods. This approach allows providing high quality and modern chemistry education that meets the requirements of modern society.

**Key words:** educational technology, text quantization, quantized educational text, modernization of education, chemistry, pedagogical content, text, pedagogical activity.

#### КВАНТТЫҚ ОҚУ МӘТІНДЕРІН ӘЗІРЛЕУДІҢ ҒЫЛЫМИ-ӘДІСТЕМЕЛІК ЕРЕКШЕЛІКТЕРІ ЖӘНЕ ОЛАРДЫ ХИМИЯЛЫҚ ПӘНДЕРДІ ОҚЫТУ ПРОЦЕСІНЕ ЕНГІЗУ

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Мақалада оқу мәтіндерін кванттау әдісі арқылы қайта құру негізінде педагогикалық мазмұнды құру мәселелері қарастырылған. Қолданылған әдіске қанағаттанушылығына қатысты студенттердің химиялық пәндерді меңгеру үрдісінде статистикалық сауалнама басты зерттеу әдістердің бірі ретінде таңдалды.

Кванттық мәтіндерді құрудың ғылыми-әдістемелік негіздерінің моделі ұсынылған, ол негізгі ережелерді, принциптерді және алгоритмдерді қамтиды. Қазақстанның жоғары оқу орындарында (Абай атындағы ҚазҰПУ, Ш.Уәлиханов атындағы ҚУ) химиялық пәндер бойынша әзірленген квантталған мазмұнның ғылыми-педагогикалық дұрыстығын тексеру жүргізілді, бұл білім беру технологиясын енгізу үдерісін неғұрлым тиімді масштабтауға мүмкіндік берді.

Авторлар мақсатты аудиторияны, егжей-тегжейлі деңгейді, материалды құрылымдауды және оларға сәйкес келетін технологиялық құралдарды таңдауды ескере отырып, материалдарды құру бойынша қадамдар мен ұсыныстарды сипаттайды. Жаратылыстану-ғылыми және гуманитарлық бағыттағы басқа пәндерді оқыту кезінде кванттау әдісін қолдану мүмкіндігіне сараптамалық баға берілді.

Квантталған мәтіндер негізінде оқу процесінде интеграциялаудың оңтайлы стратегияларын әзірлеуі, мазмұнды заманауи білім беру стандарттарына бейімдеуі және оқыту әдістерінің тиімді бағалануы аталған тақырыптың ғылыми-әдістемелік маңызын ашып көрсетеді. Бұл

көзқарас химия саласында қазіргі қоғам талабына сай сапалы және заманауи білім беруді қамтамасыз етуге мүмкіндік береді.

**Түйінді сөздер:** білім беру технологиясы, мәтінді кванттау, кванттық оқу мәтіні, білім беруді жаңғырту, химия, педагогикалық контент, педагогикалық іс.

## НАУЧНО-МЕТОДИЧЕСКИЕ ОСОБЕННОСТИ РАЗРАБОТКИ КВАНТОВАННЫХ УЧЕБНЫХ ТЕКСТОВ И ВНЕДРЕНИЕ ИХ В ПРОЦЕСС ПРЕПОДАВАНИЯ ХИМИЧЕСКИХ ДИСЦИПЛИН

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В статье рассматриваются вопросы создания педагогического контента, на основе реконструкции учебных текстов, методом их квантования. Ведущим методом исследования являлся статистический опрос студентов на предмет удовлетворенности применяемого метода в процессе освоения химических дисциплин.

Представлена модель научно-методических основ для создания квантованных текстов, которая включает в себя основные правила, принципы и алгоритмы. Проведение проверки научной и педагогической корректности разработанного квантованного контента для дисциплин химической направленности, были проведены в университетах Казахстана (КазНПУ имени Абая, КУ имени Ш.Уалиханова), это позволило более эффективно масштабировать процесс внедрения образовательной технологии.

Авторами описываются шаги и рекомендации по созданию материалов с учетом целевой аудитории, уровня детализации, структурирования материала и выбора соответствующих им технологических средств. Дана экспертная оценка возможности применения метода квантования при преподавании других дисциплин естественно-научного и гуманитарного направления.

Особую важность приобретает также научно-методическая составляющая данной темы, включающая в себя разработку оптимальных стратегий интеграции квантованных текстов в учебный процесс, адаптацию содержания под современные образовательные стандарты и оценку эффективности таких методов обучения. Такой подход позволяет обеспечить качественное и современное образование в области химии, соответствующее требованиям современного общества.

**Ключевые слова:** образовательная технология, квантование текста, квантованный учебный текст, модернизация образования, химия, педагогический контент, педагогическая деятельность.

### Introduction.

The UNESCO science report titled "Towards 2030" points out the "increasing importance of science, technology, and innovation in the rapidly changing world of today. Recognition of the key role of knowledge in the emergence and development of new employment sectors and economic growth brought to the development of the knowledge economy concept and ways of making this concept feasible". The means to achieve the set goals include improvement of the innovative ecosystem; and demonstration of the possibilities of innovative development of humankind [1].

The countries of Central Asia (Kazakhstan, Kyrgyzstan, and Tajikistan) undergo different stages of education reform. Kazakhstan provided less contribution to education (3.1% of GDP in 2009), compared to Kyrgyzstan (6.8% in 2011) or Tajikistan (4.0% in 2012), but never the less this country is on the road of progress to improve the quality of education over the past 10 years. Thus, for instance, the higher education sector accounts for 31% of GERD (Gross Expenditure on Research and Development).

Since 2010, Kazakhstan has joined the Bologna Process, which work aims at unifying higher education systems and establishing the European Higher Education Area [2]. Central Asian studies on the employment sector (2013) prove, that in Kazakhstan natural sciences account for 29.6%, engineering sciences and technologies make 29.1%, health sciences make 6.2%, agricultural sciences make 12, 5%, social sciences comprise 1.3% and humanities make 12.3%. The UNESCO World Education Monitoring Report (2016) indicates a shortage of 40 million individuals with the required level of higher education, and a complete secondary education coverage should be achieved by 2030, otherwise, this will lead to more than

60 million people in poverty in low-income countries. Kazakhstan and Uzbekistan demonstrated the highest productivity in physics and chemistry studies, however, PISA-2018 results showed that the reading, math, and science proficiency of 15-year-olds is well below the OECD average. Indicatively, Kazakhstan students were 92 points below the OECD (489 points) by reaching 397 points in natural sciences. Given the reasons for such an indicator being objective, it is notable that there are examples of high performance among Kazakhstan students, namely, those of NIS (Nazarbayev Intellectual School), proving the effectiveness of educational programs in the following way: reading literacy – 511 points, mathematics – 554 and natural science – 526 points [3].

The NIS Educational Program provides an optional choice of the natural science disciplines, ensuring a 6-hours teaching load in grades 11 and 12. All this testifies to a qualitative and effective approach to the subjects of the natural sciences. Yet, the authors consider the most distinguishing the learning outcomes system, as part of the Program for the updated educational content. The Program for the updated school education content requires every student to have skills of today to be able to resolve everyday problems employing critical and creative thinking arising from the development of initiative, curiosity, and perseverance, social and cultural awareness. The updated educational content includes the system of learning objectives formed in such a way that the study of any subject brings forward the development of high-order thinking skills for each student enabled by an assessment system. The abovementioned contributes, firstly, to determine the degree of student's ability at each stage of the educational process; secondly, it aids in tracking student's work progress and adjusting his development pathway; thirdly, it offers pedagogical support for students in achieving learning goals; and finally, it allows monitoring the effectiveness of mastering the curriculum.

Thus, based on the foregoing, the higher education system is supposed to demonstrate a high level of educational services provided and, although universities independently choose educational pathways for training specialists, they should mind the requirements of the "teaching labor market" and "international education standards". In this regard, the problem of the quality of the provided educational services is becoming progressively essential.

Studies applying functional linguistics to reading and writing in science have widely explored the learners' language challenges stemming from the complexity of written texts in school science. But attention has not been paid to studying the issue of teaching students to understand complex texts [4].

**Research objectives.** The purpose of this article is to study and discuss the scientific and methodological features of the development of quantized educational texts and their successful implementation in the teaching of chemical disciplines.

The task of the authors is to present methods for adapting quantum information to the educational environment, providing a clear and understandable representation of complex chemical concepts.

**Materials and methods.** Parceling the text into short segments is called quantization. By using this method, the segments become more understandable to the majority of students based on the already studied educational or other material, considering the level of training of the student. The main principles of applied quantization include accessibility, memorability, clarity, and brevity of the presentation of educational material. Segmentation and optimization of educational material (text), accompanied by the formulation of subheadings for each meaningful part constitute the essence of text quantization [5, p. 81]. The academic freedom of universities permits their authoring teams to develop and work out educational programs. The university component in the EP is generally represented by disciplines that were mostly elective subjects in the previous curricula, which result in the emergence of subjects, mainly based on proprietary solutions and teaching materials. School textbooks undergo certain peer review procedures, university textbooks, and study guides, in the meantime, never become an object of thorough peer review, due to the academic independence of universities. Hence, as long as the Academic Council of the University approves educational materials as the main academic body, there arise certain problems with their quality. Nevertheless, the educational text represents an actual reliable source of didactic information that determines the content and nature of the student's independent activity [6].

Despite the fact that most educational texts are in a certain way adapted for perception and understanding by students, taking into account the purpose and objectives of learning, working with the text is often still difficult for them [7, p. 177].

Pedagogical literature addresses two types of problems in teaching and mastering educational information. B.I. Fedorov, for instance, suggests that the first type problem is with the "... student that may obtain educational information, but not completely realize its meaning." Another type of issue is when "... students realize the meaning of the entire content of educational information, but remain unable to distinguish the principal from the non-principal therein [8, p. 81]. From a didactic point of view, these problems may be crossed given the strict observance of the logical and informational requirements brought forward to any language communication. N.V. Glushenko distinguished the following common reasons for misunderstanding the text:

- multiple meanings in expressions;
- figurative meanings of words and expressions;

- synonymous words;
- continuous use of several speech structures.

The "meticulous" method used by linguists reveals a direct proportion of the students' capacity for building-up various constructions associated with the provided text. This method is aimed at encouraging the student to pose as many questions as possible to the proposed text. The number of questions asked indicates the student's aptitude to overcome the difficulties of understanding educational information and is thereby intended to improve the ability of educational material assimilation. The triad "understanding-assimilation-application" proposed by Ya.A. Komenskiy reflects the meaning of the linguo-didactic paradigm: understanding of the text and the assimilation of knowledge [9, p. 416].

That is, quantization is the division of an educational text into small indivisible semantic parts, from which all secondary information is removed (abbreviation of the educational text), and complex language formulations are replaced with more understandable ones that are accessible to the target audience. Moreover, each of the semantic fragments has a laconic title that succinctly conveys the information contained in this fragment (quantum). [10, p. 35].

The Concise Dictionary of Linguistic Terms", defines a text as "a meaningful sequence of verbal signs possessing properties of coherence, integrity, and the property of the general meaning underivable from a simple sum of the meanings of the components." Bernstein N.A., delineates a text as an optional organized set of signs that unfolds in time and space, like a ritual as a text, culture as a text, dance as a text [11, p. 608]. The "Explanatory Dictionary of the Russian Language" by S.L. Ozhegov and N.Yu. Shvedova defines the text as "an internally organized sequence of segments of a written work or written or spoken speech, relatively complete in its content and structure" [12, p.736].

Basic meanings of the term include the following: 1) the text as a coherent sequence, completed and correctly formatted; 2) some common model for a group of texts; 3) a sequence of statements belonging to the same participant in communication; 4) speech work in written form [13, p. 89].

The text in the interpretive paradigm allocates two main aspects: epistemological and social. The epistemological aspect represents a set of fundamental knowledge, values, beliefs, and technological methods that serve as a model of scientific activity. The social aspect is seen through the specific scientific community, which they said activity combines, defining its integrity and boundaries [14, p. 1280].

In this sense, psycholinguistics may be named the interdisciplinary science in which the text paradigm is considered the most expressive, since the text is a social, psychological, and linguistic phenomenon, uniting linguistics, poetics, semiotics, the matter of which is considered in the aspect of revealing the resources of the meaning origination or transformation in micro and macro attributes. Micro attributes are expressed by the external coherence of the text, from the grammatical to the narrative structure (narrative is the spatial and temporal integrity of human life in the context of intrapsychic interaction) [15, p.29].

N.V. Khalina points out that the text is "a complex sign with elements and levels hierarchically organized...", and indicates that "... the text constitutes a kind of living principle, one of the forms of reflection, the spiritual form specifically, of life, which is organized into several hierarchical levels of subordinating systems, and not all systems are interconnected precisely hierarchically" [16, p. 463].

Polysemy and overlap with other terms are conditioned by the new coordinate system in which the text is "placed". A.N. Novikov, in his analyses of various approaches to the structure of the text, remarks that "the text is quite a complex object of study because of its multifaceted, multi-level organization."

The text study is credited different names: beside the term "text theory", there are "text linguistics", "text structure", "hermeneutics", "text grammar", "text stylistics".

According to V.G. Admoni "The text is a unit of social and communicative-cognitive practice, extremely diverse, fixed for its reproduction, and historically and functionally changeable. The text is built on speech material, but as a whole, it has its laws of construction. Therefore, its analysis cannot be carried out by purely linguistic means but must be based on a special methodology, which, should obviously consider the laws of linguistic matter used in texts" [17, p.238].

The definition of text theory, which follows from its integral essence with a dominant linguistic interpretation, can be formulated as follows: "In its essence, text theory is conditioned as an integrated multidimensional set of information about the text as an object of scientific knowledge study, from psychology, linguistics and so on, to culturology and pragmatics. The stratification of the sciences of the text, the field of influence and the introduction of knowledge about the text as a unit of inter-social relations, culture and communication can also be included in the formulation. In turn, in a narrow sense, text theory can also refer to a set of theoretical assumptions about the essence, features of the text, varieties, speech organization, function, etc. [18, p.161].

Provided range of opinions about the essence of the text does not contribute to its unambiguous interpretation, although it indicates the versatility and complexity of the object of consideration. Several criteria underly various interpretations of the text and suggest different approaches to its analysis: stylistics, linguistics, text theory (Bolotnova, Byalous, Valgina, Dymarsky, Erchak, Zalevskaya, and Karimova); communicative text aspect study (Kubryakova, Lukin, Moskalchuk, Nikolaeva); fundamentals of text theory (Pishchalnikova, Sorokin, Filippov, Khalina, Chuvakin, Shakhovsky, Shevchenko). Text representing an

object of study of scientific concepts such as derivatology, psychosemantics, sound symbolism; presentation of the text as a functional system, a self-organizing system; conceptual system, etc. (Belyanin, Moskalchuk, Murzin, Petrenko, Shabes, Chuvakin, etc.).

Text is quantized by means of reduction, segmentation, and the use of headings. Text may be reduced or compressed, distributed in parts, with headings to which of them separately. Quantization of literary or philosophical texts takes place in the form of creating perfectly complete semantic segments, while in the case of the STEM disciplines, in particular chemistry, quantization is not meant to be reduced to reference material, otherwise, the whole meaning of the idea of text quantization is lost. Practically, the text quantization tends to make the text shorter, clearer, more accessible, more interesting, and memorable [19].

There are certain laws underlying the method of text quantization. First, the segmentation of the text should not exceed 20 lines, keywords are selected to be used at the beginning of the text, phrases consist of simple sentences, participial and adverbial phrases should be avoided. Secondly, each part of the text shall have a separate title, and ultimately, each quantum has in its content an independent form of evaluation of the task received in the text, and, substantively, each quantum is focused on obtaining an answer to the question posed.

Knowledge of, for example, names, facts, definitions, formulas, etc., is also at the heart of the application of the text quantization method. Assessment of the quality and effectiveness of the text involves test tasks facilitating the educational process.

The development of science disciplines quantized texts for the students of Ecology, Biology, Physics, Biotechnology, Chemistry educational programs, is gaining efficiency since the use of a scientific text has its specific features. Thus, the division of the text on the discipline "Physical Chemistry" allows reducing a large amount of educational material with simultaneous preservation of the true meaning and meaning of laws or formulas.

A fundamental natural science discipline, physical chemistry makes up the methodological basis for the methods including **chemical, physical-chemical, chemical-technological, chemical-biological, etc.** For example, **"first law of thermodynamics" after quantization in the following segments,**

- **there is no such thing as a perpetual motion machine of the first kind, that is, it is impossible to create a machine that would do work without spending an appropriate amount of energy on it;**
- **the total energy supply is permanent in any isolated system;**
- **energy does not disappear without a trace and does not arise from nothing, different types of energy pass one into another in equivalent quantities;**

is represented by a mathematical formula, also short:

$$W + \Delta U = Q$$

where,

$W$  – work;

$\Delta U$  – internal energy change;

$Q$  – quantity of heat.

Differentially:

$$\delta W + dU = \delta Q$$

where,

$$\begin{aligned} \delta W + pdV &= \delta W' \\ \delta Q &= dU + pdV + \delta W' \end{aligned}$$

where,

$pdV$  – expansion work;

$W'$  – other work (electric work, surface work).

Apparently, the effectiveness of memorization and assimilation of educational texts primarily depends on the interpretation of the material, namely on the form it is presented. Regardless of the field of study of the discipline/subject, marked by a large number of formulas and equations, the critical task of the teacher is to make text transformation securing the main meaning and essence of the considered problem or task.

The process of acquisition of terms, expressions, laws, formulas, etc. for both the student and the teacher is known to be based on the principles of memorization, which is in this case, the effect of length, regularity, and serial position effect, and therefore the quantized educational text is transformed following these requirements.

The length effect means shorter elements (words or phrases), easy to remember; the regularity effect presumes repeated information that differs from the once perceived, the serial position effect is a phenomenon in which the memorized material should be at the beginning or end, to the elements located in the middle. The chemical ecology employs quantized texts to ensure that theoretical knowledge and applied skills of students are consolidated and broadened in the field of the natural physical-chemical and chemical processes in the atmosphere, hydrosphere, lithosphere; applicable to the main chemical elements and

compounds that make up all components of the biosphere; about atmospheric stability, and in conducting qualitative and quantitative analyzes of the natural and urban air composition, natural waters, wastewater, soil, and ground.

Using the example of the quantized text on the topic "Composition of the atmosphere" in the structure, you can observe a large amount of fragmented learning material. For example:

- The stability of the atmosphere's composition remains unchanged through **horizontal** and **vertical mixing**, where **horizontal mixing** is the result of the Earth's rotation and **vertical mixing** is the result of solar radiation affecting its surface.

- The **troposphere** is the lower part of the atmosphere. The temperature at the level of the troposphere decreases with increasing altitude, causing **conventional mixing**. **Conventional mixing** occurs because the sun heats the surface of the globe, which then heats only the air immediately adjacent to it.

The layer of the atmosphere consisting of two layers of air and in which the ozone layer is formed is called the stratosphere. Being at an altitude of about 15-25 km, the atmospheric layer is heated due to the absorption of ultraviolet radiation by oxygen and ozone, which in turn increases the resistance of the stratosphere to vertical mixing, since the heavy cold air at its base is not inclined to rise.

Such stability does not prevent the stratosphere from quite a thorough mixing **compared to** the higher layer of the atmosphere.

At the altitude above 120 km, turbulent exchange is very loose and individual gas molecules start segregating under the influence of gravity. Thus, the relative concentrations of atomic oxygen (O) and nitrogen (N) are greatest at the bottom, while lighter hydrogen (H) and helium (He) dominate above (Figure 1).

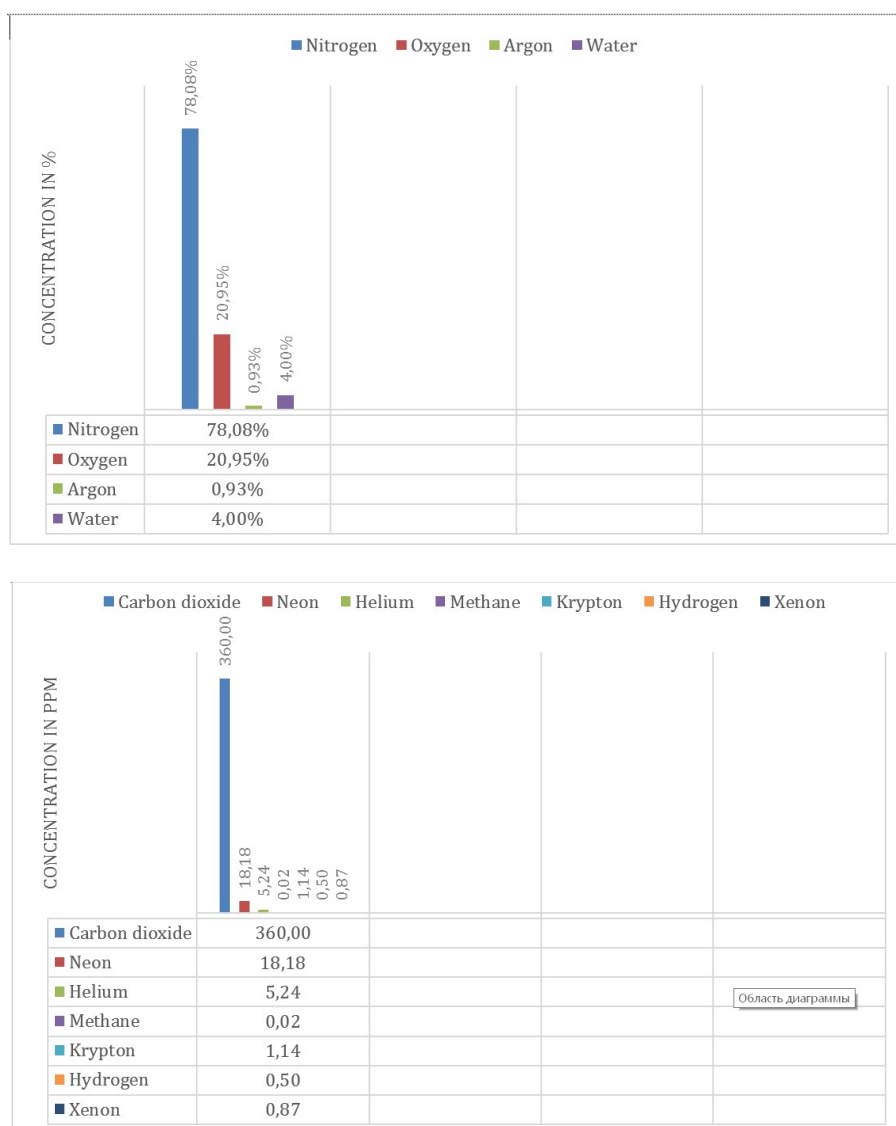


Figure 1. – Gross composition of unpolluted air

**Steady state of the atmosphere.** The atmosphere consists primarily of nitrogen (N<sub>2</sub>) and oxygen (O<sub>2</sub>) and a small percentage of argon (Ar).

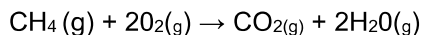
**Water** (H<sub>2</sub>O) an important gas with greatly variable content. In the atmosphere as a whole, water concentration depends on temperature.

**Carbon dioxide** (CO<sub>2</sub>) presented in a much lower concentration than many other relatively inert trace gases.

The concentration of most gases in the atmosphere remains almost constant compared to water and, to a lesser extent, CO<sub>2</sub>.

#### **Atmospheric Methane**

Coming to a separate trace gas in the atmosphere. Methane (CH<sub>4</sub>) possesses low reactivity. Its content in the atmosphere is about 1.7 ppm. Methane can react with oxygen in the following way:



The reaction can be represented as a state of equilibrium and described by the equation:

$$K = c(\text{CO}_2) * c(\text{H}_2\text{O})^2 / c(\text{CH}_4) * c(\text{O}_2)^2$$

where  $K$  is an equilibrium constant;

$c$  is a concentration of substances involved in the reaction.

As soon as the constant value is greater than one, the equilibrium is shifted to the right, and largely the direct reaction takes place. It is the temperature that determines equilibrium constants, not the concentration of substances [20, p. 185].

Thus, quantized texts designated to memorization and further reproduction carry a huge semantic load, with no impact on the essence of theories, laws, rules, etc. Quantized texts are a kind of schematic texts, containing the necessary graphic and mathematical signs for more efficient memorization, perception, and further reproduction.

**Results and discussion.** Traditional laws and methods of hermeneutics, known as one of the principles of text understanding serve as the basis for memorization, perception, and subsequent reproduction. For instance, the development of quantized texts for the scientific disciplines employs one of the methods of hermeneutics, namely, semiotics (signs and symbols), consisting of syntagmatic, semantics, and pragmatics, together with the analysis of individual parts of the text.

A survey involving 3rd-year students enrolled in the "Chemistry" educational program was conducted to estimate the effectiveness of the suggested quantized texts. The main purpose of the experiment was to identify the level of conformity of the applied methods. For this purpose, the teacher used educational texts developed using the quantization method throughout 5 lessons. Subsequent classes were conducted using traditional forms of information presentation, namely non-quantized lecture material.

During the next stage, students were asked to complete a questionnaire to identify the overall picture of the research. Students answered a series of questions aimed at determining the availability of educational material presented in the form of quantized texts. The questionnaire consisted of 10 questions (table 1):

Table 1. – Questionnaire

1	Are you familiar with quantized texts?	-Yes	-No	-Undecided
2	Do you think the use of quantized texts improves the perception of new material?	-Yes	-No	-Undecided
3	Can quantized texts facilitate the study of complicated subjects?	-Yes	-No	-Undecided
4	Is the material presented as quantized texts sufficient for studying the discipline?	-Yes	-No	-Undecided
5	Would you like quantized texts to be used in the study of other disciplines?	-Yes	-No	-Undecided
6	In your opinion, are quantized texts helpful in preparing for a test, midterm control, or exam?	-Yes	-No	-Undecided
7	Has the use of quantized texts improved your memorizing educational material?	-Yes	-No	-Undecided
8	Would you like all educational material to be provided in the form of quantized training texts?	-Yes	-No	-Undecided
9	Do you have experience in creating quantized texts?	-Yes	-No	-Undecided
10	What proportion of quantized texts, is in your opinion, necessary when studying educational material?	25%	50%	75%.



The questionnaire results are as follows (Figure 2):

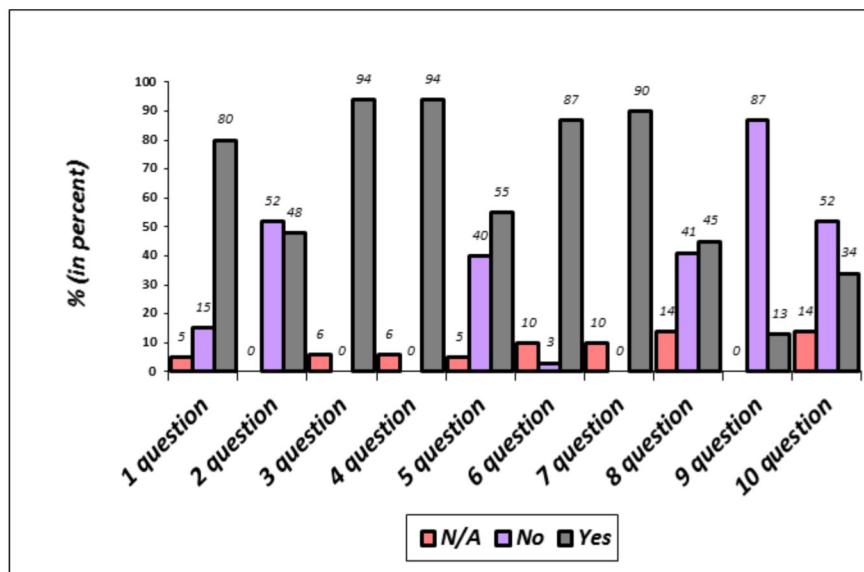


Figure 2. – Questionnaire to identify the level of efficiency in the use of quantized training texts

**Conclusion.** Results of the survey allow for the conclusion that the majority of respondents enjoyed this method. About 80% of students responded positively to its use during classes, given 76% had no idea about quantized texts at the beginning of classes.

In the course of using quantized texts, students (94%) suggested that they also should be used to study other disciplines, such as mathematics, physics, and geography.

The full transition to the use of quantized texts was approved by only 55% of students, while 40% declared against and 5% remained undecided. However, the survey conducted enabled formulating the following recommendations for the introduction of quantized texts in the educational process:

- 1) applying the method to simplify the presentation of complex, or extensive information;
- 2) modifying texts for more effective perception and memorization of educational material;
- 3) using the principles of hermeneutics behind the method of quantized texts;
- 4) following the rules for compiling quantized educational texts in the process of their preparation.

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#### METHOD OF TEACHING VERBAL AND NON-VERBAL CODES OF ADVERTISING DISCOURSE IN THE CROSS-CULTURAL CONTEXT

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*This article considers the problem of the methodology for training student majoring in advertisement in the context of the interculturalization of the advertising market. The modern world is an environment where different cultures are clashing and mixing constantly. Geopolitical or economic ties intricately link all nations and communities. Furthermore, this dynamic is intertwined with advertising, a phenomenon crafted as a part globalization. In this context, a country promotes its commodities to others, ventures into the global market, and engages in the import and export of its products. This underscores the practical significance of the research. Additionally, there is a discernible inclination towards creating advertisements for foreign products in alignment with the cultural nuances of the target audience. Both verbal and non-verbal elements of the local culture are used.*

*Therefore, there is a need to modernize and modify student's learning. To meet this need, the article proposes a model of teaching the verbal and non-verbal code of advertising discourse within the context of intercultural communication. The model focused on four-level qualitative indicators, contributed to the improvement of students' abilities to create advertising in the context of intercultural communication. The results of the study showed the specifics of students' language training, the importance of the ability to correctly use national cultural qualities, linguistic reality, mentality and acquired knowledge to create a successful and effective advertising company on the world market.*

**Key words:** verbal codes, non-verbal codes, advertising discourse, cross-cultural context, teaching advertising.

#### МЕТОДИКА ОБУЧЕНИЯ ВЕРБАЛЬНЫМ И НЕВЕРБАЛЬНЫМ КОДАМ РЕКЛАМНОГО ДИСКУРСА В КРОСС КУЛЬТУРНОМ КОНТЕКСТЕ

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*В данной статье рассматривается проблема методики подготовки студентов-рекламистов в условиях интеркультурализации рекламного рынка. Современный мир – это среда, в*