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These Conference Proceedings combine materials of the conference – research papers and thesis reports of scientific workers. They examines technical and sociological aspects of research issues. Some articles deal with theoretical and methodological approaches and principles of research questions of personality professionalization.

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CONTENTS

PEDAGOGICAL SCIENCES
Socio-economic determinants of digital financial literacy as a new phenomenon of modern education
Artamonova Ekaterina Iosifovna, Snurnitsyna Yulia Maratovna............................7
The role of robotics in the development of the cognitive interest of pupils
Burshit Irina Evgenievna, Krevsun Margarita Vladimirovna,
Nadolinskaya Tatyana Vasilievna.................................................................18
The Impact of constructively aligned course design on engineering students' satisfaction and engagement: An empirical investigation
Abobakr Mohamed Abbakar Khussein, Spasskaia Daria Dmitrievna...............27
Education and erudition: ideal and reality
Khokhlova Olga Mikhailovna, Faktorovich Tatiana Vladimirovna..................38
Islamic world view in the works of stories of the land of Syr
Ospanov Baktiyar Yesengeldiuly, Karbozov Bagdat............................................47
The essence of the involvement of parents of primary school children in a general education organization
Sabirova Snezhana Sergeevna........................................................................54
Safety of continuing education as a factor of pedagogical support for people 55-70 years old in extreme situations
Elmurzaev Dukhvakha Akhmedovich, Shaukhalov Aslan Bashirovich,
Lezina Valeriya Vladimirovna.........................................................................59

PHILOLOGICAL SCIENCES
Military discourse as a special kind of institutional discourse
Baykova Olga Vladimirovna, Smirnov Pavel Sergeevich.................................65
False statements as an object of linguistic research
Baykova Alexandra Vasilyevna.......................................................................70
Linguoculturological aspect of the relationship between language and culture
Rois Elizaveta Vladimirovna.............................................................................76

PSYCHOLOGICAL SCIENCES
Studying the relationship of the type of informational metabolism and human blood groups according to the ABO system
Lysenko Vadim Vyacheslavovich, Levchenko Elena Vadimovna......................80
Comparison of the level of mathematical literacy of ninth-graders and readiness of mathematics teachers for educational activities aimed at the development of functional literacy of students
Plotnikova Anna Leonidovna........................................................................................................86

POLITICAL SCIENCE
Russian space as a field of international integration and Chinese mission of response non lineaire to anglo-saxon appels
Kharlanov Alexey Sergeevitch, Evans Julia Nailyevna, Saversky Evgeny Vladimirovich, Bannikov Sergey Alexandrovich.................................98

MEDICAL SCIENCES
Circadian rhythm of diastolic blood pressure in acute renal failure in young children
Muhitdinova Hura Nuritdinovna, Kutlibayev Muzaffarmirza Maksudboy ugli....104
Influence of the psychoemotional and vegetative status of patients on the development of cholelithiasis
Khokhlacheva Natalia Aleksandrovna, Mikhailova Olga Dmitrievna, Vakhrushev Yakov Maksimovich.................................................................112
Sexogynecology as a Hypothesis of Medical Science
Konovalov Vladislav Gennajevich, Mendelevich Vladimir Davydovich..........122
The role of exogenous and endogenous factors in the formation of endocrinopathies
Polyakova Ludmila Viktorovna, Kalashnikova Svetlana Alexandrovna, Kondakova Larisa Igorevna.................................................................132
SOCIO-ECONOMIC DETERMINANTS OF DIGITAL FINANCIAL LITERACY AS A NEW PHENOMENON OF MODERN EDUCATION

Artamonova Ekaterina Iosifovna  
*Doctor of Pedagogical Sciences, Full Professor;  
Moscow City Pedagogical University*

Snurnitsyna Yulia Maratovna  
*Department Assistant  
Moscow State Regional Pedagogical University*

Abstract. The article is devoted to digital financial literacy as a new phenomenon of education. Based on the analysis of trends in the development of ecosystems and innovative technologies, two main areas are identified and detailed that determine the relevance of the problem of digital financial literacy of the younger generation: digitalization of the financial sector and legal regulation.

Keywords: digital financial literacy, financial literacy, digital literacy, financial behavior, fintech.

The rapid digitalization of the past decades has brought many digital financial services (DFS) providers to the market and expanded financial inclusion for various groups of the population, including the younger generation. However, rapid growth has been accompanied by a lack of awareness and risks, such as fraud, identity theft, etc. Removing these barriers from the consumer’s point of view is critical to the safe use of digital financial services, which causes the problem of increasing digital financial literacy (digital financial literacy, DFL), which includes the skills to manage funds and use financial services using digital devices. Financial literacy refers to awareness and knowledge of financial concepts and products needed to manage personal finances; digital literacy - to the ability to autonomously navigate digital content on the Internet.

According to the Facts and Figures 2022 report of the International Telecommunication Union (ITU), the UN specialized agency for information and communication technologies, the number of Internet users has more than doubled over the past 10 years: in 2012 - 2.4 billion people or 34% of the world’s population, in 2022 - 5.3 billion people or 66%. According to the document, 73% of the population aged 10 years and older own a mobile phone, which is
7 pp. higher than the percentage of people using the Internet, but this gap is narrowing in all regions, as over the past three years, the growth of Internet use has significantly outpaced the growth in the number of mobile phone owners [13]. In the countries of the CIS, Europe, North and South America, as of 2022, 80-90% of the population use the Internet, which is approaching universal use, defined by the level of Internet penetration of at least 95% [13]. It is also noted that worldwide, 75% of people aged 15 to 24 use the Internet, which is 10% more than among the rest of the population [13].

The statistical collection “Digital Economy: 2022” presents data characterizing the dynamics of the development of the digital economy in Russia. Let us turn to the indicators of the involvement of children and adolescents in digital reality (Table 1).

### Table 1.

<table>
<thead>
<tr>
<th>Age</th>
<th>2011</th>
<th>2014</th>
<th>2016</th>
<th>2018</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-14</td>
<td>72.0</td>
<td>86.2</td>
<td>87.1</td>
<td>92.1</td>
<td>95.4</td>
</tr>
<tr>
<td>7-11</td>
<td>42.2</td>
<td>66.2</td>
<td>68.3</td>
<td>73.5</td>
<td>83.3</td>
</tr>
<tr>
<td>3-6</td>
<td>22.6</td>
<td>35.3</td>
<td>49.3</td>
<td>52.4</td>
<td>68.3</td>
</tr>
</tbody>
</table>

Almost all teenagers aged 12-14 use the Internet (95% in 2020). Even greater growth rates were recorded in the age groups of 3-6 years and 7-11 years: 68% (+46 percentage points since 2011) and 83% (+41 percentage points), respectively.

According to the industry report “Children’s Runet 2019” by the Internet Research Institute, the leading weight of web usage practices in different age categories is different: for children under the age of 7, the main practice is watching videos (76.6%); 8-10 years old, 11-13 years old - online games (69% and 67.3%, respectively); for adolescents aged 14-17, social networks are becoming an important practice (49.2%) [2, p.4].

The results of analytical reports demonstrate that in recent years information technology has become part of the everyday life of the younger generation and one of the most effective means of interpersonal interaction that affects the social life of people. The problem of the influence of the virtual environment on the socialization of young people is devoted to the works of S.E. Khimchenko, V.V. Nikolaev, S.I. Samygin, M.S. Chvanova, M.S. Anuryeva, I.A., N.S. Chernoyarova and others. The advantages and disadvantages of digital socialization are presented in Table 2.
Table 2.

The influence of the virtual environment on the socialization of the younger generation

<table>
<thead>
<tr>
<th>Negative consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.E. Khimchenko, V.V. Nikolaev, S.I. Samygin</td>
</tr>
<tr>
<td>Lack of ability to concentrate on the same information for a long time; mental disorder,</td>
</tr>
<tr>
<td>including depression and borderline states; atomization and lack of collective experience</td>
</tr>
<tr>
<td>in the real world; fragmentation of thinking; hyperindividualism [6, p.67-68]</td>
</tr>
<tr>
<td>M.V. Startsev, V.V. Khlebnikov, M.A. Dzhabrailov</td>
</tr>
<tr>
<td>decrease in intellectual abilities, damage to social interaction with others, underdevelopment of algorithmic thinking among students; youth addiction to digital devices; manifestations of «digital dementia» among young people [5, p.72-74]</td>
</tr>
<tr>
<td>M.S. Chvanova, M.S. Anuryeva, I.A. Kiseleva</td>
</tr>
<tr>
<td>escape from reality; development of «clip» thinking; internet addiction; manipulation</td>
</tr>
<tr>
<td>of the consciousness and actions of the user; unwanted content; impact on the system of</td>
</tr>
<tr>
<td>destructive programs; phishing [9, p.28-29]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Positive consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.S. Chvanova, M.S. Anuryeva, I.A. Kiseleva</td>
</tr>
<tr>
<td>expanded communication space; organization of leisure; self-organization; education;</td>
</tr>
<tr>
<td>upbringing; development of cognitive interest; updating knowledge; scientific communication; raising the level of education [9, p.28-29]</td>
</tr>
<tr>
<td>T.A. Zhdanova, N.S. Chernoyarova</td>
</tr>
<tr>
<td>understanding one’s own social role; development of communication skills; training in</td>
</tr>
<tr>
<td>electronic literacy, navigation skills; competent use of cyberspace resources gives a</td>
</tr>
<tr>
<td>person an advantage over those who do not use or poorly use its resources, [3, p.122-126]</td>
</tr>
<tr>
<td>O.V. Demidkina, K.O. Vishnevsky</td>
</tr>
<tr>
<td>One of the key conditions for receiving the “dividends” of digitalization is digital literacy, which serves as a “guide” that ensures the realization of opportunities and the reduction of risks in various areas of human well-being, including education, employment, socialization and access to services. The level of digital literacy is the only factor of digital well-being that depends on the user himself [7, p.9-10]</td>
</tr>
</tbody>
</table>

Despite the concern of the pedagogical, psychological and sociological community about the consequences of the involvement of students in digital reality, as well as the acute relevance of the issue of digital socialization of the younger generation on the Internet, the problem remains insufficiently studied today and needs to develop approaches to training, leadership and supervision in order to realize the potential positive personal growth and achievement of “digital well-being” in the context of the development of cyber communications that change social, cultural, economic and other spheres of society.
According to O.V. Demidkina, K.O. Vishnevsky, the emergence in the research field of the term “digital well-being” (defined as “the maintenance and growth of human well-being in a social environment characterized by the digitalization of almost all spheres of life”) is due to the beginning of the all-penetrating spread of digital ones that affect the quality of human life and the level of his well-being [7, p.4].

At the same time, in our opinion, the main factors in the formation of digital financial literacy are: a) widespread use of digital financial products and services; b) access to money and financial products and services from an early age c) increased risk and increased individual responsibility.

*Widespread adoption of digital financial products and services*

Having access to the Web, as well as to a mobile phone, makes available a wider range of financial services, such as mobile banking, online applications, mobile wallets, etc. Digital technologies are increasingly integrated into the economy and have a significant impact on all areas of life, introducing new products, services and suppliers. The digitalization of the economy affects various aspects of everyday life and leads to an ever-growing digital footprint of every consumer. In 2018, the OECD, while noting the increasing digitalization of financial products and services and the resulting need to improve digital financial literacy, emphasizes the need to include it in programs and initiatives that are already in place as part of national financial education strategies for specific target audiences. So, for example, according to the document, the younger generation should be supported within the framework of the school curriculum through the addition of content with digital financial services [17, p.20].

In Russia, in 2017, and then in 2021, the Main Directions for the Development of Financial Technologies for the period 2018-2020 and 2022-2024 were approved: new generation financial services based on new technologies, development of data access mechanisms, environment for the development of fintech innovations, end-to-end digitalization of the financial market, financial literacy in the digital world, etc. [4, p.3, 13]

*Access to money and financial products and services from an early age*

Young people are quick to embrace new technologies when given the opportunity. This adaptability also applies to innovation in the financial sector. The latest PISA data shows that 15-year-olds already have experience with digital financial transactions: on average, 73% of students have bought something online in the last 12 months, and 39% have made payments using a mobile phone [10, p.30].

At the same time, the authors of the analytical study “Global FinTech Adoption Index” come to the following conclusions: global FinTech adoption has reached...
64% and has become the main one in all surveyed markets; three out of four consumers use the FinTech money transfer and payment service; Fintech adherents prefer online financial products and apps, despite concerns about the security of personal data; 68% of consumers are ready to consider financial services offered by a non-financial company; 46% of FinTech users are ready to share their banking data with other organizations in exchange for better offers, etc. [16, p.8-14].

Table 3.

“Global FinTech Adoption Index, 2019” [16, p.10]

<table>
<thead>
<tr>
<th>Fintech category</th>
<th>2015</th>
<th>2017</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money transfers and payments</td>
<td>18%</td>
<td>50%</td>
<td>75%</td>
</tr>
<tr>
<td>Savings and investments</td>
<td>17%</td>
<td>20%</td>
<td>34%</td>
</tr>
<tr>
<td>Financial planning</td>
<td>8%</td>
<td>10%</td>
<td>29%</td>
</tr>
<tr>
<td>Insurance</td>
<td>8%</td>
<td>24%</td>
<td>28%</td>
</tr>
<tr>
<td>Borrowing</td>
<td>6%</td>
<td>10%</td>
<td>27%</td>
</tr>
</tbody>
</table>

The most used category is remittances and payments, with growth increasing from 18% to 75%. Other indicators also demonstrate high growth dynamics compared to 2015. The statistical results of the use of fintech in age groups show a dynamic growth since 2015. So, for example, in the age category of 18-25 years, the indicators of the use of fintech are as follows: 2015 - 18%, 2017 - 37%, 2019 - 67% [10, p.24]. Bank accounts and accounts are the most relevant and widely used financial products of youth in most countries. The use of mobile devices to access an account is widespread in all age groups [10, p.25].

In recent years, Russia has been one of the world leaders in the digitalization of the financial sector and occupies leading positions in various international rankings: in 2020, Russia ranked 8th in terms of the number of Internet users and 6th in terms of penetration of mobile devices into everyday life consumers [4, p.12].

According to the NAFI study, the younger generation has access to various financial products from the age of 7 (Table 3).

Table 4.

Distribution of financial products by age groups of underage users in the world [1, p.18-19]

<table>
<thead>
<tr>
<th>Age</th>
<th>Financial products</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6</td>
<td>First savings account</td>
</tr>
<tr>
<td>7-9</td>
<td>Prepaid cards, adapted mobile services</td>
</tr>
<tr>
<td>10-13</td>
<td>The first debit card (named), limited versions of internet and mobile banking</td>
</tr>
<tr>
<td>14-17</td>
<td>Educational loans. Extended services in Internet and mobile banking</td>
</tr>
<tr>
<td>18-21</td>
<td>Complete list of banking products.</td>
</tr>
</tbody>
</table>
The younger generation is getting access to personal digital devices earlier and earlier. The needs of young people for financial products vary and develop depending on their age, personal circumstances, stage of life and socio-cultural factors, and “can be met primarily by including financial education in the curriculum” [15, p.56]. In response to changing user needs and emerging demand for comprehensive offerings, there is currently a trend towards synergies between financial and non-financial services. As a result, applications appear with the help of which users can pay for goods and services, order a taxi, order food, book hotels, receive government services, and etc, i.e. such applications cover almost all areas of the user’s life [4, p.7].

**Increasing Risks and Increasing Individual Responsibility**

On the one hand, digital financial services open up great opportunities by overcoming the barriers of physical infrastructure, potentially providing a seamless experience tailored to individual needs, on the other hand, they create new sources of risk for consumers: new types of fraud and risks associated with security and privacy [20, p. 9].

The rapid development of digital financial services creates situations where parents themselves may be less familiar with new products and limited in their ability to guide their children. Moreover, since young people tend to be new entrants to traditional and digital financial markets, financial regulation may find it difficult to meet their needs and protect them, making these problems more acute [20, p.10].

Another group of risks is related to the fact that children and young people, as a rule, easily cope with digital technologies, are often users of social networks and other digital tools, and at the same time have low financial literacy and insufficient experience with financial services. In some digital contexts, young people may not even realize that they are spending real money, for example a) in the case of online purchases in marketplaces with a linked card, when CVC and CVV verification and confirmation are not required b) in the case of buying applications or features in the game related to the automatic debiting of funds from a mobile or bank account.

Thus, the widespread availability of cashless shopping options through online stores, interactive television, online and mobile games, social networks or via contactless cards makes money less real for users making their first spending decisions, which can lead to negative consequences of using digital financial services [20, p. 8-11].

Children and young people are not familiar enough with the basic aspects of information security. According to a study by Kaspersky Lab, the tendency to share information about yourself is explosive and affects almost everyone today; in fact, only 7% of people do not share information with others digitally (Table 5).
Table 5.

Exchange of digital data by age (Kaspersky Lab study, [21])

<table>
<thead>
<tr>
<th>Data</th>
<th>16-24</th>
<th>25-34</th>
<th>34-44</th>
<th>45-54</th>
<th>55+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photos and videos of travel</td>
<td>91%</td>
<td>92%</td>
<td>88%</td>
<td>84%</td>
<td>76%</td>
</tr>
<tr>
<td>Other photos and videos</td>
<td>90%</td>
<td>87%</td>
<td>83%</td>
<td>79%</td>
<td>71%</td>
</tr>
<tr>
<td>Photos and videos of my children</td>
<td>55%</td>
<td>73%</td>
<td>76%</td>
<td>74%</td>
<td>70%</td>
</tr>
<tr>
<td>Personal photos and videos</td>
<td>61%</td>
<td>64%</td>
<td>55%</td>
<td>45%</td>
<td>38%</td>
</tr>
<tr>
<td>Photos and videos of other people</td>
<td>52%</td>
<td>54%</td>
<td>47%</td>
<td>37%</td>
<td>33%</td>
</tr>
<tr>
<td>Contact Information</td>
<td>52%</td>
<td>53%</td>
<td>43%</td>
<td>35%</td>
<td>29%</td>
</tr>
<tr>
<td>Private messages</td>
<td>50%</td>
<td>49%</td>
<td>43%</td>
<td>36%</td>
<td>30%</td>
</tr>
<tr>
<td>Photo of passport and other documents</td>
<td>46%</td>
<td>52%</td>
<td>43%</td>
<td>33%</td>
<td>27%</td>
</tr>
<tr>
<td>Financial and payment details</td>
<td>42%</td>
<td>46%</td>
<td>38%</td>
<td>29%</td>
<td>27%</td>
</tr>
<tr>
<td>Personal email addresses</td>
<td>39%</td>
<td>44%</td>
<td>38%</td>
<td>29%</td>
<td>29%</td>
</tr>
<tr>
<td>Work documents</td>
<td>43%</td>
<td>43%</td>
<td>37%</td>
<td>30%</td>
<td>22%</td>
</tr>
<tr>
<td>Personal records and documents</td>
<td>40%</td>
<td>43%</td>
<td>35%</td>
<td>29%</td>
<td>26%</td>
</tr>
<tr>
<td>Work email addresses</td>
<td>38%</td>
<td>41%</td>
<td>36%</td>
<td>29%</td>
<td>22%</td>
</tr>
<tr>
<td>Passwords (including automatic registration on sites)</td>
<td>36%</td>
<td>39%</td>
<td>31%</td>
<td>22%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Young people most often share data with others. 42% of people aged 16 to 24 and 46% of people aged 25 to 34 share financial and payment details; 36% and 39% respectively share passwords, etc. According to the authors of the study, it is interesting that the age group 25-34 years old shares data somewhat more often than 16-24 year olds. The authors suggest that 25-34 year olds never had the opportunity to be effectively aware of the risks associated with sharing information on the Internet, while perhaps the younger group, which includes Generation Z, had an advantage in that grew up in an environment thanks to more technology and therefore perhaps more cyber empowered [21].

The relevance of the issue of digital financial literacy is reflected in international and Russian studies by the OECD, PISA and NAFI. Since 2009, the OECD has been developing and conducting international surveys of the level of financial literacy of adults from the age of 18. The original questionnaire was first tested in 2010 as part of the first international OECD event on measuring financial literacy and financial inclusion, in 2015, 2018 and 2022 the instrument was revised three times to update its content and expand its scope (Table 6) [19, p. 5-8].
Table 6.

OECD Diagnostic Tools for Measurement
financial literacy of adults (from 18 years old)

<table>
<thead>
<tr>
<th>Year of development</th>
<th>Year of study</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2022</td>
<td>2022-2023</td>
<td>Results expected</td>
</tr>
</tbody>
</table>

The 2018 toolkit attempts to identify potential target populations by differentiating financial literacy indicators by individual characteristics (such as gender, age, digital use, etc.). Research 2019-2020 confirmed the low level of financial literacy: participants on average scored less than 61% of the maximum score, young people and the elderly often demonstrate lower levels of financial literacy, as well as those who do not use digital devices or services; young people (aged 18–29) have lower financial literacy scores than the rest of the sample; respondents who used digital devices or services consistently and significantly increase financial literacy, knowledge, behavior and well-being [18, pp.63-64].

Despite the fact that the 2018 toolkit reflected questions related to the use of digital financial resources, the 2022 version of the questionnaire for the first time contains questions for measuring digital financial literacy (about the storage and use of digital financial products and services, about digital financial knowledge, behavior, etc.) [19]. The results expected after the end of the study based on the updated toolkit will allow us to consider the possibilities of developing digital financial literacy at the higher school level.

In the context of technological innovation, global connectivity and other global trends, PISA is also changing the way we measure student financial literacy at the school level.

Table 7.

PISA diagnostic tool for measuring financial literacy

<table>
<thead>
<tr>
<th>Year of study</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>The PISA financial literacy analysis and assessment system was first developed for PISA 2012 and has received only minor editorial changes for PISA 2015 and PISA 2018.</td>
</tr>
<tr>
<td>2015</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td></td>
</tr>
</tbody>
</table>
The measurement methodology has undergone significant changes: revision of the definition of financial literacy; changing the distribution of points by category; changes in the description of non-cognitive factors; taking into account synergy with cognitive assessments from other areas [20, p.5-6].

Changes in the diagnostic toolkit take into account the latest developments in financial literacy and financial education research, as well as in the financial, economic and socio-demographic situation, related to the financial literacy of young people: a) revision of the definition of financial literacy (replacement of “motivation and confidence” with “attitudes” to take into account the role of a wider set of settings); b) updating all content areas; c) changing the category of the process “analysis of information in a financial context” to “analysis of financial information and situations”, taking into account its wider scope; c) expanding the section “Interaction of financial literacy with knowledge and skills in other areas”, taking into account possible future synergies with other cognitive assessments; d) revising the description of non-cognitive factors to take into account a wider range of financial behaviors, new ways young people access information and education (including digital tools and delivery channels developed using behavioral analysis), new ways young people access money and financial products (in particular, through digital financial services) [20, p.5-6].

A number of the above trends reinforce the global interest in the financial literacy of the younger generation, with some trends, such as especially the digitalization of finance, gaining importance in recent years.

Based on the foregoing, it can be concluded that the relevance of the problem of digital financial literacy is determined by a complex of objective factors that determine the successful socialization of the younger generation, such as the transformation of customer expectations and behavior, the development of ecosystems based on technology companies and financial organizations, etc. The analysis of the research made it possible to identify and to detail two main areas that determine the relevance of the problem of digital financial literacy of the younger generation: digitalization of the financial sector and legal regulation as a response to the new challenges of the modern world (Figure 1).

It should be noted that financial literacy has become a popular “recipe” for increasing the level of financial inclusion. However, “most evidence suggests that adult financial education activities have a limited, if not zero, impact on literacy and financial behavior” [14, p. 2]. Access to the Internet and various digital tools, active use of mobile phones and applications, on the one hand, and the rapid development and regulation of financial technologies, on the other, actualize the problem of developing digital financial literacy from an early age.
Targeting the audience of the younger generation can minimize the restrictions that arise when working with the adult population, and will also contribute to the early formation of meaningful and responsible behavior, the education of the future reasonable consumer of financial services, and the creation of the foundations for the material well-being of children in their adult life.

Figure 1. Socio-economic determinants of students’ digital financial literacy

References


THE ROLE OF ROBOTICS IN THE DEVELOPMENT OF THE COGNITIVE INTEREST OF PUPILS

Burshit Irina Evgenievna
Candidate of Pedagogical Sciences, Associate Professor, Taganrog Institute named after A.P. Chekhov (branch) Rostov State University of Economics (RINH), Taganrog c.

Kreysun Margarita Vladimirovna
Candidate of Pedagogical Sciences, Full Professor, Head of Department Taganrog Institute named after A.P. Chekhov (branch) Rostov State University of Economics (RINH), Taganrog c.

Nadolinskaya Tatyana Vasilievna
Doctor of Pedagogical Sciences, Full Professor Taganrog Institute named after A.P. Chekhov (branch) Rostov State University of Economics (RINH), Taganrog c.

Abstract. The article is devoted to the current problem of the development of the cognitive interest of modern children. The authors describe the experience of developing the cognitive interest of preschool children through robotics and design as a new educational technology. Its main tasks are revealed. For modern children, robotics is one of the most attractive areas of preschool creativity. This article clearly shows that design and robotics are an important means of developing both cognitive interest and creative and technical thinking.

Keywords: robotics, design, educational technology, preschool children, cognitive interest.

Robotics is of great interest to educators and researchers as a valuable tool for developing cognitive skills in preschool children. The modern era is the era of active informatization, computerization and robotics. Technical achievements penetrate into all spheres of human life, causing great interest in modern technology, both among adults and children. A child by nature is a constructor, inventor and researcher. This feature, laid down by nature, is especially quickly implemented and improved in design, as a favorite activity for children [1, p. 127].

Preparing children for teaching technical sciences is both learning and technological creativity that contributes to the education of active and enthusiastic people with engineering and design thinking [6].
In this regard, great importance is given to design activities through technical design.

E. V. Feshina explains that Lego - design and robotics is a new educational technology, which is the cutting edge of science and technology, and a relatively new interdisciplinary direction in the education, upbringing and development of children. Design technology combines knowledge of physics, mechanics, technology, mathematics [8, p. 36].

The idea of introducing children to this technology is already reflected in the concept of education development and the strategy of innovative development of the Russian Federation and is relevant in the context of the implementation of the Federal State Educational Standards for Preschool Education [3].

**Figure 1. Possibilities of Lego technology - design and robotics.**

This technology is the best way to teach children relevant practical skills, allowing them to apply what they learn in the course of direct educational activities.

As part of the activities of the scientific laboratory “Childhood. Giftedness. Development ”on the basis of MBPEI n/s No. 100 in Taganrog c., a study was conducted of the development of the cognitive interest of preschoolers in a preparatory group for school in the amount of 10 people through robotics. At the first stage, we identified the initial level of cognitive interest of preschool children.

D.A. Kashirin defined the following criteria and indicators of the formation of cognitive interests of older preschoolers:

- intellectual activity - as a manifestation of interest in establishing patterns; handling facts; the desire to find information and share it with others;
- curiosity - a tendency to acquire new knowledge; inquisitiveness; interests of preschoolers;
• regulatory processes - concentration; weak distractibility; emotional manifestations [5].

On the basis of studies conducted by N.A. Gerasimov, as well as when summarizing the indicators identified by other researchers, A.A. Ivanov identified the following criteria (Figure 2).

**Figure 2. Criteria and indicators of the formation of cognitive interests of preschoolers [1; 2].**

Allocates 3 levels of cognitive interest of older preschoolers:
- low - elementary - expressed in attention to specific facts, knowledge-descriptions, actions according to the model;
- medium characterizes interest in dependencies, in identifying cause-and-effect relationships;
- the highest level indicates the manifestation of interest in deep theoretical problems, creative activity for the development of knowledge.

The point of view of M.S. Ishmakova, L.V. Nedoborenko, L.A. Paramonova, who propose to diagnose cognitive interest using the following set of psychological and pedagogical methods:

1. Observation of the behavior of preschoolers in the classroom in order to study the cognitive interests of preschoolers. This method allows you to summarize information, establish connections between observed facts, and trace the process of development of cognitive interest.

Criteria for observation in the classroom for older preschoolers:

- The degree of activity of inclusion in the work in the classroom;
- Features of the manifestation of initiative (on his/her own or at the request of the educator);
- Concentration skills when performing a long intellectual task;
- Participation in the performance of creative tasks during the lesson;
- Reaction to problematic questions, questions for ingenuity;
- Ability to ask questions in class
- The behavior of an older preschooler during mental work;
- The emotional attitude of the pupil to the work performed by him;
- The degree of attractiveness of participation in the work in the classroom.
- The results of the study are shown in Figure 3.

![Figure 3. The results of the study according to the methodology “Observation of the behavior of a preschooler in the classroom.”](image)

According to the data, 4 (40%) children have a low level of development. This group of children cannot actively work in the classroom, the children wait until the teacher takes the initiative and assists in completing the task, they cannot correctly formulate and answer questions on the topic of the lesson. The remaining 6 (60%) children show the skills of focusing on the lesson, begin to work actively during the lesson, trying to answer the teacher’s questions. We see that children with a high level of development of cognitive interest have not been identified.
This means that children are not yet ready to show a high interest in the lesson, they have not identified indicators of activity, preschoolers are afraid to complete the task on their own.

2. Methodology “Cognitive activity of an older preschooler”, author A.A. Gorchinskaya [7]. This technique was carried out in order to assess the degree of cognitive activity of older preschoolers. The results of the study are presented in Figure 4.

![Figure 4. The results of the study according to the method “Cognitive activity of the senior preschooler”](image)

According to the results of the study, it can be seen that 4 (40%) children have a low level of development of cognitive interest, because of this they find it difficult to determine the material of this object, correctly name the shape, since there are objects related to geometric shapes (for example, a cube or a square). 5 (50%) children have an average level of development, correctly determining only the color and shape. Out of 10 preschool children, only 1 (10%) child was able to cope with this task, correctly classify all objects.

3. Methodology “Ladder GCD”, author N.V. Elfimov. This technique was carried out as an additional one, in order to determine which classes older preschoolers consider the most interesting for themselves. For clarity, the results of the study were presented in Figure 5.

![Figure 5. The results of the study according to the “Ladder GCD” method.](image)
We noted that most of the pupils chose cards corresponding to such educational areas as “Formation of elementary mathematical representations”, “Introduction to the outside world”, “Musical activity”. The generalized result is presented in table 1.

**Table 1.**

*Summary assessment of the level of development of cognitive interest in children of senior preschool age*

<table>
<thead>
<tr>
<th>Levels</th>
<th>Techniques</th>
<th>Average %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>«Observation»</td>
<td>«Cognitive Activity»</td>
</tr>
<tr>
<td>Short</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>Average</td>
<td>60%</td>
<td>50%</td>
</tr>
<tr>
<td>High</td>
<td>10%</td>
<td>20%</td>
</tr>
</tbody>
</table>

A visual distribution of indicators of the levels of cognitive interest in children is shown in Figure 6.

![Figure 6. Summary assessment of the level of development of the cognitive interest of preschoolers.](image)

The results obtained indicate that the level of development of cognitive interest in older preschoolers is not high enough.

At the next stage, in cooperation with the methodologist of a preschool organization, we identified pedagogical conditions that contribute to the development of cognitive interest in children of senior preschool age. The content, forms and methods of developing cognitive interest in children of older preschool age were developed. To implement the tasks set, we modified the program of A.S. Zolotoreva “RoboStart” [8]. We have compiled thematic planning for the academic year, partially presented in Table 2.
Classes lasting 35 minutes were held in the afternoon, once a week.

The final lessons of each section were held using innovative forms: an excursion to the museum, the exhibits of which were the works performed by the children, a press conference, an interview, a flight into space, etc.

During the implementation of this project, we noted that designing contributed not only to the development of speech, creativity, thinking, orientation in space, fine motor skills, memory, but also influenced the increase in cognitive activity, cognitive interest of preschoolers, the development of independence, initiative.

To get the result, the children had to solve many different tasks, which contributed to the development of responsibility, discipline, and the ability to work in a team. Children learned to carefully consider, analyze the shape of the rocket, color and size, choose the right colors, reasoned arguments, and negotiate with other children.
To create optimal pedagogical conditions conducive to the development of cognitive interest, it was decided to update the spatial and subject environment. For this purpose, a special room for robotic design was opened in a preschool educational institution.

The implemented project made it possible to significantly increase the level of cognitive interest among preschoolers, which was confirmed by the results of diagnostics. The final data are presented in table 3.

<table>
<thead>
<tr>
<th>Levels</th>
<th>«Observation»</th>
<th>«Cognitive Activity»</th>
<th>«Ladder GCD»</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low level</td>
<td>10%</td>
<td>20%</td>
<td>0%</td>
</tr>
<tr>
<td>Average level</td>
<td>70%</td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td>High level</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
</tr>
</tbody>
</table>

The implemented project allows us to state that robotics classes are an important direction in the development of the cognitive interest of modern preschoolers. Robotics classes allow you to solve the following tasks:
- develop attention, thinking, memory;
- develop fine motor skills of hands, work a lot with small details of the designer;
- introduce children to the basics of mechanics;
- to form design skills and first programming experience;
- develop knowledge in mathematics related to counting, understanding proportions;
- develop the ability to act as a team and take part with peers and teachers in creating a constructor model.

References


THE IMPACT OF CONSTRUCTIVELY ALIGNED COURSE DESIGN ON ENGINEERING STUDENTS’ SATISFACTION AND ENGAGEMENT: AN EMPIRICAL INVESTIGATION

Abobakr Mohamed Abbakar Khussein
PhD researcher, Institute of Mechanical Engineering Research
Assistant Professor, Bauman Moscow State Technical University
Fellowship (D2) of Advanced Higher Education Academy (Great Britian)

Spasskaya Daria Dmitrievna
PhD researcher., Bauman Moscow State Technical University
Assistant Professor, Bauman Moscow State Technical University

Abstract. The genesis of this paper is to demonstrate how constructively aligned teaching and learning enhances students’ satisfaction and engagement. In response to the move towards Outcomes-based Education in Bauman Moscow State Technical University, we have designed a course on Cellular and Tissue Biomechanics (in the Institute of Contemporary Teaching technologies) upon the principles of Constructive Alignment (CT) putting the emphasis on what learners do within the context of a learning event to construct knowledge, skills and experiences. We proposed interventions aiming to make deliberate synergies between the intended Learning Outcomes; Teaching & learning activities and Assessment Tasks, Brookfield reflective model will be used to evaluate proposed interventions.

Keywords: Constructive alignment (CT), Revised Taxonomy, Assessment rubrics, Problem.-based Learning (PBL) outcome-based Learning.

1.Introduction.
Outcome-based Education is the approach in which the design of the curriculum is driven by the learning outcomes that students should display at the end of the courses and programmes. The adoption OBE has become a global trend to enhance teaching and learning.
Quality assurance agencies have utilized the framework for programme outcomes assessment in the higher education in different Asia-pacific and western countries, including Australia [2].
Aiming to resume its position as a world’s education hub, Russia and its leading universities cannot be immune from such worldwide movement.

Bauman University has been preparing for an education reform with a prominent feature to embrace Outcomes-based Teaching and Learning (OBTL), a form of OBE framework building upon the concept of constructive alignment [5].

Teaching style at Bauman University can be generally characterized as teacher-centered, that primarily focus on covering the normally huge content. In such environments students become passive recipients of information and develop avoidance goals [12] in order to encourage students to take more responsibility and agency for their own learning and to nurture reflection and critical thinking. Classroom design i.e stage and fixed seats also contribute to this problem but to a lesser degree since it limits peer interaction and small group formation.

**2. The Problem. Engagement in Independent Learning and satisfaction**

The purpose of education according to Dewey is “to cultivate critically reflective, socially engaged, thoughtful individuals rather than passive recipients of established knowledge” [9]. Within an aligned system, students would be able to notice that the classroom structures are closely related to what they are supposed to be learning henceforth are more willing to take the responsibility and be active in the learning process [4]. We also believe that Constructive Aligned Teaching will help bridge the gap between students’ expectation and actual performance.

**3. Implementation plan**

**3.1 Constructive Alignment: in the higher education curricula.**

Constructive alignment (CA) is indeed regarded a pedagogical approach that is embedded in the constructivist theory [5], emphasizing the alignment among the intended learning outcomes (ILOs), teaching and learning activities (TLAs) and assessment tasks (ATs). O’Neill asserts that students must “actively construct” rather than passively receive learning if it is to be meaningful and consideration must be given to “alignment’[18]. By focusing on the what and how of learning rather than predetermined topics.

In particular, Biggs and Tang (2007) stated that instructors adopting the CA approach should [10] clearly describe the ILOs in class, [2] create a learning environment and TLAs conducive to the ILOs which allow students to construct their knowledge to achieves the outcomes, and [3] establish assessment on how well students’ could achieve the corresponding ILOs. These three components of constructively aligned teaching constitute important pillars

**3.2 The Revised Taxonomy.**

The revised Taxonomy is a helpful tool by which educators clarify and communicate what they intended their students to learn as a result of teaching [1]. In addition to the cognitive processing dimension, the Revised Taxonomy
identifies the four general types of knowledge. It enables teachers specify how a specific knowledge should be used and thus to assist students to reach that cognitive stage [19]. Table 1. Guided by the Revised Taxonomy, we have made deliberate synergies between the three, cross-correlated elements of constructive alignment.

Table 1
Possible Assessment Strategies in the Revised Taxonomy [28]

<table>
<thead>
<tr>
<th>Factual Knowledge</th>
<th>Understand</th>
<th>Apply</th>
<th>Analyze</th>
<th>Evaluate</th>
<th>Create</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Multiple Choice-recall definitions as taught</td>
<td>*Modified True/False</td>
<td>*Multiple Choice - interpretation</td>
<td>*Multiple Choice- Apply memo- rized facts to simple authentic situations</td>
<td>*Multiple Choice- best answer</td>
<td>*Multiple Choice- best answer</td>
</tr>
<tr>
<td>Conceptual Knowledge</td>
<td>*Matching</td>
<td>*Match cause-effect</td>
<td>*Lab: high inference</td>
<td>*Differentiation interlin- eal set</td>
<td>*Lab: high inference</td>
</tr>
<tr>
<td>e.g. concept, category, principle, definitions</td>
<td>*Multiple Choice – predict using principles; examples and non-examples; summaries</td>
<td>*Pictorial item set</td>
<td>*Knowledge mapping</td>
<td>*Discussion (formative)</td>
<td>*Essay (rated on use of principles)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*Apply concepts to solve an authentic problem</td>
<td>*Problem-solving item set</td>
<td>*Essay</td>
<td>*Essay (rated on use of procedures)</td>
</tr>
<tr>
<td></td>
<td>*Comprehension item set</td>
<td>*Lab: high inference</td>
<td>*Review/ critique</td>
<td>*Review/ critique</td>
<td></td>
</tr>
<tr>
<td></td>
<td>*Choose best (new) definition</td>
<td>*Match classification</td>
<td></td>
<td>* Constructed response</td>
<td>*Portfo- lio</td>
</tr>
<tr>
<td></td>
<td>*Match classification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procedural Knowledge</td>
<td>*Recall steps of procedures</td>
<td>*Interlinear items set</td>
<td>Lab: low inference Interactive video, simulation Instrumented lab</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Intervention

Having reflected on how to address the problems outlined above, this section of will propose a three-step educational intervention i.e curriculum design which seek to propose solutions to the problems.

4.1 STEP 1: Intended Learning outcomes.

We started by determining the knowledge, skills, learners should have by the end of the course. Here we were guided by the cognitive processing dimension of
the Revised Blooms Taxonomy that contains an associated collection of measurable verbs that we used to specify the Intended learning outcomes that will refer to as ILOs and GEs (generic skills).

Content: Guided and inspired by the revised Taxonomy, we went on to target the different levels of knowledge (Factual, conceptual, procedural and metacognitive). That is evident in the verbs we used to describe the ILOs. Since the course is introductory, we expect students to acquire broad knowledge of the field. We chose the content for breadth and it is important that we cover it so students will have a big picture of the field [22]. In addition to the main textbook we have also introduced Contemporary issues on vibrational Biomechanics.

Teacher’s Role. The teachers is expected to play a role of a facilitator. Oh explained how the role of the teacher has shifted from only “delivering” information to “nurturing” of group collaboration and supporting self-regulated learning [17].

4.2 STEP 2: Teaching and learning activities:

Having completed step 1 above and guided again by the Blooms Taxonomy, we intentionally embarked in selecting the sequence of information and activities that will best support the learners throughout the course journey. We have placed great emphasis on (CPBL) activities Figure 1.

**Figure 1. The Cooperative Problem-Based Learning (CPBL) Framework
(*understanding of learning issues to solve problem
** incomplete or misunderstanding of problem requirements)**

Collaborative problem based learning. (CPBL). CPBL infuses cooperative learning principles into the PBL cycle. Constructive alignment is used as the basis to design [6].
The three phases of the CPBL develop essential skills for students to learn and work together in a cooperative team.

Phase 1: Problem Restatement and Identification.
Phase 2: Peer Teaching, Synthesis & Solution Formulation.
Phase 3: Generalization, Closure and Internalization.

Phase 1 and Phase 2 begin with individual effort then team effort and finally a whole class discussion. The individual effort is essential so that each student prepare, go through the process and develop the necessary skill before getting their team’s support. The whole class discussion serves as supplementary support and a window for the teacher to determine the level of students’ learning in order to give the necessary scaffolding and cognitive coaching. Phase 3 provides a conclusion and feedback for students after going through the CPBL process to troubleshoot the problem. The rotation of roles and instituting the role of a skeptic is part of the overall effort. Not only does CPBL give students the right knowledge and tools, but also improves their ability to work together as a team and help each other improve. The dependence on peer support makes it essential to provide students with knowledge and skills to learn together and self-monitor themselves to regularly evaluate their learning as a team. Based on constructive alignment, the TLA and AT in each phase is aligned to achieve the outcomes of each phase and the whole problem [16].

Alignment (8, 9, GS, GS2, GS3, GS4 GS5, GS6).

4.3 STEP 3: Assessment

Alignment is a matter of honesty and fairness where students become confident that they can manage their own learning. Students will feel cheated and become cynical strategic surface learners, if we tell them we want to achieve something (ILOs) and later assess them against criteria that don’t match [21].

Formative assessment and assessment for learning: Reeves and Hedberg recommended that teachers should invest much more heavily in formative evaluation than summative because it has a bigger impact on learning quality and effectiveness [20]. The proposed interventions below include both formative and summative assessments.

Formative assessment. Here are some excellent suggestions: Short weekly multiple-choice tests.

Designed to test students ability to use previous knowledge and apply it towards biomechanics. These low stake MCQs (Online with answers) are easy to grade since it’s automated.

Alignment: (1, 2, 3, 4, 5, 6, 7, 11, 12).

Abstract for a presentation: submitting drafts will help students understand whether they are on the right track.

Alignment: (GS 7, GS 8).
Draft for final project report: Alignment: (GS 1 GS2 GS3 GS4 GS5 GS6 GS7 GS8).

4.4 Summative assessment

Haeley and Jenkins argued that the task for universities is to reinvent or “reinvigorate” the curriculum to guarantee that undergraduate students should experience learning through and about research and inquiry [11]. To focus on student as a learner and also an active producer of knowledge, we propose a course project summative task.

Project 50%:

This project is designed as a team effort for groups of about approximately three students. Students will be encouraged to select project ideas from my own research areas of interest and my published papers in journals or abstracts presented in scientific conferences. I can then give quality advice on how to develop the research project selected. The chances to co-author new papers or present findings in conferences remain high. Teams are expected to submit a written report and present the work in a brief presentation to the class at the end of the semester.

Alignment: ILO (1,…12) and (GS 1 GS2 GS3 GS4 GS5 GS6 GS7 GS8).

How they project is graded is shown in Table 2 [15].

| Phase 1 (15%) Oral Project Proposal (5 min) | Develop a Team Assessment. Teams must be interdisciplinary.  
| • What’s your main point? [What are we doing?]  
| • How does it fit in the big picture? [Why is it important?]  
| • What’s the approach? [How are we doing it?]  
| • What is our projected timeline? |
| Phase 2 (15%) Oral Project Update (5 min): | What are you doing and why is it important?  
| • What’s the approach?  
| • What are the current challenges?  
| • What is our updated timeline? |
| Phase 3 (70%) Final Written (6 pgs) Oral (15 min): | Abstract/References for the written conference proceeding.  
| • Introduction  
| • Methods  
| • Results  
| • Conclusion |

Open-Book Exam: (20%)

“In an attempt to encourage attendance and note-taking, we will allow students to consult the notes they took during the lectures, seminars and tutorials. The
questions in such exam will not on memory and recall, but on interpretation analysis and analysis [13].

Alignment: ILOs 7&8

**Oral examination (Viva Voce) 30%**

Considered a tradition in my university, oral exams cater for learning differences and eliminate the possibility of cheating and ghostwriting. Joughin provided a strong case in favor of its use in modern context. To increase its objectivity, we offered an assessment Rubric in table 3 [14].

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Rubric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vocabulary/Terminology</strong></td>
<td>1</td>
</tr>
<tr>
<td>Unable to use proper technical terminology to discuss problem and solution.</td>
<td>Unsure of proper terminology</td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td>Unsure of how to work problem. Unable to draw and label correct figures. Unable to determine or recall equations.</td>
</tr>
<tr>
<td><strong>Solution</strong></td>
<td>Needs frequent prompting to arrive at correct answer with correct number of significant digits and units. Makes multiple sign errors or slne/cosine errors.</td>
</tr>
</tbody>
</table>
Practice Oriented Science: UAE – RUSSIA – INDIA

| Organization/Command of Problem | Student Is unable to explain or understand the problem-solving method or the meaning of the problem’s answer. | Student cannot explain problem-solving-process clearly, needs prompting to understand the process and/or meaning of the problem’s answer. | Student cannot explain problem-solving-process clearly, or appears to rely on memorization of problem solving methods to explain. | Student provides some insight into problem-solving-process and can explain significance of answer. | Student can explain problem-solving process and explain the meaning of the answer. |
| Effort & Motivation | Student falls to communicate beyond bare minimum. | Student struggles to communicate, relies on instructor to fill-in gaps. | Student needs assistance. Answers questions willingly; elaborates with prompting. | Student participates willingly in the interview, may need some guidance. Elaborates with little or no prompting. | Student engages listener and shows initiative during the interview. | 0.5 0.3 |

Highest possible oral exam grade: \((0.3 + 1.5 + 1.4 + 0.5 + 0.3) \times 5 = 20\)
Lowest possible oral exam grade: \((0.3 + 1.5 + 1.4 + 0.5 + 0.3) \times 1 = 4\)
Alignment: Lottery tickets to check all ILOs & GSs (2, 3, 5, 6, 7).

5. Feedback:
Methods of giving includes but not limited to: Peer feedback (requires ground rules); self-evaluation, tutor/lecturer feedback & oral feedback in consultation (individual tutorials); informal critique by peers and lecturers during seminars and group activities as well as academic Literacy tasks like previewing a whole book or article with guided questions or drawing on different sources to support reading a particular topic with proper referencing or reading previously submitted assignments to familiarize students with style, length and other features. Such task develop academic literacies that could hardly be covered separately during the course.

Alignment: (GS8).

Figure 2. Alignment flow chart
6. Discussion & Conclusion.
As a way of Evaluating the effectiveness and learning outputs from implementing the interventions, I will be using Critical Incidence (CIQ) weekly questionnaires focusing on student engagement and nurturing reflection at the same time as well as survey Questionnaires to gauge constructive alignment and satisfaction by the end of the course.

This study will provide some insights for front line teachers, who have long years of teaching but used to the traditional teacher-centred teaching approach. They might not be convinced with the new alignment pedagogy.

7. Possible Limitations:
The results will represent Only students from the faculty of Biomedical Engineering of Bauman University. Running surveys of course a in other universities with similar programs or within the same university but on other programs may increase the robustness of the results [25].

8. Acknowledgement
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EDUCATION AND ERUDITION: IDEAL AND REALITY

Khokhlova Olga Mikhailovna  
Candidate of Philosophical Sciences, Associate Professor  
Irkutsk State Agrarian University

Faktorovich Tatiana Vladimirovna  
Candidate of Pedagogical Sciences, Lecturer  
Irkutsk State Agrarian University

Abstract. The authors reveal the relationship between the ideal and reality in modern Russian education, analyzing the dialectical nature of this interaction. It also demonstrates the complex nature of the reality of education through phenomenological, systemic and elemental approaches. Particular attention is paid to the problem of finding a modern ideal of education. The views of domestic scientists and thinkers on the problem of the ideal and goals of education in the history of civilizations are analyzed, the dynamics of the educational ideal in history is determined. The authors consider education as a general level of intelligence, a culture of responsibility, spiritual and moral development of the individual. The article deals with the problem of formalizing the educational ideal as a spiritual model and a fundamental regulator of educational activities on the way to the transformation of the modern Russian educational system. The conclusions made by the authors make it possible to determine the methodological foundations of semantic goal-setting, which determines the need for constructive activity, linking the theory of the ideal and the pragmatic task of modeling the educational ideal. In the future, the ideal model of an educated person is shown, taking into account the needs of modern society with its threats and challenges.

Keywords: education, levels of education, education, literacy, ideal, reality, real ideal, modern education, modern society.

A person perceives the processes taking place in the space of the world, based on its reality. V.A. Lektorsky notes that there are several different realities: reality, from the point of view of understanding science, the reality of everyday life, everyday knowledge, subjective reality, the reality of ideal objects of culture: scientific and philosophical theories, works of art, relationships and communications between people [1, P. 32]. Reality is filled with a group of important values
included in it, regardless of the stage of development of society, the historical era or the life of an individual state. Being born, a person has absolutely no idea what his life will be like and how he is able to build it. These ideas are developed throughout life by the consciousness of the subject himself, depending on the reality surrounding him, the desires and requests that it generates in a person [2, p. 65].

I. Kant argued that the nature of the ideal is not a fact of reality, since its realization is unattainable. According to A.I. Prigozhin, the ideal is far from reality, there is “an insurmountable gap and eternal opposition” between them, it cannot be overcome, “since the ideal has no direct effect” [3, p. 121], and the opportunity to introduce it into social life will bring disasters and cataclysms. According to P.A. Rachkova, the ideal represents the improvement of the human race, which involves the complete overcoming of the contradictions between the individual and society, therefore the ideal acts as an idea of a regulatory order, directing towards the goal. Like the “ideal of pure reason”, he proceeds from the idea of “all-perfect primordial essence”, which will lead to a complete solution of the issues and tasks in society [4, pp. 24-25].

G. Hegel represented the ideal as a moment of reality, a phenomenon of the human spirit, developing through various contradictions. He considered the connection of the social ideal with the problems of social reality. In the view of Marxists, who consider the ideal as a subjective image of the objective orientation of the processes taking place in society, the ideal was a reflection of the contradictions of social reality. Such an ideal for Marxists was the image of a comprehensively developed person.

The ideal focuses on the true, on the “ideal” values, and this awareness goes beyond its own limits, carrying out the process of human self-improvement. However, not all ideals are noble: strength, power, prestige, according to some, is the ultimate guide, according to others, are unacceptable truths. No matter how conditional this division is, there are no people without ideals, every person has the highest value. Deciding on ideals means making the right choice. There is a classification of the ideal according to the subject: class, party, state, religious, national, personal and others. The ideal is concrete: it is social, economic, ethical, aesthetic, legal, etc., progressive and regressive ideals. We will not go deep into the classification of the ideal, but we note that recently there has been a need to determine what the ideal education means, or what kind of ideally educated person is he/she?

Modern society needs to search for new forms of organization of scientific knowledge, it is necessary to reform the existing education system. The image of modern science contradicts the normativism and unitarism of the educational concept, which confirms the low level of training of specialists, the isolation of scientists from reality, and a number of other reasons. The appeal of education to the anthropic principle allows us to take a different look at the understanding of education both in the historical context and in modern realities.
Understanding the category of “education”, it is possible to accurately determine the goals of education in modern society. The educational ideal reflects society’s ideas about the preferred type of personality that can successfully adapt to the system of social interactions and effectively transform them. All historical periods had their own ideals of education. M. Yu. Shor presented a model of the relationship between man and education. In the period of antiquity, the ideal is harmony, therefore, the task of education is the formation of a holistic, harmoniously developed person in an ordered cosmos. In the Middle Ages, the idea of an almighty God permeates a person and education, education appears as an “earthly school”, where an individual is prepared for practical life, instilling skills and abilities, or a “heavenly school”, introducing worldview values.

The Age of Enlightenment made a logical transition from a person to education through the universalization of the category of knowledge, accepted in a factual and empirical spirit. All public goals were realized through enlightenment, an educated and cultural person is a knowledgeable and ennobled by knowledge person. The structure of the world was built in the content of education as a hierarchy of knowledge, the twentieth century radically changed the situation [5, pp. 10-15].

Modern society, with its crises and threats, is in dire need of finding the ideal of education. Education united the image of man and the image of culture, knowledge and feeling, intuition and logic with the emotional layers of the human soul. Philosophers of the 20th century devoted a number of works to the problem of the ideal of education, the analysis of which helped to reveal the dynamics of the educational ideal in different sociocultural contexts. N. A. Berdyaev in his work “On the appointment of a person”, considering the problem of the ideal in education, believes that this ideal comes from an understanding of the purpose of a person in history, and not from social everyday life. The ancient Greco-Roman world put forward the ideal of a wise man, which embraced the whole person and his holistic attitude to life, assumed a spiritual victory over the suffering of life and the achievement of inner peace. The intellectual ideal, in which knowledge is of primary importance, intellectualism meant the enlightenment of human nature, where knowledge was of vital importance. Socrates, Plato and the Stoics came to this conclusion. The ideal of a sage belonged to Greco-Roman antiquity, the East, China and India - the highest image in the pre-Christian world [6, p. 60].

The era of modern times offers a person with a number of professional images that require ideal perfection: the image of a scientist, artist, owner-entrepreneur, worker [6, p. 242]. N. A. Berdyaev notes that the creative vocation of a person is carried out in different spheres and in different professions, but the very image of a person-creator is not a professional image. Based on the ideal, N. A. Berdyaev defines the essence of education, which creates the image of the world and the true vocation of a person in it [7, p. 307]. N. A. Berdyaev sees education as a process of man’s ascent to his humanized divine image [8, p. 151].
I. A. Ilyin identifies education and upbringing as a single mechanism of internal liberation, believing that education is a part of spiritual education, the ability to control oneself, live and create in the sphere of spiritual experience [9, pp. 103-104].

Thus, domestic thinkers determine the goals of education based on the ideal of education, where the ideal is a holistic person. Therefore, the goal of education is to achieve integrity in oneself, through finding one’s own image and fulfilling one’s own destiny.

Let us consider the criteria of an educated person, i.e. answer the question: how to determine that a person is educated? A person sometimes has to interact with people from other cultures (Europeans, Americans, Indians, Malaysians, Chinese, etc.). It is quite difficult to assess their amount of knowledge, just like in our culture, we do not test people when we meet or communicate. If a person has a sufficient amount of knowledge, then this undoubtedly affects his picture of the world, worldview, behavior patterns, professional activities, relationships with loved ones or colleagues. Therefore, in communication, one can notice and determine whether one is dealing with an educated person or an uneducated person, even when interacting with people of other cultures.

The criteria for an educated person, in our opinion, are as follows:

1) Comfort, which manifests itself when interacting with another person or the space provided for him/her.

2) The ability to express (show) oneself and a real dialogue that allows one to hear another person and what is completely at odds with our own positions, contradicts them. Dialogue in this case is an exchange of knowledge, opinions, beliefs and feelings. Feelings are not meant here as situational emotions, but as an interest in another person, a sense of responsibility, concern, etc.

3) The quality of intellectual communication, namely the culture of thinking itself, which is a developed language, analytical thinking, independence and originality of opinions, assessments, positions and beliefs.

4) Sincerity and emotional coloring of communication, which used to be called true aristocracy or genuine intelligence. For example, these are emotions when they exclaim: “What an intelligent person! What an educated one! It does not say that a person may be incompetent in something. This is the purity and depth of communication between two people, the purity of the personal, individual excitations of the human psyche introduced by the participants in the dialogue, which are understood as problem states that produce only the unfolding of existing problems and the origin of new, previously absent: conflict states of affects (irritations, fears, envy, etc.). Let us note that a truly educated person does not bring these emotions into communication.

5) The scale of the personality, which means the scale of the world of an educated person is much wider than local or personal affairs and interests.
6) A positive orientation, representing warmth, goodwill, humor coming from an educated person. Well-educated people demonstrate precisely these qualities to their interlocutors.

7) The presence of a system of values, which includes universal, universal values, the value of education and culture of behavior.

It should be noted that this is not an ideal, but a certain set of criteria for education, which can be supplemented and modified, it is not fundamental, but when communicating with different people whose amount of knowledge we cannot check, we, as a rule, perceive a person’s education according to these indicators. We believe that the above criteria can make us think about the final results that an education should give a person if it is a genuine education.

Of all the values of education, the ideal of human education is fundamental, which is the basis of all pedagogical concepts and educational practices. The ideal is a generalized reflection of the laws of reality in the minds of man and society. Educational ideals are reflected in the principles of morality, ethics and legal norms. This is the strongest motive for the kind of activity. The history of mankind demonstrates that educational systems are always guided by the ideal of human education - value - a goal that reflects the level of development of society and state educational policy. The ideal of an educated person is an abstract idea of the result of education. The ideal of an educated person is inaccessible in real life, but it is important for society, since it serves as a guideline in the education system and the process of youth socialization. Education is meaningful and effective if the ultimate goal is to achieve the ideal. The upbringing and education of a person should be carried out according to a program set by an ideal, which acts as a regulative idea and the main guideline.

Modern science is looking for approaches to the theoretical understanding of the goals of education, paying attention to the relationship with the spiritual ideals of society and their dialectical interaction. Analyzing the nature of the educational ideal, we are convinced that the genesis and evolution of education are objective processes that reflect changes in the social, political, economic and cultural priorities of society, the need for its movement in the development process. The ideal of an educated person - a form of anticipatory reflection, based on the dynamics of social reality, demonstrates the need for changes in the field of education. Historical epochs have their own ideals of education, differing in content, values and priorities. The Russian ideal needs an educated person with high spiritual development. Spirituality in the context of education involves the intellectual, moral and physical improvement of the individual. The Soviet period of history focused on the formation of a socialist-type personality: a person must master the necessary sciences, be trained in one of the scientific fields, work, show creativity in the profession, have firm life attitudes based on the Marxist-Leninist
worldview, be physically and morally educated. Modern domestic science sees a person at the center of educational concepts, as a formed subject of a single universal culture, with flexible thinking, capable of a multidimensional view of the surrounding reality. The specificity of the Russian model of education lies in its traditional dependence on the values of national culture, the principles of nationality, and the focus on the spiritual development of the individual.

In the 20th century, the view of the understanding of education as the development of intelligence and accumulated knowledge is changing, a new meaning is associated with a change in pedagogy. Modern education faces a difficult task: it is necessary to prepare a person who understands and accepts the tasks of society, who is able to change to the challenges and threats of society. The ideal of education in modern society is a holistic person who builds himself, his anthropology and his education. Obviously, the implementation of the principle of freedom in education requires the formation of a culture of responsibility; accordingly, we understand education as a culture of responsibility that extends to the past, present and future of education as a process that reduces only to the consumption and appropriation of knowledge. Education is not only a process of obtaining knowledge. Today, this education, included in social responsibility for life and health, family, results of one’s activities, community, professionalism and skill, city, country, nature, preservation of life on Earth, is the responsibility of the individual to humanity.

The specifics of the formation of the educational ideal can be characterized by problems associated with education in general, for example, obtaining knowledge in the system of science and in the areas of their application is a continuous process. The volume of knowledge is constantly growing, and the needs of an individual do not require all the knowledge, but those that he needs, which allow him to adapt to a particular social environment. Here lies the conflict between too much information and too little knowledge. The process of obtaining knowledge is gaining strength, it is difficult to resist it, and the task is to select the necessary information. The criterion for the selection and content of education is the model of a graduate of an educational institution, the creation and implementation of which, in our opinion, depends on three factors:

1) The interest of representatives of production in qualified specialists, since they act as customers for qualified personnel, but their interest is limited by the narrow scope of functional duties, reflecting the general professional and job knowledge of the employee.

2) The interests of representatives of science who develop this model, the content of which largely reflects the limited directions proposed by customers. It is necessary to create a balance of civil, general professional and official interests of all participating subjects of this process.
3) The interests of the subjects of the education system, which, as a rule, are not connected with either science or production, or have lost contact with them. According to their social status and the needs they need, they are not capable or not interested in creating a scientifically based model of a young specialist, since it creates conditions for diagnosing the educational process by external structures.

The solution to this problem is connected with ensuring the conditions for the functioning of the education system, taking into account the needs of all subjects: administration, faculty and students. A common guideline is needed to allow all parties involved to find a compromise. Education systems around the world differ depending on the position in society, the role of subjects in solving issues, including education technologies. Today, the education system is presented with a three-level nature of the requirements, which involves an assessment of its activities.

The next problem is the gap between school and higher education, and the gap between the level of higher education and the system of academic science, which is forced to retrain personnel and improve their professional level. In this regard, there is a need to look for new forms of organization of scientific knowledge, providing the most important way to reform the education system. In the 20th century, higher education lost its elitism, accessibility for certain social strata, although universities, especially universities, should produce an intellectual elite.

The third problem is the formation of the concept of «an educated person» in the educational ideal, which includes the entire set of characteristics. In modern education, new ideas about a person, his education are being formed, the anthropological foundations of pedagogy are changing. An educated person in the modern interpretation is a person prepared for life, able to navigate complex problems, comprehend his place in life. In modern conditions, education should contribute to the formation of a free personality, interaction with other people, the formation of thinking and worldview, practical actions and actions of a person. It is necessary to adapt to changing conditions using knowledge, skills and abilities.

The next problem is how to translate the educational ideal, created to preserve the acquired knowledge, for its application in practice and improvement, if necessary, in the future.

Let us also note such a problem of the educational ideal as providing diagnostics of the knowledge being taught. The quality of the work of the education system will manifest itself years later, and perhaps the people who allowed marriage in their work are no longer alive. This factor leaves a serious imprint on the attitude of the subjects of the education system to the performance of their professional activities and the conditions for the formation of the educational ideal.

The educational ideal is formed in the process of cognition, carried out in the form of a model of the world through its approximation to objective reality. The
main concept for the methodology of sciences is the concept of scientific theory, which is the first criterion for the translation of the educational ideal.

The second criterion determines the acquisition of basic knowledge, skills and abilities. Basic knowledge is a minimum of information that reveals the current level of specialist qualification and the organized organization of the educational process, which guarantees the assimilation of the taught knowledge, skills and abilities by the trainees.

It should be noted that in modern domestic models of education there are no value orientations, moral positions and creative opportunities, this situation is associated with the dominant influence on the legal framework of modern education. The changes taking place in the ideal of an educated person determine the need for transformations in the pedagogical theory itself, institutional forms of education and state standards of education. The ideal of education is formed in the minds of society. If the theory does not carry out a comprehensive understanding of this phenomenon, and the authorities do not give the ideal the form of an existing social norm, then the sphere of education can be covered by a deep systemic crisis. A similar result will be obtained in the case of an unreliable reflection of the essence of the idea by the official norm.

Norms in education always exist, changing only the content depending on the place, time, nature of the object and subject of activity, while the subject of educational activity is always directed by the ideal of education. In our opinion, the state of the modern domestic education system reflects the uncertainty in choosing the direction of further development. It is necessary to offer a guideline for the modern Russian sphere of education - the ideal of an educated person, who is timely, objective and dynamic, reflects the general trends in the development of society at the present stage.

The overdue changes in the ideal of education of today’s youth demonstrate the result of long-term changes in the field of social relations, economics, politics, education and culture. This ideal actualizes the difference between the existing and the required level of modern Russian education.

By nature, a person harmonizes his own life, bringing it closer to the ideal image. In the process of obtaining education, the individual is motivated to take active actions, to work, aimed at eliminating the gap between the actual and the ideal. For its part, the government should stimulate the ideal of education and strive to create conditions to meet the new needs of society in educational services [10, p. 43].
References

Abstract. The author refers to the creativity of the Syrland singer-storytellers which was not only forgotten but banned over a long period; there have been attempts to erase their names from the history and memory of the Kazakh people. The author believes that the work of poets of zhyrau is a source of national ideology of the Kazakh state and a reflection of the cultural, spiritual consciousness of the Kazakh people.

Keywords: Poetry, story-tellers, zhyrau, humanism, literature.

The Kazakh land has always been famous for brilliant and talented personalities, and among these people, of course, one should include the singer-storytellers of the land of Syr.

Since ancient times, our people have respected the art of the word. For a people who have freed themselves from the policy of Soviet Russification and have become independent in the last twenty years, this is a great achievement in terms of spiritual culture. The zhyrau poets of the land of Syr analyzed the political and social situation and, evaluating it from a philosophical point of view, reflected it in their works. During the period of the Khanate, zhyrau poets, along with educational activities, participated in the political and social life of the country. However, from the middle of the 19th century, these opportunities were lost by them. They could only observe and evaluate everything that happens in society. There were attempts to turn them into court poets, glorifying the khans and their entourage, supporting the tsarist policy.

The life and work of the singers-narrators of the land of Syr fell on the period of the colonial policy of tsarist Russia and the no less bloody period of the establishment of Soviet power. These were difficult years in the history of the
Kazakh nation. And although the period of creativity of poets - zhyrau coincided with the period of the overthrow of tsarism and the establishment of Soviet chauvinistic policy, they raised issues of history, religion, society in their works in order to preserve the national values of their people. Along with this, in their works they reflected the centuries-old traditions and customs of our ancestors. With their work, storytelling poets fought to ensure that our nation did not disappear from the historical arena. They sowed the seeds of love for the Kazakh people.

It is known that during the Soviet period they were called “nationalists”, “religious personalities”, “enemies of the people”. Thoughts, ideas of brilliant people tried to be erased by force from the national consciousness. Historical, cultural shrines, literary monuments were almost trampled underfoot. And the circle of these problems can rightfully include “Problems of righteousness and patriotism in the works of storytellers of the land of Syr”.

At present, rich material has been collected and studied, which is connected with the issues of righteousness and patriotism in the works of singer-storytellers. However, considering the issues of spirituality and culture in the work of zhyrau poets, the authors of scientific, publicistic articles consider the work of these poets only as a traditional musical school.

If viewed from a scientific point of view, the work of zhyrau poets can be considered a source of the national ideology of Kazakh statehood and a reflection of the cultural, spiritual consciousness of our people. The first President of our state N.A. Nazarbayev in his speeches has repeatedly noted the need and importance of solving issues of oral folk art at the national level: “The main thing that distinguishes every nation, which reflects its fate, is culture. Culture is the image of a nation, its spiritual essence, soul, thoughts and wisdom. A civilized nation, first of all, is proud of its history, culture, outstanding personalities, the contribution that it has made to the treasury of world culture. And therefore, through its national culture is recognizable in the world. What the Kazakh people can really be proud of is rich folklore.

Since ancient times, our people have respected the art of the word. We have repeatedly heard: “The folklore of the Kazakh people will exceed more than one hundred volumes.” However, unfortunately, in this case there are more words than deeds. In this regard, specialists are entrusted with the responsibility of creating an integral system for the study and comprehension of oral literature, customs and traditions of our people. It is necessary to sum up the age-old experience of the people in the field of oral folk art, writing and publish it in the form of multi-volume books. The lack of knowledge of historical, philosophical, social, spiritual issues that take place in the works of zhyrau poets is a significant shortcoming of the science of our civilized state. Obviously, research in this direction will open up new opportunities for understanding the historical consciousness of our nomadic
people. The life and work of the singers-narrators of the land of Syr fell on the period of the colonial policy of tsarist Russia and the no less bloody period of the establishment of Soviet power. These were difficult years in the history of the Kazakh people.

And although the period of creativity of zhyrau poets coincided with the period of the overthrow of tsarism and the establishment of Soviet chauvinistic policy, they raised issues of history, religion, and society in their works in order to preserve the national values of their people. Along with this, in their works they reflected the centuries-old traditions and customs of our ancestors. With their work, storytelling poets fought to ensure that our nation did not disappear from the historical arena. They sowed the seeds of love for the Kazakh people.

If we turn to the work of the famous zhyrau poet of the land of Syr Turmagambet Iztleuov and consider it from the point of view of thematic and ideological content, we can note that the poet truthfully reflects the realities of that time and is responsible for what is happening. In his work, T. Iztleuov shows the life of the people, social contradictions, social reality, which is an indicator that the poet is clearly aware of the social aesthetic essence of his poetry. His poems are multifaceted, meaningful and significant; they reflect the sorrows and aspirations of the people. The poet in his works condemns people who do not want to work and spend precious time uselessly; he ridicules lazy, envious people who seek easy money and are envious of others. The poet seeks to warn young people from such human vices.

Many of the poet’s works are addressed to children and teenagers. With admiration, young people listen to poems by poets, in which he promotes the norms of relationships in human society. In his poem “Kamyn oila halkynyn” (Think about your people), the poet writes: If you were born a brave man, Think about your people! For an orphan and a widow, Be a ray of light. [1, p. 39]. He calls on people to direct all their efforts for the benefit of their people, for the accomplishment of good deeds. Some of the poet’s works, written for young people, are devoted to the problem of forming a feeling of philanthropy, while he notes that each person can cultivate this feeling in himself. Only a person with a sense of philanthropy can honestly and faithfully serve his land, his people.

In the poems “Kairama halkyna tisindi” (“Do not hold evil on your people”), “Kaytsen de oz khalkyna kyzmet kyl” (“Always serve your people”), “Oi” (“Thoughts”), “Uyadan ushkanda” (“When you fly out of your native nest”), “Adam” (“Man”) and some others, the poet says that the value of a man is determined by his selfless service to his people, his contribution to the struggle for the freedom of his land. The ideas of the struggle for national and civil independence are especially pronounced in the poet’s poems written in 1905-1907. In these verses, he uses the combinations “Be a bright face”, “Do not beware
of a friendly face”, “Righteous face”. Here the poet alludes to the fifth and sixth conditions of Islam, ends the poem with a light joke and demonstrates the skill of an improviser.

The following verses of the poet are consonant in content with these works: “Adamdyk is” “Danasyn dauletine masykpasan”, “Zhigitter zhurtty zhegen kui bolmaydy”. A person with these qualities should serve the motherland. The upbringing of the personality determines its future destiny. He adheres to the folk wisdom “Uyada ne korse, ushqandasonyiledi” (“After growing up, a person acts as it was done in his family”).

And other democratic poets, like Turmagambet, in their works raise the issues of educating the people in order to raise them to the level of other people, which are an example. Their goal is to bring up a highly educated, cultured, sane generation of descendants. And then the Kazakh people will become strong, their art will continue to develop. Glory, fame of the people, the country is determined by its art. The poet understood this and explained it to others.

The poet calls the people to unity, to mutual understanding and to the common use of what is available. Following the traditions of Eastern poetry, he believes that poetry is the most accessible means of educating the people. The poet believes that it is not ordinary people who are guilty of the fact that there are such shortcomings in society as injustice, violence, indecision, but educated, intelligent individuals, or rather their indecision and inactivity. The situation would change if the chains of ignorance imposed on the people by rapists and cruel people were removed from them by honest, educated people. Thus, the content of Turmagambet’s poems comes down to a single thought - you need to honestly serve your people. He directed all his talent to calling on the youth to enlightenment, honest service to his people. In the understanding of Turmagambet, to be a man is to be educated, intelligent, to be devoted to own nation.

Similar lines can be found in works of Karasakal Yerimbet. In the poem “Karasan, zhaman adam bul zhurtta zhok” (“This nation has no bad people” [2, p.40]. In this poem, under the image of Zhar dos (friend-support), the poet writes about God. The Kazakhs often use the expressions “Let God be your support”. For example, in the works of Shakarim Kudaiberdiev, the poems “Zhar konili bir bolek”, “Zhar zhibergen kozben kas” are associated with the word “Zhar”, in Turmagambet’s poem “Zharimsyn zhar, dosynan kashyktasan” all the words “Zhar” are used as a form of the word “Creator” (God). Many religious cognitive-philosophical works and reflections of Yerimbet Koldeibekuly are known to the people to this day.

In the lines from the poet’s work “Bul sozim gaybat emes critika” (These words of mine are not slander, but criticism), as in instructive works similar to Eastern poetry, new Western motives appear. “Deep thoughts, meaningfulness, accurate
comparisons, mysterious and wonderful words, wisdom, religious instructions and teachings reflect the thoughts of the people, are stored in memory.

Many religious cognitive-philosophical works and reflections of Yerimbet Koldeibekuly are known to the people to this day. In the lines from the poet’s work “Bul sozim gaybat emes kritika” (These words of mine are not slander, but criticism), as in instructive works similar to oriental poetry, new western motives appear. “Deep thoughts, meaningfulness, accurate comparisons, mysterious and wonderful words, wisdom, religious instructions and teachings reflect the thoughts and thoughts of the people, are stored in memory. This is a special person who deeply knows the traditions and customs of the people, has the gift of eloquence, deep knowledge, and is aware of all aspects of the poet’s life. His aitys (song improvisation of two akyn singers) with Shorayak’s Omar continued for 6-7 years. Along with poems, the poet’s creative heritage includes dozens of dastans (a highly artistic work) and stories: “Atymtai Zhomart”, “Saduaqas”, “Sahi”, “Aktam sahaba”.

Evidence that he was a master of religious propaganda verses are the memories of the poet’s contemporaries, what note the temperamental performance of his works. Also, these qualities of the poet were noted by a prominent representative of the poets - storytellers of the land of Syr T. Iztleuov. He’s writing:

“Karasakal Erimbet -
Kutkarmas kusty bedeudei;
Shabysyna shany ernes,
At shaptyrgan bulkili!” [3, p.38]

T. Iztleuov notes all the positive qualities of Karasakal Yerimbet, although they have repeatedly been rivals in aitys. This circumstance is an indicator of the decency of Turmaganbet and a fair assessment given by the poet to the skill of Karasakal Yerimbet.

The art of zhyrau in the land of Syr developed in a special way and was formed as a special tradition. In Kazakh literature, there is the concept of “poetry of zhyrau”, but the combination “art of zhyrau” is not used. The first is considered as a literary and poetic phenomenon, and the second - as a cultural and musical one.

Zhyrshy is a later link of storytellers, a person who performs previously created works in an artistic manner in accordance with his talents and abilities. They process folklore plots in their own way, decorate them artistically. The well-known scientist T. Konyratbai believes: “There should be no difference between the concepts of zhyrau and zhyrshy. According to modern Kazakh scientists, zhyrau is a great improviser, a performer without preparation, zhyrshy is a professional who has prepared in advance for performance. Although this point of view is somewhat rooted, we cannot consider it a solution to a scientific problem, but rather a way of conciliation and agreement. The root of the word is zhyr, the affix -shy indicates a
person by the type of his activity. Together they form one word. Baksy, zhyrshy, kobyzshi (kobyzist), dombyrashy (dombrist), sybyzgyshy - all these words are formed according to this model. Therefore, the opinion: to consider the first of them as the author, and the second as the performer, is unfounded. [6, p.48].

The outstanding writer M. Auezov noted: “Our people did not leave us monuments of architecture and sculpture, painting, but they left us invaluable wealth – zhyr. The people-storyteller, the people-poet depicted their spiritual aspirations in their brilliant works-zhyrs. The special poetic gift of the Kazakh people created a special type of poet. These are zhyrshy, improvising poets who have preserved the poetic richness of ancient times to this day. We are indebted to these poets for the fact that they preserved and conveyed to us this wealth” [14, p.34-35].

The Kazakh steppe is not rich in writing and drawing, but one can note a rich heritage in the field of creating poetic words, legends, dastans, and religious teachings. Zhyrau and zhyrshy contributed to their propaganda. Poets-storytellers Balky Bazar, KeteZhusip, Dur Ongar, KanlyZhusip are masters of poetic art and the art of zhyrshy. NartaiBekezhanov, who differed from other performers in his special school of playing the syrnai (accordion), can be attributed to the famous poets of Syr. All the named poets-narrators of the Land of Syr are known for their meaningful, filled with philosophical ideas, instructive works.

According to our well-known countryman, writer AbzhanAisautov, the originals of the stories of Syr’s storytellers have been lost. What is being performed now has been saved and written down on paper thanks to the efforts of A. Kainarbaev, K. Kuanbaev, K. Nurmakhanov. This is natural, since the manuscripts could become dilapidated during copying and execution. Therefore, these changes are natural. In the last period of Soviet power, the names of many storytelling poets became known, and their poetic heritage was collected [5, p.4-5].

We mean the end of the 1980s, when the foundations of Soviet power were shaken. A. Aisautov’s opinion is supported by M. Karzhauov. In an article in the Ana tili newspaper, he writes: “Omar is a poet, known not only in the land of Syr, he was familiar with many Kazakh poets of that time. Turmagambet, who was 4-5 years younger than him, he devoted many lines, these lines were not included in the text of the poem published in the collection “Poet” [4, p.5] We can see that the work of Kazakh poets was harmed in a special way. Shorayak’s Omar has 11 dastans known to us, more than seventy poems, but only about 20 poems and two dastans have been published. In his works, the poet raised issues of religion, spirituality, often used the religious terms of Islam.

If we analyze his poem “Ustazym” (“Teacher”), we will see that he follows the example of the poet Yesenzhol. honest people, shows that religion favors legality. A person who has lived his life honestly and righteously meets death without regret.
A poet glorifying Islam in the work “Zharatkan jan bitkendi bir Allasyn” [9, p.18]. In this poem, the poet compares the world created by Allah with the image of a tender girl, whose beauty no one can resist. Along with this, the poet often dwelled in his works on the inner content of the religion of Islam. Allah tests a person with wealth: in the pursuit of wealth, a person can fall into the net of Satan. To avoid this, one must be content with little, repent of one’s misdeeds.

As you can see, in conclusion, we note that the religion of Islam was the common support of the singer-storytellers of the land of Syr, but the teachers were different. And we will not be mistaken if we say that all poets-narrators of the land of Syr have a common feature: this is a combination of poetry, the art of zhyrau and zhyr, this is a further development of the poetry of zhyrau of the Kazakh people.

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THE ESSENCE OF THE INVOLVEMENT OF PARENTS OF PRIMARY SCHOOL CHILDREN IN A GENERAL EDUCATION ORGANIZATION

Sabirova Snezhana Sergeevna
Postgraduate
Moscow City Pedagogical University, Moscow c., RF

Abstract. The article discusses the importance and necessity of parental involvement as the participation of parents in learning, the process of parental involvement. The article analyzes the main problems of the implementation of parental involvement in elementary school, comprehended new approaches to the organization of school involvement of parents of younger students.

Keywords: parental involvement, parents, primary school student, family, school, home involvement, school involvement.

In modern social conditions, the improvement of the psychological and pedagogical preparation of the involvement of parents of younger students is determined by the general trend of the need for changes in the entire education system, the meaning of which lies in humanization. The main ideas underlying humanization are associated with the requirement of a personal approach, the unity of the emotional and individual development of the personality, the possibility of correcting behavior, taking into account appropriate diagnostics, the humanization of interpersonal relationships, etc. The involvement of parents in the education of children is no longer considered as a period of involvement in the school life of children, but as a special aspect of a person’s life, which determines the development of his personality and the personality of the child. At the same time, the unit of analysis of the activity of parents is not an objective action, but an act, not information, but a situation that includes both an objective and a social component. According to the Federal State Educational Standards for Primary, Basic and Secondary Education, parents of students are considered as full-fledged participants in the educational process [4]. The idea of developing parental involvement of younger schoolchildren, therefore, is fundamental, and its practical implementation is possible on the basis of new principles of involvement, among which are the humanization
of pedagogical education, the attitude towards the individual as a subject of communication, cognition, social creativity; orientation to creative activity, the unique personality of each parent, providing a differentiated and individualized approach to its preparation; openness, variability, dynamism of changes in the content, forms and methods of preparing parents in accordance with the requirements of the present and forecasts for the future. The highest goal of pedagogical education in the field of parental involvement is the general and professional development of parents, which is based on the internally determined activity of the individual. In pedagogical science, a contradiction has been noted that arises when requiring the involvement of parents. On the one hand, the involvement of each parent is undeniable and unique, on the other hand, involvement includes an element of mass character, since there is a certain range of knowledge and skills, types of parental involvement that are mandatory and necessary for each parent in order to stimulate younger students, form their creative potential in the form of knowledge, skills and abilities. The shortcomings that led to this contradiction were identified: a general extensive approach to involving parents of younger students, the predominance of typical stability of school involvement, etc. A typical system of parental involvement invariably contradicts the individual creative nature of pedagogical work.

In this regard, new approaches to the organization of school involvement of parents of younger schoolchildren are comprehended: 1) a culturological approach that determines the formation of the content of parental involvement through the priority development of “human knowledge”; 2) a personal-activity approach associated with new high-quality learning technologies; 3) a polysubjective (dialogical) approach that ensures the subjective position of the parent, the attitude towards him at school as a unique personality, personalization of the involvement of the parents of younger students; 4) an individual creative approach that determines the structure of interaction between the teacher and the parent. Only the implementation of these approaches will ensure both the personal level of parental involvement and the formation of a unique technology for the involvement of parents of younger students in the educational process and the formation of the creative individuality of children.

We see that the practice of parental involvement requires transformation, and pedagogical science, following the dictates of the times, deepens its subject in a certain direction, because pedagogical activity itself is considered as a field of practical human knowledge and human science.

The new needs for the training of parents of younger students have put on the agenda the need to study some previously insufficiently studied aspects of parental involvement. In particular, the need to study the various mechanisms
of professional self-development of the parent, as well as the development of appropriate methods for preparing parents to master such mechanisms at the individual level. In real pedagogical reality, there is a set of phenomena that can be comprehended using the concept of “parental involvement”.

Many studies of pedagogical activity reflect a simplistic approach, they show a surprising reluctance to recognize the complexity of human behavior and its motivation ... Any consideration of the educational process, abstracted from the fundamental mechanisms of human behavior and interaction, is untenable. R. Burns

The object of pedagogical research is the search for patterns of management of the pedagogical process with the intention to best realize the goals facing the system.

The involvement of parents of younger students is an important component of the overall goal of professional training and a factor in the formation of a parent’s readiness for self-improvement and self-knowledge. It takes place when the parent implements the main types of general pedagogical activity: wherever you can talk about the self-manifestation of the parent’s personality.

The involvement of parents of younger students contains the unity of objective and subjective, spontaneous and controlled. It is impossible by itself, outside the connection of man with reality. Parental involvement is determined, on the one hand, by the immanent process of the transition of potential features into actual ones - growth from within; on the other hand, human interaction with the environment. It occurs as a result of a counter process, in which both social requirements and the individual’s own activity in the implementation of his development are expressed. The process takes place in the person himself and is internal. Reflecting in the social functioning of the individual, it acts as an external one. Parental involvement, therefore, is intentional, which allows us to consider it in the context of various personality relationships. Including attitudes towards activities (in our case, professional pedagogical).

The essence of parental involvement in pedagogical activity is determined by the content of this activity. Engagement can be carried out as a spontaneous process: the parent realizes his capabilities without thinking about it and without being aware of the process itself. But it is also a manageable process. Manageability is associated with the awareness of one’s own individual properties and ways of their professional actualization. The importance of the transition from spontaneity to manageability is determined by the contradiction that exists between the objective and subjective expediency of the parent’s actions.

If he focuses only on the professional situation and goals, not taking into account his individuality, then the professional problem can be solved in traditional, but not effective ways for this parent. This can be confirmed by the widespread
phenomenon of the formation of a pseudo-style or an irrational individual style [3]. Its essence lies in the use by the parent of methods of activity and methods of work that do not correspond to their own personal capabilities, but correspond to some traditional professional standard of behavior and action algorithms. This, in turn, leads to negative results and job dissatisfaction.

Professionalization of the parent’s personality, therefore, can go in two ways: 1/ as a sign of the growth of professional skills and personality development; 2/ as an indicator of inadequacy, even personality deformation. Studied by E.A. Klimov, the phenomenon of the formation of a pseudo-style is the result of the deformation of the parent’s personality in the process of carrying out his pedagogical activity according to the model.

Obviously, the resolution of the contradiction between the objective and subjective expediency of the actions of the parent should be sought in his ability to use knowledge about the regulatory impact of his own individual characteristics on professional activity. Moreover, the objectification of the subjective process of the transition of potential subjective features into actual ones in the specific activity of the individual is carried out through this mechanism.

Thus, speaking about the essence of the involvement of parents of younger students in pedagogical activity, we mean not a spontaneous process of self-manifestation (a state of personality), but a controlled process of self-manifestation (activity of a personality). With manageability, we can talk about activity, since all its components are present: goal (professional self-development); motives (optimal ways of activity for a given individual); ways to achieve the goal (training); result (learning as the acquisition of individual experience of professional self-development).

The process of involvement of the parents of younger students is carried out through the successive change of certain states of the personality, and the formation of such states is also part of the overall process. The involvement of parents occurs through the gradual formation of the following three states in the personality: awareness of one’s specific features; the adequacy of their manifestations in various types of general pedagogical activity; activities of involvement in practical work.

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SAFETY OF CONTINUING EDUCATION AS A FACTOR OF PEDAGOGICAL SUPPORT FOR PEOPLE 55-70 YEARS OLD IN EXTREME SITUATIONS

Elmurzaev Dukhvakha Akhmedovich  
Head of Department  
Kunta Khadzhi Russian Islamic University, Grozny

Shaukhalov Aslan Bashirovich  
Deputy Director  
Ingush Polytechnic College named after Yu.I.Arapiev

Lezina Valeriya Vladimirovna  
Doctor of Pedagogical Sciences, Full Professor  
Pyatigorsk State University

Abstract. In the proposed general pedagogical community, the article considers the actual problem of the safety of continuous education, which correlates with pedagogical support for people aged 55-70 in extreme situations. The concept of “security” is clarified, the theoretical and methodological substantiation of the article is made, scientists and researchers who contributed to the development of this topic are named. The legal foundations for the safety of continuous education are determined. In the methodological perspective of the research problem, philosophical directions (existentialism, phenomenology, humanistic psychology), a personality-oriented paradigm of education, principles (integrity, consistency, security in an educational organization), concepts (protective, competitive, educational space security), an integrated approach, personal rules. In their totality, the proposed methodological foundations provide a solution to the named problem.

Keywords: security, continuous education, pedagogical support, people of mature age, extreme situations, theoretical and methodological substantiation, legal foundations

Continuing the topic of pedagogical support for mature people in extreme situations, we extrapolate it in this article to lifelong safe education.

V. Dahl’s explanatory dictionary interprets “safety” as “... the absence of danger, safety, reliability” [1].
In the law of the Russian Federation dated 05.03.1992 No. 2446-1 “On Security”, the concept of this concept is interpreted as “... the state of protection of the vital interests of the individual, society and the state from external and internal threats” the formation of a culture of safe thinking and behavior [2].

In pedagogy, the concept of “safety” is defined in the context of safe life and the formation of a healthy lifestyle as the formation of a system of knowledge, skills and habits of safe behavior in life-threatening, extreme situations (fire, earthquake, flood, landslides, chemical and other poisoning) [3]. Let us add to the list of dangerous situations terrorism, hostilities, pandemics that have declared themselves at the beginning of the 21st century. At the present stage, the versatility of this phenomenon has become obvious, each of the facets of which (legal, military, political, economic, environmental, social, informational, cultural, etc.) plays an important role.


Psychological and pedagogical understanding of the safety of education is presented in the scientific works of Russian and foreign researchers: R.A. Aizman, I.A. Baeva, V.P. Kaznacheev, A.G. Maslow, N.A. Sklyanova, L.V. Chauri, L.I. Shershneva and others.


The theoretical foundations of the safety of continuous education were formulated by E.V. Burmistrova, A.F. Gusev, V.V. Ivanov, I.V. Plyushch, N.A. Sklyanova, N.N.

Ideas, methods and approaches developed by pedagogical science in the framework of teaching a person safe behavior in a real environment (natural, technogenic and social) are designed to cover all links of a single system of lifelong education and contribute to a constant increase in the level of culture of students in the field of life safety.

At the beginning of the 21st century, two opposing paradigms for solving the problem of educational security were consolidated in pedagogy. Modern reformers unite around the humanistic strategy of student-centered education. Supporters of this paradigm rely on existentialism, phenomenology, and humanistic psychology. The humanistic pedagogy and the conservative alliance are consistent with different perceptions of the safety of education. Traditionalism and conservatism in pedagogy integrate “protective” and “competitive” concepts of security.

Within the framework of the problem of education security, of great interest are studies of the relationship between personal problems and the problems of modern global studies, environmental security, natural science and medical aspects of security, problems of social and information security of education.

In our field of vision is the concept of the security of the educational space [10]. The purpose of the Concept for Ensuring the Safety of the Educational Space is to develop organizational approaches and methods for the activities of educational organizations in the formation of a safe educational space that improve the health of students, prevent and/or reduce the consequences of possible emergencies, and develop a culture of safety.

Complexity and consistency are among the basic principles for ensuring safety in lifelong education. Complexity manifests itself as a property of ensuring all conditions and factors that have a significant impact on the process of achieving goals: objective and subjective, legal and organizational. Consistency manifests itself as a property of the coordinated use of all available forces and means to achieve the goal [Ibid.].

In the educational environment, a holistic understanding of the world, a modern scientific worldview, strong spiritual and moral foundations, a clear understanding of the values and meaning of life, one’s own purpose and social needs, a culture of health and a healthy lifestyle, a clear motivation for life, a culture of safety, etc. According to N.D. Nikandrov, the educational space should form the viability of the individual, i.e. the ability to survive in the conditions of the current reality without degrading, but developing [11].

In the letter of the Ministry of Education and Science of the Russian Federation dated August 30, 2005 No. 03-1572 “On Ensuring Security in Educational Institutions”, which is of conceptual importance for improving the security of education, it is noted that the solution to the security problem is possible only through the application of an integrated approach that combines measures on the
development of a general culture of students in the field of life safety, teaching safe behavior in various dangerous and emergency situations of a natural, man-made and social nature [12].

We agree with the statement of V.I. Yarochkin that security is a science that needs to be developed and studied; it is an art to be learned; it is a culture that needs to be nurtured [13]. Teaching this is an important and difficult task, the implementation of which requires reliance on the most important methodological component, namely, goal setting, a system of tasks, principles, approaches, concepts, ideas of modern education. According to S.V. Petrov, they are the criteria for choosing one or another solution, a variant of a separate element of the security system [14].

From the current legislation and the experience of managing educational institutions, the following principles of ensuring security in a general educational organization follow: legality, foresight, anticipation, organization, planning, control, consistency, integrity, scientific character, information support, interaction with specialists and security services, economic and law enforcement agencies.

At the same time, we believe that conditions should be created in every educational organization for the introduction of integrated protection systems and the formation of a culture of personal safety and safe behavior. From this the tasks of ensuring the safety of educational institutions follow: 1) the formation of readiness for dangers, the study of their types and ways to overcome them, 2) the economic, legal and technical support of the security system of educational organizations, 3) the formation of skills for the correct behavior in case of dangers, 4) the formation of a culture safe thinking and behavior, 5) providing opportunities and conditions for self-defense, salvation and protection of other people.

From these tasks personal rules for personal security for each manager, employee and student follow. These include: studying the types and causes of hazards, anticipating the occurrence of hazards in any place and at any time, avoiding dangerous situations and dangerous places, studying methods of action to neutralize or overcome hazards, choosing from possible options the safest path or course of action, applying for advice and assistance to specialists and comrades, training, participation in games and exercises, activity, etc.

One of the priority areas for the formation of a safe educational space is the coordination of the activities of educational, medical organizations, social protection institutions and ensuring public order in order to ensure the safety of participants in the educational process.

An important element of the socio-hygienic assessment is a survey of the opinions of participants in the educational process about satisfaction with medical, psychological and social assistance, law enforcement activities carried out within
the framework of an educational organization. A survey of specialists who provide medical, psychological, social and law enforcement support for the educational process makes it possible to assess the existing problems and determine real ways to ensure the safety of an educational organization.

The above measures in their legal and theoretical and methodological aspects ensure the safety of lifelong education.

References


MILITARY DISCOURSE AS A SPECIAL KIND OF INSTITUTIONAL DISCOURSE

Baykova Olga Vladimirovna  
*Doctor of Philological Sciences, Associate Professor,  
Head of Department  
Vyatka State University, Kirov c., Russia*

Smirnov Pavel Sergeevich  
*Postgraduate  
Vyatka State University, Kirov c., Russia*

**Abstract.** The article deals with the problem of discourse typology, with special attention paid to military discourse. In the article, the authors analyze in detail the characteristics of military discourse and highlight its distinctive features. The components proposed by V.I. Karasik in the framework of his classic article “On the types of discourse”. The results obtained point to the special position of military discourse as one of the types of institutional discourse.

**Keywords:** discourse, discourse typology, military discourse, features of military discourse.

Of undoubted interest in our time is the study of language from the position of status orientation, evidence of this is the numerous linguistic studies on topics related to professional communication. A special place in discursive studies is occupied by political and military discourses. This is explained by the current extralinguistic situation, which is characterized by military and political conflicts.

It should be noted that the concept of “discourse” in the XXI century became the focus of attention of researchers of various humanities. Most often, the study of discourse occurs from the standpoint of institutionality, where this concept is considered within the boundaries of a particular social institution. Many experts in this field pay attention not only to linguistic, but also to extralinguistic factors (T.E. Vladimirova, 2007; V.S. Grigorieva, 2007; O.S. Issers, 1999; V.I. Karasik, 2003, 2004; A. A. Kibrik, 2009; M. L. Makarov, 2003; E. V. Sidorov, 2009; I. A. Sternin, 2003; T. A. Shiryaeva, 2006, 2008, etc.).

The purpose of this article is to review modern approaches to the study of institutional discourse, as well as to describe the characteristic features of military discourse.
The concept of “discourse” appeared from the moment linguistic research entered the field of superphrasal syntax. Discourse began to be considered as a complex unit, consisting of a sequence of sentences, united by a logical, semantic type of connection. [1, 2: 71].

With the advent of the concept of “discourse”, the usual understanding of speech, dialogue, text, style and, to some extent, language has also changed [3]. The first aspect of discourse describes it as speech placed in a communicative context, which, therefore, makes it a category with a more explicit social meaning than individual speech activity. As N.D. Arutyunov, “discourse is speech immersed in life” [4]. The second aspect of discourse affects its practical side and is associated with the study of laws and rules for the circulation of information through speech acts within a communicative situation. Discourse is characterized by dynamism, which is the difference between it and a static text.

M.L. Makarov notes that the object of interest of linguists is not the discourse itself, but its typology, determined by a whole range of different characteristics, among which one can single out both proper linguistic and stylistic features, as well as extralinguistic ones: the subject, the personality of the speaker, the context, etc. [5].

In his works, V.Z. Demyankov gave the following concept of discourse: “Discourse is a discourse, an arbitrary piece of text, consisting of more than one sentence or an independent part of a sentence. Often, but not always, it centers around some basic concept; creates a general context that describes actors, objects, circumstances, times, actions, etc., determined not so much by the sequence of sentences, but by the world that is common to the creator of the discourse and its interpreter, which is “built” in the course of discourse deployment” [6: 116].

If we talk about the definition of discourse, then it can be defined as a kind of communicative act that occurs between a source and a receptor in a specific spatio-temporal, social and other context and carries information about the participants in communication and about the process of generating and perceiving a message; this communicative act can take various forms and occurs with or without the use of non-verbal methods of communication. Discourse is also characterized by some researchers as a system of texts with its own laws of existence, destruction and participation in communication [6].

The famous Russian researcher V.I. Karasik identifies two main types of discourse: personal and institutional, and defines institutional discourse as communication within a given framework of status-role relations. He notes that the following types of institutional discourse are used in the modern communicative space: political, diplomatic, administrative, legal, military, pedagogical, religious, mystical, medical, business, advertising, sports, scientific, stage and mass information [7].
Thus, institutional discourse is a conventional, culturally conditioned, normative speech interaction of people who assume certain socially significant roles within a social entity, specially created to meet certain needs of society. For each type of institutional discourse, there is a certain measure of correlation between socially significant and personal components. The characteristic of any type of institutional discourse, according to V.I. Karasik, requires consideration of such components as: 1) participants, 2) chronotope, 3) goals, 4) values (including the key concept), 5) strategies, 6) material (theme), 7) varieties and genres, 8) precedent (cultural) texts, 9) discursive formulas [7: 6–7]. Thus, we can single out the main characteristic of institutional discourse - this is the construction of social meanings.

In this article, we will consider in more detail one of the types of institutional discourse, namely, military discourse (hereinafter referred to as MD), which is “a special type of speech organization of the worldview of military personnel, which has such properties as correlation with the speech military situation, the surrounding environment of the military sphere; specific military chronotopy; intentionality; the integrity of the speech elements used; connectivity; military-factual informativeness; procedurality; intertextuality; the authority of military-theoretical and military-historical sources; anthropocentric military picture of the world; the ability to interact with other discourses of an institutional type” [8: 31]. The specificity of the MD is determined by the belonging of its subjects to a separate social institution.

Based on the components proposed by V.I. Karasik, let’s analyze the military discourse as follows:

1) Participants - employees of the military departments of all positions and ranks.
2) Chronotope - closed meetings of military departments; army units; military bases, etc.
3) Goals - the implementation of military operations, victory over the enemy.
4) Values - an appeal to those qualities that are most required for waging war: discipline, respect for seniors, honor, courage, courage.
5) Strategies - presentation strategy.
6) Material (topic) - military conflict, principles and tactics of warfare, subordination, etc.
7) Varieties and genres - orders, orders, resolutions, instructions, directives, reports, etc.
8) Precedent (cultural texts) - statutory documents, as well as documents regulating the passage of military service.
9) Discursive formulas - a “dry” language, dominated by clichés and statutory formulations, generally accepted commands, etc.
The characteristic features of the armed forces as a separate social institution are a clear vertical, namely the subordination of all bodies of military departments and personnel, as well as authoritarianism, action within the framework of strict regulations, centralization of leadership and responsibility of officials. It follows that standardized prototypical models of text construction and communicative intensity are characteristic such features as imperativeness, clarity and consistency of the thought expressed for MD as a tool for bringing large amounts of information, as well as setting clear goals and objectives in a constantly changing environment.

Considering the genres of MD, it should be noted that Russian scientists offer various classifications. Thus, analyzing the functional purpose of texts in the military sphere, G. M. Strelkovsky identifies two main varieties: texts regulating the activities of the armed forces (charters, orders, reports, radiograms, etc.), and texts of informational content (military-scientific, military-technical, military-informational and military-journalistic) [9: 21]. The first group of military texts belongs to the formal register, which, according to taxonomy, implies an ordered structure of the text, active use of terms, clichés, low contextuality, lack of emotiveness and evativeness. These qualities, characteristic of the “formal” military discourse, once again point to its institutional nature. Of particular interest among the texts of this group are military documents. Thus, Yu. Yu. Dubrova identifies a number of features of this genre of MD: the producer of the text of a military document is abstracted, while the addressee, on the contrary, is always clearly defined - this is due to the fact that the rights and obligations of a serviceman are subject to clear regulation. Military documents are also characterized by a high degree of standardization, richness of information and compressiveness of information, among which facts prevail. Also, this category of texts is characterized by explicitness and reduced contextuality of information. At the same time, the researcher points to a high degree of intertextuality and a low degree of interdiscursivity of military documents [10: 13]. Not all experts are ready to agree with the attribution of texts of informational content to military discourse proper, since they affect the scientific, technical and information spheres. However, we believe that the consideration of the realities related to these areas occurs in the texts of information content strictly in the context of military topics, and therefore they are directly related to military discourse. Along with texts related to formal and informal discourse, so-called texts with an intermediate, “interdiscursive status” stand out. So, T. S. Yusupova puts military literature, military journalism and military-political materials into a separate group [11: 1156]. Thus, we can note that the MD contains integral components that, despite the rigid nature of the applied system, allow it to be flexible and interact with other types of institutional discourse.

Thus, the results of the analysis showed that the specifics of the MD are determined by the fact that its subjects belong to a military social institution. The characteristic criteria that form the types of institutional discourse are fully real-
izable for the MD. Military discourse is characterized by imperativeness, clarity and consistency of the stated thought, standardized prototypical models of text construction and communicative tension. It is advisable to include texts regulating the activities of the armed forces, and texts of informational content, among the genres of MD. It should be noted that the MD contains integral components that, despite the rigid nature of the applied system, allow it to be flexible and interact with other types of institutional discourse. The study shows the relevance of further studying the concept of “military discourse”, as well as identifying its characteristic structural features based on the study of military front-line documents, since they fully meet all the criteria for distinguishing types of discourse proposed by V.I. Karasik.

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FALSE STATEMENTS AS AN OBJECT OF LINGUISTIC RESEARCH

Baykova Alexandra Vasilyevna
Postgraduate
Vyatka State University, Kirov c., Russia

Abstract. The article discusses the linguistic features of false statements. A false statement is presented as a component of a system for denying a communication partner the right to receive full information. The analysis of false statements is carried out according to a complex methodology that allows you to identify lies in statements on certain grounds. The material of the study was fragments of dialogues from English-language fiction.

Keywords: false statement, direct, indirect and potential refusal, linguistic means.

A lie is a complex multifaceted phenomenon, a detailed analysis of which requires a description of its ontological status, as well as the features of its functioning in real communication. Philosophers turn to the concept of “falsehood” in order to define another concept - “truth”. The German philosopher I. Kant believed that any distortion of the truth “should be called a lie (even if not in a legal sense)”. He also argued that a lie “is always harmful to someone, if not to an individual, then to humanity in general” [1: 257–258]. Domestic psychology considers the forms and signs of the transmission of untrue information: untruth, half-truth, lies, deceit, lies, etc. [2; 3; 4].

The phenomenon of “false statement” is associated with the concepts of “lie” and “deception”, which are the objects of close attention of domestic and foreign scientists. In this article, a false statement is presented as a component of a system for denying a communication partner the right to receive full information, or information as such, namely, it is “a statement that deliberately distorts the actual state of affairs in order to mislead the communication partner” [5, p. 7].

In linguistics, the analysis of this phenomenon became possible due to the so-called pragmatic turn, which, along with a description of the structural properties of the language system, made it possible to study the features of the functioning of the language in the process of social interaction between people. A large number
of works are devoted to the study of various aspects of lies both in foreign and domestic linguistics (S. Bok, S. Dönninghaus, J. Hirschberg, J. Meibauer, D. Goleman, A. Reboul, W. Mann and J. Kreutel, R. Fischer, K. Scherer, A. V. Lenets, O. M. Popchuk, Y. Kubinova, Y. I. Levin, V. I. Shakhovsky, S. N. Plotnikova, etc.).

Following O.M. Popchuk, we consider speech communication as a process of interaction of equal partners, in which “the addressee has the right to receive full information in the act of communication, and the addressee (source of information) has the right not to recognize this right of the addressee” [5: 9]. By telling a lie, the interlocutor denies the communication partner the right to receive full information or information as such. The question arises of what means the participants in communication use, producing false statements, and what are the linguistic means of their expression.

The purpose of this article is to present some results of the search for means of denying a communication partner the right to receive reliable information or information as such in an English literary text. The basis of the study was the classification of means of denying the right to receive full information/information as such in the act of communication, developed by O.M. Popchuk. The proposed classification considers the linguistic means of implementing false statements, which are means of direct, indirect and potential refusal in the act of communication, based on the material of Russian works of art.

According to O. M. Popchuk, the linguistic signs of a false statement include such explicit means as cliched answers, expressive vocabulary, syntactic compression, omissions of logically necessary elements, unnecessary repetitions, verbosity, etc. For example:

“Did you have a good time at the movies?” Tony asked his mother. “What was playing?” “I… I did not go,” Lucy said. “I found out that they only showed them on week-ends.” [6: 94].

This fragment of the dialogue is an example of a verbal refusal to a communication partner in telling him truthful information. Both communicants hide the truth, the son knows that the mother is lying, because he saw that she was making love to a young man. To your questions “Did you have a good time at the movies?” “What was playing?” the son receives at first an evasive answer: “I… I did not go”, and then a false one: “I found out that they only showed them on weekends”. The verbal signs here are: an evasive response in the first phrase of the heroine and verbosity in the second (highlighted in bold).

False statements can take the form of a direct denial of the communication partner’s right to receive information, which is manifested in a categorical unwillingness to start or continue a conversation. Indirect refusal is characterized by either silence or otherwise ignoring the issue. As for the potential failure, it
is associated with switching the attention of the communication partner from the problematic information zone [5: 15].

It should be noted that there are three types of false statements in the linguistic aspect:

1. An outright denial is a denial stating that it is impossible to provide the requested information. In this case, the reasons for the refusal may or may not be explained to the addressee. The speaker either refuses to continue the communication or starts talking about something else. From a linguistic point of view, such a refusal in English-language literature, as a rule, is carried out with the help of modal negative constructions of the type: I’d rather not to; I’d sooner not; Let’s not speak about it; Don’t let’s touch it; Forget it etc.

Consider a fragment of the dialogue between the father and son of the Hunters from S. Maugham’s story “The Fall of Edward Barnard” ("The Fall of Edward Barnard"). The son had to bring his friend Edward from Tahiti to Chicago, where his bride was waiting for him. This topic is very difficult, and for a long time the father does not dare to ask about Edward, but nevertheless says:

“You haven’t brought Edward Barnard back with you.” “No.”

Bateman was silent for a moment, and his handsome sensitive face darkened.

“I’d sooner not speak about him, dad,” he said at last.

“That’s all right, my son. I guess your mother will be a happy woman today [7: 168].

In a conversation between a father (addresser) and son (addressee), the direct refusal of the addressee to speak on the proposed topic is highlighted in bold. The previous context seems to prepare the reader for the fact that the answer will be unexpected and most likely negative.

2. Indirect denial to the communication partner in obtaining full information can be carried out with the help of a counter question, pseudo-misunderstanding of who/what is being discussed, etc. It should be added that half-truth or ambiguity [8: 252], which are also realized in a certain context, is also a way of expressing a lie. The means of indirect refusal include such markers of false statements as rhetorical questions, ignoring the addresser’s remarks, silence, understatement, etc.

The following example is taken from S. Maugham’s novel Theatre. Tom was invited to spend a few days at Julia and Michael’s country house. Tom became very friendly with Roger, their son. The young people spent a lot of time together, which annoyed Julia, who hoped that here she could be alone with Tom. And even on the last evening, Tom strives to leave with friends for dinner and dance.

“I say, mum, there’s a whole crowd going on to Maidenhead to dine and dance, and they want Tom and me to go too. You don’t mind, do you?”

The blood rushed to her cheeks. She could not help answering rather sharply.

“How are you to get back?”

“Oh, that’ll be all right. We’ll get someone to drop us.”
She looked at him helplessly. She could not think what to say. “It’s going to be a tremendous lark. Tom’s crazy to go.”

Her heart sank. It was with the greatest difficulty that she managed not to make a scene. But she controlled herself.

“All right, darling. But don’t be too late. Remember that Tom’s got to rise with the lark.” Tom had come up and heard the last words.

“You’re sure you don’t mind?” he asked.

“Of course not. I hope you’ll have a grand time.”

She smiled brightly at him, but her eyes were steely with hatred.

“I’m just as glad those two kids have gone off,” said Michael when they got into the launch. “We haven’t had an evening to ourselves for ever so long.”

She clenched her hands in order to prevent herself from telling him to hold his silly tongue.

She was in a black rage [9: 151–152].

This communicative situation is a unique phenomenon, since in it one of the communicants has to hide the truth all the time, and for the complete reliability of what is happening, the author supplies this scene with a large number of remarks explaining the psychophysiological state of the heroine.

3. A potential denial of the right to receive information is to “keep out” the communication partner from the problem information zone or switch the partner’s attention from the problem information zone. The problematic information zone of a communicant is understood as the information that this communicant owns, associated for him with a sense of shame, guilt, and also with the likelihood of being punished if it is communicated to a communication partner. «Problem» in this case is a relative concept, since the communicant’s problematic information zone can be focused on a specific communication partner and change with a change of addressee [5: 14].

Our study of the methods of speech influence showed that the main way of potential refusal is to switch the real or potential attention of the interlocutor from the problematic information zone.

Consider the following example of potential rejection from An American Tragedy. Clyde Griffiths’ sister Estha ran away from home with the young actor. It was a tragedy for the whole family. With her disappearance, a depressing atmosphere was established in the house. Her name was not even spoken in the house. None of the children knew where she was, although Clyde suspected that the mother was corresponding with her daughter. A month later, Clyde accidentally saw Estha on the street. Delighted, he followed her and found out where she lived. However, when asked when she returned and why she did not make herself felt, Esta does not give a direct answer, trying to get away from the topic that is undesirable for her.
“But when did you get back?” he went on. “It’s a wonder you wouldn’t let the rest of us know something about you. Gee, you’re a dandy, you are—going away and staying months and never letting any one of us know anything. You might have written me a little something, anyhow. We always got along pretty well, didn’t we?”

His glance was quizzical, curious, imperative. She, for her part, felt recessive and thence evasive—uncertain what to think or say or tell.

She uttered: “I couldn’t think who it might be. No one comes here. But, my, how nice you look, Clyde. You’ve got such nice clothes, now. And you’re getting tall. Mamma was telling me you are working at the Green–Davidson” [10].

The sender (Esta) denies the right to receive reliable information to the addressee (Clyde), admiring his appearance, clothes, wondering how he grew up and rejoicing at what a good job he managed to get, trying to distract Clyde from the reality of her life.

Thus, the analysis of false statements in the linguistic aspect showed that each type of denial of the communication partner’s right to receive full information/information as such has specific features. Direct refusal is linguistically expressed by negative modal structures, imperative forms of verbs, negative structures. Indirect refusal is characterized by the use of counter and dividing questions, verbosity, and repetitions. Potential refusal is distinguished by the predominance of speech structures that switch the attention of the interlocutor from the problematic information zone: the imperative, antonymous phrases, short uninformative remarks.

The problem of the implementation of various types of false statements in the linguistic aspect is still poorly understood and is of interest for further research in the field of stylistics, literary criticism, linguoculturology, and argumentation theory.

References


LINGUOCULTUROLOGICAL ASPECT OF THE RELATIONSHIP BETWEEN LANGUAGE AND CULTURE

Rois Elizaveta Vladimirovna
Postgraduate
Vyatka State University (Kirov c., Russia)

Abstract. Cultural linguistics is a relatively new area of research that studies the relationship between language and culture, but, unlike culture-oriented linguistics, this article focuses on the linguistic aspect. In this article, attempts are made to determine the object of study and the methodology of linguoculturology and to identify types of culture. Particular attention in the study of cultural studies is paid to the cultural, social, state and national characteristics of people who speak a particular language and have a culture with all its inherent features.

Keywords: language, culture, linguoculturological aspect.

A fairly significant cultural landmark of modern foreign language education is one of the most actively developing areas of knowledge in recent times - linguoculturology. The main task of this science is to study and describe the relationship between language and culture, language and ethnicity, language and folk mentality, it was created on the basis of the “triad” - “language, culture, human personality” [1]. Its scientific apparatus is a kind of magnifying glass through which one can see the material and mental ethnic identity. Since the last two decades of the 20th century, the term “linguoculturology” has often been used in combination with the term “study of culture through language”. Linguoculturology focuses on the reflection of the spiritual state in the language of a person in society and is associated with culture-oriented linguistics as a system for solving the fundamental principles of general educational and humanitarian tasks.

The very nature of the humanities presupposes a special type of “culturological” methodology, which includes a variety of “language games” with the obligatory presence of narrative elements. The methodological foundations for studying the problem of the interaction of language and culture have only recently been laid. Their sources are the works of V.V. Vorobiev, V.M. Shaklein, V.N. Teliya, V.A. Maslova and others. So, for V.N. Teliya’s methodological basis of linguoculturology is “a semiotic presentation of the data of this interaction, considered
taking into account the cognitive content of mental procedures, the result of which are culturally linguosized mental structures” [2: 17]. Supporting this point of view, it should still be noted that such a vision of the object of linguoculturology does not clearly distinguish it from related scientific disciplines.

So, the search for the methodological foundations of linguoculturology is carried out by using elements of conceptology, hermeneutics and general philology. In accordance with this methodological vector, at the present stage of development of linguoculturology, an attempt is made to integrate the methods and techniques of cultural studies into linguistic methods: general philosophical, ideographic (W. Windelband), intuitionist (M. Scheler, N. Hartmann), phenomenological (E. Husserl), hermeneutic (G.G. Gadamer), structural-functional analysis (K. Levi-Strauss and others). In this regard, there are several methods of linguoculturology:

1) a diachronic method based on a comparative analysis of various linguistic and cultural units in time;

2) a synchronous method that compares simultaneously existing linguocultural units;

3) structural-functional method, which involves the division of cultural objects into parts and the identification of relationships between parts;

4) historical-genetic method, focused on the study of linguistic and cultural facts from the point of view of their formation, development and future fate;

5) a typological method aimed at identifying the typological proximity of various linguistic and cultural units created in the course of the historical and cultural process:

6) the basis of the comparative-historical method is the comparison of the original linguocultural units over time and the analysis of their essence.

Recently, according to the methods of representation of concepts, linguoculturological methods proper have been developed. At the same time, scientists proceed from the fact that the methods of objectification of concepts, which proceeds along the hermeneutic circle, provide the linguoculturologist with the opportunity to create a speech-thinking “portrait of the object of knowledge” (E. Bartminsky). In the process of creating such a “portrait”, when individual fragments (elements) of the image of an object are drawn, linguo-cognitive selection and interpretation of individual culturally significant meanings (by origin, quality, appearance, function, experiences) and their sign coding in the form of the semantic structure of the word take place. (phraseologism). Thus, the creation of a speech portrait of an object, according to E. Bartminsky, is a means of organizing minimal semantic elements within a linguistic meaning. The semantic elements themselves are derivatives that arise in the process of fixing signs, signs, properties, qualities and functions of a cognizable object interpreted by a person. We consider them as the result of prototype semantics. E. Bartminsky calls the features selected in this way
a profile. “Different profiles are not different meanings, but ways of organizing the semantic structure of a particular meaning. ... One can consider the concept of a prototype as a kind of profiling, accepting the fact of the existence of a prototype profile and its derivatives” [3: 220].

Supporters of linguoculturological methods and an approach to understanding the disciplinary status of linguoculturology demonstrate its common genetic roots associated with linguistics, linking this with the emergence of linguistic doctrines developed by A. Humboldt, G. Shukhardt, D. A. Potebnya and others. Within the framework of this didactic approach, Yu. E. Prokhorov believes that the culture of the country is considered as an integral part of the communicative needs of language learning, the extralinguistic basis of speech situations and the intentions realized in them. “The purpose of teaching is to develop the communicative competence of students” [4: 96].

As mentioned above, linguoculturology studies the relationship between language and culture, however, unlike culture-oriented linguistics, the focus is on the linguistic aspect. Linguistics has a number of specific features:

2) the main object of cultural studies is the relationship between language and culture and the interpretation of this interaction;

3) the subject of the study of linguoculturology is spiritual and material culture, verbalized artifacts that form the “linguistic picture of the world”;

4) linguoculturology is focused on a new system of cultural values put forward by the modern life of society, on objective information about the cultural life of the country [5: 32].

Comparison of culture and language in general and in particular in a specific national culture and in a specific language reveals a certain isomorphism in their structure, in functional and hierarchical terms. Accordingly, by distinguishing the literary language and dialects, highlighting vernacular in them, and in some cases even slang, N. I. Tolstoy distinguished the following types of culture in any ethnic culture: a) the culture of the educated layer (stratum) is “bookish” or elite; b) folk culture, peasant culture; mediating culture corresponding to everyday speech, which is usually called “culture for people” or “third culture”; c) traditional professional subculture (shepherds, beekeepers, potters and merchants - the culture of artisans) [6: 235]. The scientist puts forward two parallel layers, making some changes to the listed linguistic and cultural layers: literary language - elite culture popular language - “third culture” dialects and sayings - popular slang culture - traditional professional culture.

It should be noted that since the 19th century, the problem of language and culture has always been in the center of attention of philosophers, linguists and culturologists based on anthropocentric principles of knowledge and description of the world. The focus of cultural studies at the end of the 20th century
seemed to be not only language, but also discourse, in which a certain picture of the world was presented with the help of various languages and elements of discourse. This point of view is substantiated especially deeply in the works of V.N Teliya. In her concept, linguoculturology, differing from other types of culturological disciplines, is called upon to study living communicative processes in their synchronous relations with ethnic mentalists operating in a given cultural era. With such an understanding of the tasks of cultural studies, the object of its research becomes the “archeology of culture”. Linguistic “excavations” of cultural and historical layers are carried out with the help of such categories as the national picture (character, model) of the world, linguistic (ethno-cultural) consciousness and the mentality of the people. The mentioned category, it must be said, does not form a synonymy, each of them has its own significant feature [2: 35]. All these categories combine the so-called national (ethnic) component. At the beginning of the 20th century, many Russian philosophers showed the importance of national (ethnic in our terminology) roots in the life of human society, such as, for example. in the work of N. Berdyaev, I. Ilyin, S. Trubetskoy. As for N. Berdyaev, society cannot exist outside of nationality, which is understood as individual life. It is through national individuality that each individual person enters humanity, this person enters humanity as a national individual [7: 232-233].

Thus, on the basis of all of the above, we came to the conclusion that linguoculturology is a new aspect of an integrated approach to language and culture, their relationship with each other, mutual influence on the development of culture and language, their relationship with social life, psychology and philosophy.

References

STUDYING THE RELATIONSHIP OF THE TYPE OF INFORMATIONAL METABOLISM AND HUMAN BLOOD GROUPS ACCORDING TO THE ABO SYSTEM

Lysenko Vadim Vyacheslavovich
Candidate of Psychological Sciences, Associate Professor
I.S. Turgenev State University of Oryol

Levchenko Elena Vadimovna
Candidate of Medical Sciences, Associate Professor
Kursk State Medical University

Abstract. The article presents attempts to find the relationship between the type of informational metabolism and human blood groups according to the ABO system.

Keywords: type of informational metabolism, blood groups.

Introduction
It is known that many biological qualities determine the mental properties of character. So, for example, dark eyes can talk about the high temperament of their owner. A picnic addition about a good-natured character. The way in which a given person receives, processes and gives out information is called the type of informational metabolism (TIM) or the socionic type. [1]. The AB0 system is the first erythrocyte antigen system, it was discovered by the Viennese scientist Karl Landsteiner in 1900. Determination of blood groups according to this system is based on the presence of group-specific antigens (0,A,B) in erythrocytes, and isoimmune antibodies in serum The frequency of occurrence of blood groups according to the AB0 system is different in different peoples and different types of personalities [2].

The purpose of this study: we decided to check whether there is a connection between the types of informational metabolism and human blood groups.

Materials and methods: analytical, statistical. The experiment involved 199 people, students, employees, working people of different ages and gender. Typological characteristics were determined by a number of tests and collectively. People who had difficulty identifying typological characteristics were excluded from the study.
Research results and discussion

Table 1.
The distribution of subjects by blood groups in absolute numbers and with a percentage

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Blood group</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>57</td>
<td>1</td>
<td>29</td>
</tr>
<tr>
<td>101</td>
<td>2</td>
<td>51</td>
</tr>
<tr>
<td>27</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>14</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td><strong>Totally: 199</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The typology distinguishes 16 types of informational metabolism or preferences in the selection of information about the surrounding world. They are listed in the table by numbers from 1 to 16. Table No. 2 also shows the distribution of each type in absolute numbers and in percentages

Table 2
Types of informational metabolism among the subjects in absolute numbers and in percentage terms

<table>
<thead>
<tr>
<th>№</th>
<th>Typological</th>
<th>Psychological</th>
<th>International</th>
<th>Abs.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Don Quixote</td>
<td>Intuitive-logical extrovert</td>
<td>ENTP</td>
<td>3</td>
<td>1,5</td>
</tr>
<tr>
<td>2</td>
<td>Dumas</td>
<td>Sensory-ethical introvert</td>
<td>ISFP</td>
<td>9</td>
<td>4,5</td>
</tr>
<tr>
<td>3</td>
<td>Robespierre</td>
<td>Logical-intuitive introvert</td>
<td>INTJ</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Hugo</td>
<td>Ethical-sensory extrovert</td>
<td>ESFJ</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Hamlet</td>
<td>Ethical-intuitive extrovert</td>
<td>ENFJ</td>
<td>11</td>
<td>5,5</td>
</tr>
<tr>
<td>6</td>
<td>Maksim</td>
<td>Logic-sensory introvert</td>
<td>ISTJ</td>
<td>15</td>
<td>7,5</td>
</tr>
<tr>
<td>7</td>
<td>Zhukov</td>
<td>Sensory-logical extrovert</td>
<td>ESTP</td>
<td>13</td>
<td>6,5</td>
</tr>
<tr>
<td>8</td>
<td>Yesenin</td>
<td>Intuitive-ethical introvert</td>
<td>INFP</td>
<td>33</td>
<td>16,58</td>
</tr>
<tr>
<td>9</td>
<td>Napoleon</td>
<td>Sensory-ethical extrovert</td>
<td>ESFP</td>
<td>3</td>
<td>1,5</td>
</tr>
<tr>
<td>10</td>
<td>Balzac</td>
<td>Intuitive-logical introvert</td>
<td>INTP</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>Dreiser</td>
<td>Ethical-sensory introvert</td>
<td>ISFJ</td>
<td>11</td>
<td>5,5</td>
</tr>
<tr>
<td>12</td>
<td>Jack</td>
<td>Logical-intuitive extrovert</td>
<td>ENTJ</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>Huxley</td>
<td>Intuitive-ethical extrovert</td>
<td>ENFP</td>
<td>9</td>
<td>4,5</td>
</tr>
<tr>
<td>14</td>
<td>Gaben</td>
<td>Sensory-logical introvert</td>
<td>ISTP</td>
<td>11</td>
<td>5,5</td>
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<tr>
<td>15</td>
<td>Dostoevsky</td>
<td>Ethical-intuitive introvert</td>
<td>INFJ</td>
<td>47</td>
<td>23,5</td>
</tr>
<tr>
<td>16</td>
<td>Stirlitz</td>
<td>Logic-sensory extrovert</td>
<td>ESTJ</td>
<td>16</td>
<td>8</td>
</tr>
</tbody>
</table>

In order to calculate the theoretical probability of the appearance of one or another psychotype with one or another blood group, it is necessary to multiply the
probability of the appearance of one or another psychotype with the probability of the appearance of one or another blood group and divide by the total number of subjects. See table number 3

**Table 3.**

Theoretically expected frequency of appearance of psychotypes by blood groups.

<table>
<thead>
<tr>
<th>Psychological types or type of informational metabolism (TIM)</th>
<th>ABO</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>0,9</td>
<td>2,6</td>
<td>1,1</td>
<td>1,1</td>
<td>3,2</td>
<td>4,3</td>
<td>3,7</td>
<td>9,5</td>
<td>0,9</td>
<td>1,7</td>
<td>3,2</td>
<td>1,1</td>
<td>2,6</td>
<td>3,2</td>
<td>13,5</td>
<td>4,6</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1,5</td>
<td>4,6</td>
<td>2,0</td>
<td>2,0</td>
<td>5,6</td>
<td>7,6</td>
<td>6,6</td>
<td>16,7</td>
<td>1,5</td>
<td>3,0</td>
<td>5,6</td>
<td>2,0</td>
<td>4,6</td>
<td>5,6</td>
<td>23,9</td>
<td>8,1</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>0,4</td>
<td>1,2</td>
<td>0,5</td>
<td>0,5</td>
<td>1,5</td>
<td>2,0</td>
<td>1,8</td>
<td>4,5</td>
<td>0,4</td>
<td>0,8</td>
<td>1,5</td>
<td>0,5</td>
<td>1,2</td>
<td>1,5</td>
<td>6,4</td>
<td>2,2</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>0,2</td>
<td>0,6</td>
<td>0,3</td>
<td>0,3</td>
<td>0,8</td>
<td>1,1</td>
<td>0,9</td>
<td>2,3</td>
<td>0,2</td>
<td>0,4</td>
<td>0,8</td>
<td>0,3</td>
<td>0,6</td>
<td>0,8</td>
<td>3,3</td>
<td>1,1</td>
</tr>
</tbody>
</table>

Now it is necessary to compare the theoretically expected frequencies of psychotypes by blood groups with the practically obtained data. See Table No. 4, which presents the actual data obtained by the test subjects on psychotypes with blood groups.

**Table 4**

Factual data of psychotypes by blood groups

<table>
<thead>
<tr>
<th>Psychological types or type of informational metabolism (TIM)</th>
<th>ABO</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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<td>5</td>
<td>4</td>
<td>3</td>
<td>11</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<td>3</td>
<td>10</td>
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</tr>
<tr>
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<td>7</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>14</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>0</td>
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<td>5</td>
<td>32</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>3</td>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>0</td>
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<td>0</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

In order to compare the theoretically expected and practically obtained data, and therefore to find out whether there is a relationship between the blood group and the type of informational metabolism, it is necessary to conduct a statistical study. Let’s test this hypothesis using Chi-square. To do this, we will build a research matrix:

<table>
<thead>
<tr>
<th>Row</th>
<th>Column</th>
<th>O</th>
<th>E</th>
<th>(O-E)</th>
<th>(O-E)^2</th>
<th>(O-E)^2/E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0,9</td>
<td>0</td>
<td>0</td>
<td>0,02</td>
</tr>
<tr>
<td>1</td>
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<td>2</td>
<td>2,6</td>
<td>-1</td>
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<td>0,13</td>
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<tr>
<td>1</td>
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International University Scientific Forum
Chi-squared = \( \sum \frac{(O-E)^2}{E} = 63.68 \). Where O - actual data, E - theoretically expected data.

The critical Chi-square value for this study depends on the number of degrees of freedom. \( d.f. = (r-1)(c-1) = (4-1)(16-1) = 45 \) where r is row and c is column.

Chi squared is 63.68

The critical value of Chi squared with a degree of reliability of 5% and 45 degrees of freedom is - 61.65.

The resulting chi-square is greater than the critical one. So it can be argued that blood groups affect the informational metabolism of a person.

**Conclusions**

Thus, most likely, both the blood type and the type of informational metabolism are included in a large genetic biological package, which manifests itself as a certain cognitive style of the individual, and the degree of their correlation in this
package, both in terms of morphological and psychological properties - topic for further research.

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COMPARISON OF THE LEVEL OF MATHEMATICAL LITERACY OF NINTH-GRADERS AND READINESS OF MATHEMATICS TEACHERS FOR EDUCATIONAL ACTIVITIES AIMED AT THE DEVELOPMENT OF FUNCTIONAL LITERACY OF STUDENTS

Plotnikova Anna Leonidovna
Candidate of Psychological Sciences, Associate Professor
Institute for Education Development, Samara, Russia

Abstract. Research problem and substantiation of its relevance. The task of developing the functional literacy of schoolchildren is updated by the need to ensure the socio-economic well-being of the country, the socialization of schoolchildren, and the quality of education. The problem is that the pedagogical conditions for the development of functional literacy in Russian educational practice have not been sufficiently studied. In most cases, recommendations are made on the basis of theoretical developments, and not on empirical data. The study described in the article contributes to the development of this problem.

The purpose of the study is to compare the results of regional monitoring of the level of formation of functional (mathematical) literacy of 9th grade students and the results of a study of the readiness of mathematics teachers for educational activities aimed at developing the functional literacy of primary school students (preparation for PISA studies).

Methodology (materials and methods). A correlation study was conducted, which compared: 1. The results of regional monitoring of the mathematical literacy of students, represented by the distribution of the number of schoolchildren (N=24455) by the levels of development of mathematical literacy, by educational organizations and districts of the Samara region. 2. The results of a study of the readiness of mathematics teachers (N=734) for educational activities aimed at developing the functional literacy of schoolchildren, presented in points for 8 sections of the author’s questionnaire, as well as in the number of teachers who gave one or another answer to the closed questions of the questionnaire.

The results made it possible to formulate the following main conclusions:
1. The educational districts of the Samara region were clearly divided into three groups according to the level of mathematical literacy of students. The factor of the educational district is consistent with the level of mathematical literacy...
of ninth-graders \( (p \leq 0.01) \), but not with the level of readiness of mathematics teachers. The readiness of mathematics teachers in educational institutions of districts belonging to group 1 (educational districts with a relatively high level of mathematical literacy of schoolchildren) does not statistically significantly differ from the readiness of mathematics teachers working in other educational districts.

2. The readiness of mathematics teachers from schools in which students showed the highest level of mathematical literacy according to the results of regional monitoring differs statistically significantly from the readiness of mathematics teachers from schools in which 9th grade students demonstrated the lowest level of mathematical literacy, in terms of activity readiness, namely «The readiness of the teacher to implement the task of developing the functional literacy of students in the classroom and extracurricular activities» \( (p \leq 0.05) \). In this aspect of activity readiness, differences were found due to the indicators “creation of pedagogical conditions in the lessons that contribute to the formation of “soft” skills of schoolchildren” \( (p \leq 0.01) \) and “application of critical thinking development technology in the lessons” \( (p \leq 0.001) \). These indicators are consistent with a higher level of mathematical literacy of 9th grade students.

**Introduction.** An important pedagogical condition for the formation of functional literacy of students is the readiness of teachers for educational activities aimed at the formation of functional literacy of schoolchildren [1, p. 11].

Readiness for activity is a psychological and pedagogical concept well developed in science. It is understood as the willingness of the subject to perceive future events and actions in a certain direction; a stable personality quality (preparedness), which ensures the possibility of effective performance of activities.

In 2021, the SAI FVE of the Samara Region «Institute for the Development of Education» conducted a study of the readiness of teachers for educational activities aimed at preparing students for international PISA studies. The structure of readiness was identified, a questionnaire was developed and 3742 teachers from 630 educational organizations of the Samara region working with students in grades 5-9 were interviewed, including 734 teachers of mathematics [2]. The readiness structure underlying the questionnaire is presented in Table 1.
Table 1

The structure of teachers’ readiness

<table>
<thead>
<tr>
<th>Professional readiness</th>
<th>Psychological readiness</th>
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<tbody>
<tr>
<td>Information readiness</td>
<td>Activity readiness</td>
</tr>
<tr>
<td>1) knowledge of the PISA program and the results of PISA-2018</td>
<td>3) possession of pedagogical technologies that allow developing the functional literacy of students</td>
</tr>
<tr>
<td>2) knowledge of the current level of development of functional literacy of students with whom the teacher works</td>
<td>4) the ability to navigate tasks for functional literacy</td>
</tr>
<tr>
<td>5) the readiness of the teacher to implement the task of developing the FL of students in class and extracurricular activities</td>
<td>6) readiness for professional interaction and training</td>
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</table>

In accordance with the readiness structure, the developed questionnaire included 8 headings, each of which assumed a point score.

Based on the results of the study, four clusters of teachers were identified: cluster 1 - low informational and affective, medium activity readiness (it included 20.71% of mathematics teachers); 2 cluster - low level of all 3 components of readiness (3.95% of mathematics teachers); 3rd cluster - medium information, low affective and activity readiness (30.25% of mathematics teachers); cluster 4 - a high level of all 3 components of readiness (45.1% of mathematics teachers).

In 2021, the level of formation of functional (mathematical) literacy of 9th grade students was monitored in the Samara region. In this connection, it became possible to compare the results of regional monitoring and a study of the readiness of teachers for educational activities aimed at developing the functional literacy of schoolchildren.

Presumably, in educational organizations and districts of the Samara region, which showed the highest level of formation of the functional (mathematical) literacy of ninth-graders, the readiness of teachers has specific features that are manifested in such an organization of the educational process that allows you to effectively develop the functional (mathematical) literacy of schoolchildren.

The purpose of the study: to compare the results of regional monitoring of the level of formation of functional (mathematical) literacy of 9th grade students and the results of a study of the readiness of mathematics teachers for educational activities aimed at developing the functional literacy of primary school students (preparation for PISA studies).
Tasks:
1. Differentiate educational districts according to the level of functional (mathematical) literacy of 9th grade schoolchildren, analyze the level of readiness of mathematics teachers in educational districts.

2. Select educational organizations with the highest and lowest levels of mathematical literacy of students. To analyze the characteristics of the readiness of mathematics teachers in these two groups of educational organizations.

3. To develop practical recommendations for educational organizations on creating conditions that provide the possibility of developing the functional literacy of students.

**Literature review.** In the pedagogical scientific literature, functional literacy is understood as: “the ability to enter into relations with the external environment and adapt and function in it as quickly as possible” [3, p. 113]; “the ability to use all the knowledge, skills and abilities constantly acquired during life to solve the widest possible range of life tasks in various areas of human activity, communication and social relations” [3, p. 113]; “the level of knowledge and skills that increases with the development of society and the growth of the needs of the individual, necessary for the full and effective participation of a person in the economic, political, civil, social and cultural life of his society and his country, to promote their progress and for their own development” [4, p. 20].

V. A. Ermolenko considers functional literacy as a set of functional knowledge and skills that allows a person to learn throughout his life, master new competencies and ensure the safety of life for himself and his loved ones. Functional knowledge is a dynamic formation and includes the knowledge that meets the current needs of society and the individual, is based on the practical experience of people in solving everyday life problems, and allows them to successfully adapt to the natural and social environment. The “core” of functional literacy is traditional literacy; The «shells» of functional literacy are represented by the competencies necessary for adaptation in society, and the skills that a person is expected to need to successfully function in society in the near future, taking into account the trends of its development [5]. Functional literacy contributes to the academic achievement of students, acting indirectly through the choice of the most successful and adaptive educational strategy [6].

In the structure of functional literacy, mathematical, reading and natural science traditionally stand out. In recent years, the structure of functional literacy has been replenished with such a component as “global competence”, which, as noted by T.V. Koval and S.E. Dyukova, is based on universal or “soft”-skills. These skills are necessary for a person to successfully function in society and perform any activity. There is no single list of «soft»-skills [7]. Most often, it includes cooperation skills, the ability to critically assess phenomena and
situations, negotiate and negotiate, work in a team, plan actions and manage time, the ability to decentralize thinking, independence, respect for other points of view, racial, religious and other differences. people, etc. [8].

Educational organizations in various countries of the world, including Russia, form the functional literacy of students and regularly evaluate it in various monitoring. Functional literacy researchers note that the number of functionally illiterate schoolchildren is growing in Russia. According to 2018 data, 1/3 of Russian schoolchildren aged 15 did not reach the threshold level for any type of functional literacy. The level of functional literacy of students correlates with the socio-economic status of their families, which is measured by the presence of higher education of parents (mother), the level of material prosperity and the professional status of parents. The social inequality of schoolchildren is reflected in the level of their functional literacy. The lower the level of social well-being of the family, the lower the level of functional literacy of children in this family, therefore, international organizations consider functional literacy as a predictor of the social development of the student, his quality of life and the socio-economic well-being of the country.

Comparison of the level of functional literacy of schoolchildren in three regions of Russia (Moscow city, Moscow region, Republic of Tatarstan) showed significant regional differences. If schoolchildren in Moscow are among the “five” best in the world, then schoolchildren from the Moscow region and the Republic of Tatarstan are far behind their Moscow peers. The distance in the level of development of functional literacy of schoolchildren from three Russian regions exceeds the gap in the level of functional literacy of the countries participating in the PISA study. Schoolchildren in villages and small towns in Russia show a significantly lower level of functional literacy than schoolchildren in large cities with a population of more than a million people. Researchers at the Research Institute of the Higher School of Economics associate such serious regional differences in the level of functional literacy of students not only with the socio-economic well-being of the regions, but also with the pedagogical conditions of schools (personnel, material, organizational, psychological and pedagogical, methodological) [9].

In the light of the indicated features, the problem of studying the pedagogical conditions for the development of functional literacy of Russian schoolchildren does not lose its relevance and requires further development.

Methodology. Materials and methods. The results of regional monitoring (Samara and the region) of mathematical literacy of students are presented by the distribution of the number of schoolchildren (N=24455) by levels of development of mathematical literacy, by educational organizations and districts of the Samara region.

The results of a study of the readiness of mathematics teachers (N=734) for educational activities aimed at developing the functional literacy of schoolchildren
are presented in points for 8 sections of the questionnaire, as well as in the number of teachers who gave certain answers to the questions of the questionnaire.

The results of schoolchildren and teachers were compared in qualitative and quantitative analysis using methods of mathematical statistics (one-sample Kolmogorov-Smirnov test, Student’s t-test, Spearman correlation coefficient, Kruskal-Wallis test, Pearson’s chi-square).

Results. According to the results of regional monitoring, 13 educational districts of the Samara region were united into three groups according to the level of development of mathematical literacy of ninth-graders. The application of the Kruskal-Wallis test showed that the level of mathematical literacy of schoolchildren differs statistically significantly between the three groups of educational districts (p≤0.01), and there are no significant differences in indicators of the readiness of mathematics teachers. There are no significant correlations between the level of mathematical literacy of students and indicators of the readiness of mathematics teachers by educational districts (Spearman’s correlation coefficient was used). For calculations, the average scores of mathematics teachers in 8 sections of the questionnaire on the readiness of teachers for educational activities aimed at developing the functional literacy of schoolchildren, and the average score of the level of mathematical literacy of schoolchildren in 13 educational districts were used.

Conclusion: the factor of the educational district is consistent with the level of mathematical literacy of ninth-graders (p≤0.01), but not with the level of readiness of mathematics teachers. The readiness of mathematics teachers in educational institutions of districts belonging to group 1 (educational districts with a relatively high level of mathematical literacy of schoolchildren) does not statistically significantly differ from the readiness of mathematics teachers working in other educational districts.

To solve the second empirical problem, 2 groups of mathematics teachers were formed: group 1 - educational organizations of the Samara region, in which, according to the results of regional monitoring of ninth-graders, the highest level of mathematical literacy was revealed. Group 2 - educational organizations of the Samara region, in which, according to the results of regional monitoring of ninth-graders, the lowest level of mathematical literacy was revealed. The results of a survey of the readiness of mathematics teachers in these two groups of educational organizations were compared. The first group included 105 mathematics teachers from 49 educational organizations. The second group included 103 mathematics teachers from 60 educational organizations in Samara and the region. In total - 208 teachers.

Between groups 1 and 2 of teachers there were statistically significant differences in terms of indicators: «Activity readiness» (p≤0.05) and «Teacher’s readiness to implement the task of developing students’ functional literacy in classroom and extracurricular activities» (p≤0.05) (t -Student’s criterion).
An analysis of the results for the entire sample (N=208) showed that there is a weak relationship between the indicator of mathematical literacy of students and the activity readiness of teachers (r=0.139, p=0.051), in particular, such an integral element as “The readiness of a teacher to implement the task of development functional literacy of students in classroom and extracurricular activities” (r=0.163, p=0.021) (Spearman’s correlation coefficient was used).

Conclusion: the readiness of mathematics teachers from schools in which students, according to the results of regional monitoring, showed the highest level of mathematical literacy, statistically significantly differs from the readiness of mathematics teachers from schools in which 9th grade students demonstrated the lowest level of mathematical literacy, in terms of activity readiness, namely: “The willingness of the teacher to implement the task of developing the functional literacy of students in class and extracurricular activities” (p≤0.05).

One of the items in the heading “Teacher’s readiness to implement the task of developing the functional literacy of students in classroom and extracurricular activities” included a list of 13 pedagogical conditions, of which 5 make it difficult, and 8 contribute to the formation of «soft»-skills in students. Teachers were asked to evaluate “how much the following characteristics are present in your educational activities, where 5 – always, 4 – often, 3 – sometimes, 2 – rarely, 1 – never”. Each teacher in the lesson can create conditions that are more conducive to the formation of «soft»-skills in schoolchildren, or hinder them, or these two types of pedagogical conditions can be balanced.

An analysis of the answers of teachers showed that among mathematics teachers of the 1st group: there are more of those who create conditions in the classroom that contribute to the development of «soft»-skills in schoolchildren ($\chi^2 = 6.949$, p=0.009); fewer of those who create conditions in the classroom that prevent the formation of «soft-skills» among students ($\chi^2 = 6.692$, p=0.010) (see Table 2).

**Table 2**

*Number of teachers of groups 1 and 2, creating various pedagogical conditions in the classroom*

<table>
<thead>
<tr>
<th>The conditions that the teacher of mathematics creates in the lesson,</th>
<th>Group 1</th>
<th>Group 2</th>
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<tr>
<td></td>
<td>number of people</td>
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<tr>
<td>contribute to the formation of «soft» skills</td>
<td>59</td>
<td>56,73</td>
</tr>
<tr>
<td>hinder the formation of «soft» skills</td>
<td>27</td>
<td>25,96</td>
</tr>
<tr>
<td>equally contribute and hinder the formation of «soft» skills in schoolchildren</td>
<td>18</td>
<td>17,31</td>
</tr>
<tr>
<td>Total</td>
<td>104</td>
<td>100,00</td>
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</table>
Additionally, we note that the average values for all 8 conditions that stimulate the development of «soft»-skills in schoolchildren are higher for mathematics teachers working in schools where students have a relatively high level of mathematical literacy (Group 1), compared with teachers 2 groups.

The average values for all 5 conditions that hinder the development of «soft»-skills in schoolchildren are higher for mathematics teachers working in schools where students have a relatively low level of mathematical literacy (Group 2), compared with teachers in Group 1.

Conclusion: mathematics teachers working in schools where, according to the results of regional monitoring, ninth-graders have the highest level of mathematical literacy, are statistically significantly more likely to create pedagogical conditions in the classroom that contribute to the formation of “soft”-skills of schoolchildren than mathematics teachers working in schools where students were diagnosed with the lowest level of mathematical literacy (p≤0.01).

The conditions conducive to the development of «soft»-skills include:
1. Focus on stimulating the student’s own learning activities.
2. Creation of a motivating educational environment (the principle of «the student is the owner of the process, the teacher is the mentor»).
3. Learning through research: the student (alone or with other students) refines the problem, searches for information, presents the result, formulates assessment criteria and, together with the teacher, evaluates the success of the task.
4. Assessment for learning: performs a feedback function - shows strong and weak results, highlights the immediate and long-term goals of educational work.
5. Personalized learning: the pace and methods of teaching are optimized taking into account the characteristics and interests of the student
6. Learning objectives and learning experience are relevant to the real experience of students, relevant to them.
7. Project-based learning: group interdisciplinary projects (3-15 people) lasting from a few days to a whole academic year.
8. Project-based learning: group interdisciplinary projects of students are implemented in conjunction with the real tasks of their community (city, district).

The conditions that impede the formation of «soft-skills» in schoolchildren include:
1. Focus on the activity of the teacher in presenting new educational material.
2. Creation of a traditional educational environment (the principle “the teacher is the owner of the process, the student is the performer”).
3. Teaching through the explanation of new educational material and repeated performance by schoolchildren of the same type of educational tasks.
4. Evaluation for setting a school mark and determining the degree of achievement of a normative educational result.
5. Educational tasks are set by standard methodological materials, the training program without taking into account the real experience of students [10].

An analysis of the technologies used by mathematics teachers to develop the functional literacy of schoolchildren showed that in the 1st group of teachers, technologies are predominant: the development of critical thinking (53.85%), the solution of practice-oriented tasks and tasks (53.85%), semantic reading (44.23%), solving contextual and situational problems (42.31%).

In group 2, teachers most often use technologies to develop the functional literacy of schoolchildren: solving practice-oriented tasks and tasks (56.86%), semantic reading (43.14%), developmental education (42.16%), information and communication (35.29%), solving contextual and situational problems (34.31).

The largest gap in the frequency of use by teachers of groups 1 and 2 is noted for technologies: developmental education, solving contextual and situational problems, developing critical thinking, educational group cooperation, organizing search and research activities. However, differences reach a statistically significant level only in the technology of developing critical thinking ($\chi^2 = 12.642, p \leq 0.001$).

**Conclusion:** mathematics teachers from group 1 more often than mathematics teachers from group 2 use the technology of developing critical thinking ($p \leq 0.001$). This technology is combined with a higher level of development of mathematical literacy of schoolchildren.

**Discussion.** Comparison of the results of monitoring the mathematical literacy of 9th grade students and the study of the readiness of mathematics teachers for educational activities aimed at developing functional literacy showed that there are clearly differences in the level of mathematical literacy of schoolchildren in the educational districts of the Samara region. These results are consistent with the data of K. A. Adamovich et al. that the level of functional literacy of Russian schoolchildren reveals territorial differences and is consistent with the socio-economic characteristics of the family. It is quite possible that the level of mathematical literacy of schoolchildren will show positive correlations with the index of social well-being of the school.

There were no territorial differences in the readiness of teachers to form the functional literacy of schoolchildren in this study. This means that in different educational districts of the Samara region, a similar number of mathematics teachers work, according to the level of readiness related to clusters 1, 2, 3 and 4. It is important to note that cluster 3 (medium information, low affective and activity readiness) and cluster 4 (high readiness) are predominant.

Mathematics teachers working in schools with the highest level of mathematical literacy of students differ statistically significantly from colleagues working in schools with the lowest level of mathematical literacy of students in terms of:

- willingness to implement the task of developing the functional literacy of students in class and extracurricular activities ($p \leq 0.05$);
The conducted research has applied value, allows to formulate practical recommendations to the teaching staff. In order to develop the functional (mathematical) literacy of schoolchildren, teachers of mathematics are recommended to:

1. Create pedagogical conditions in mathematics lessons that contribute to the development of “soft”-skills in students.
2. More often to use the technology of developing critical thinking to form the functional literacy of schoolchildren, in addition to other technologies (semantic reading, solving practice-oriented tasks and tasks, contextual and situational tasks, educational group cooperation, etc.).
3. Organize systematic work on the development of mathematical literacy of students in classroom and extracurricular activities, select tasks and assignments for the development of mathematical literacy of schoolchildren from various sources with an emphasis on educational and methodological literature of authoritative publishing houses.

School management teams are recommended to organize methodological assistance to teachers in creating conditions in the classroom that promote the development of students’ “soft”-skills, the use of technology for the development of critical thinking, and the organization of systematic work to develop the functional literacy of students.

In addition to applied research, the study has a theoretical significance, confirming the role of “soft” skills in the structure of schoolchildren’s functional literacy. It is possible that in scientific research the structure of functional literacy will be revised in such a way that the place of “soft”-skills and their content will be more clearly defined in it.

Conclusion. To develop the functional literacy of students, the school creates a variety of pedagogical conditions, often acting intuitively, without reliable evidence of the impact of certain conditions on the level of functional literacy of schoolchildren. One of the conditions for the formation of students’ functional literacy is the readiness of mathematics teachers to act in a certain way, solving the problem of developing students’ mathematical literacy.

Comparison of the level of mathematical literacy of students and the readiness of mathematics teachers confirmed that better results in monitoring mathematical literacy are shown by schoolchildren whose mathematics teachers create conditions in the classroom that promote the development of “soft”-skills, use the technology...
for developing critical thinking. These results confirm the important role of “soft”-skills in the functional literacy of schoolchildren.

The conducted research expands the possibilities of psychological and pedagogical support of the educational process at school, makes it possible to develop programs for methodological support of teachers at school, teaching them to create pedagogical conditions in the lessons that contribute to the formation of functional literacy of schoolchildren.

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RUSSIAN SPACE AS A FIELD OF INTERNATIONAL INTEGRATION AND CHINESE MISSION OF NONLINEAR RESPONSES TO ANGLO-SAXON APPELS

Kharlanov Alexey Sergeevitch
Doctor of Economic Sciences, Candidate of Technical Sciences, Full Professor
Diplomatic Academy of the Ministry of Foreign Affairs of Russia, Moscow c.

Evans Julia Nailyevna
Master’s degree Student
Diplomatic Academy of the Ministry of Foreign Affairs of Russia, Moscow c.

Saversky Evgeny Vladimirovich
Postgraduate
Diplomatic Academy of the Ministry of Foreign Affairs of Russia, Moscow c.

Bannikov Sergey Alexandrovich
Doctor of Economic Sciences, Associate Professor
Financial University under the Government of the Russian Federation

Abstract. The authors analyze the measures taken to improve the activities of the State Corporation “Roscosmos” in the context of the growing sanctions and autarky environment for the development of Russian projects that can consolidate our involvement in near-Earth space, inside the solar system and in search of separation from it during flights into deep space. These efforts are especially important for the self-sufficient development of the Russian nuclear triad in the context of Russia’s withdrawal from the START and following the results of the Munich Security Conference, which ended with a call by the countries of the collective West to accelerate the destruction of Russia as a state.

Keywords: ADF, Russia, SA “Roscosmos”, USA, Ukraine, China, space development strategy, Brexit, Industry 4.0, cyber threats, AI, Big Data, ISS, ROS (Russian orbital station), AUKUS, NASA, NATO, Moon base, Mars base, deep space, IDL (international division of labor), IER (international economic relations).
The outgoing NATO Secretary General Jens Stoltenberg can already be replaced by the arms negotiator and co-creator of BREXIT - Boris Johnson, who actively cooperates with the industrial and military lobby of the Western countries, is the spokesman for his aspirations and hopes for the transfer of the local Ukrainian conflict into one of the hot phases of the European continental war.

The February visit of J. Biden to Kiev, on the eve of the Polish gathering of anti-Russian forces, can become the final chord to unite all the enemies of Russia within the framework of the North Atlantic Alliance for the subsequent resolution of the Belarusian-Russian issue, the cleansing of the continent by the Atlantists from any anti-Anglo-Saxon trends that are unable to maintain the hegemony of the world in -American. This fight against neo-colonialism of the 21st century reflects the readiness of other states that support Russia in carrying out the ADF in Ukraine to take into account the growing threat of systematization of the efforts of Russophobic sentiments that set the tone not only for European security institutions, but also reanimate all NATO structures as the basic matrix for their decisions. US problems in Europe and Asia, the battle for which is already on the lists of national security priorities of the star-striped hegemon.

And this means that by blocking all channels for building bridges of compromise and establishing peace in Europe, we get a formed coalition of lovers to rewrite history and clarify the geography of the Old World, from a position of strength and treacherous nihilism in the matter of destroying the Russian state, as the leader of the consolidating pole for the implementation of ideas and mechanisms of a polycentric world of equal opportunities. In this growing struggle, the West really uses both our elite and the systemic opposition, screaming about the freedoms trampled in Russia, which has turned its back on civilized interaction with the Anglo-Saxons, guaranteeing the calm extinction of any activity in the colony, which they have been actively trying to introduce to us since the early 1990s.

The policy of slow strangulation of our economy and the corruption of post-Bologna schools of continuous “brain drain” of Russian youth to the countries of the “golden billion”, which is now a thing of the past, raises questions about solving priority tasks for mobilizing high-tech sectors of the national economy, the military-industrial complex and the space industry, in particular [1].

It is precisely the delays in financing and slow decisions on staffing of innovative enterprises that are losing the initiative that lead our economic entities not only to discussions on collecting 300 billion rubles of «accidental» excess profits from commodity companies, but also show the diversity of the entire business pie, far from the emerging single national consensus and not able to fully overcome industry and property barriers.

Further growing confrontation in space, which the Americans are already ready to militarize, according to D. Trump’s ideas about the lunar economy,
despite all existing conventions and agreed prohibitions under international space and humanitarian law, the desire to make it the arena of new waves of escalation for dominance on the planet through the withdrawal of orbital constellations and satellite tracking and communications systems, which are now actively used by NATO in Ukraine against Russian troops, are further heating up the situation of a geopolitical clinch, where, like a funnel, all states of the European region are being drawn into.

In particular, Elon Musk and his Starlink crossed the boundaries of a business project and became part of NATO’s near-Earth military infrastructure, which links together target designations for military operations of our opponents during their bombing and shelling of peaceful territories of 4 lands of Ukraine annexed to Russia, and leads to constant monitoring of the actions of the Russian military group.

Step-by-step steps to counter the growing elements of the next space madness similar to the Reagan «star wars», such as the creation of lunar and Martian bases by the Americans through their centers of competence and scientific development under the leadership of NASA, in particular, on the basis of the AUCUS military production unit, may be a phased and the timely implementation of the steps of the Strategy of the Russian manned cosmonautics for the period up to 2035, signed in an updated version by the General Director of the State Corporation «Roscosmos» Yu.I. Borisov in the summer of 2022.

The main objectives of this official document are to find ways of human existence in outer space, which, through manned astronautics, determines its development and requires an increasing level of state budget support. Previously, we could not bring the Martian program to its logical end (an experiment about 500 days with isolated volunteers showed the complexity of human habitation in outer space, without taking into account the risks of his sudden death during breakdowns, depressurization and elementary cosmic radiation, radiation, which for such a period of stay on the way between Earth and Mars is guaranteed to kill all the settlers). This showed the illusory nature of human expectations at this stage in the development of science, no matter how Elon Musk dreamed about it, gathering earthlings in the amount of up to a million people who should become the vanguard of our civilization for the first Martian base by 2050 [2].

The ships themselves and the engines, materials and fuel used today on them so far speak of the impossibility of the early exploration of outer space by man, since even inside the solar system, not to mention the Kuiper asteroid belt or the Oort cloud, there are no real prerequisites for comprehensive cooperation of all states within the framework of international cooperation, ruined by the outgoing hegemon from the standpoint of fading competencies in scientific backlogs and imposed autarchy for everyone who is not ready to fulfill his suzerain will. At
the same time, the Americans, all their reserves for the convergence of business companies and government agencies represented by NASA and the US Department of Defense, have brought the space industry to the level of presumptuous upstarts trying to forget both the Soviet friendly attitude of astronauts in space, and the technological assistance of the new Russia in the field of engines and life safety systems, used today by Americans shuttles and challengers, trucks and manned modules, born before in the cooperation of ideas of S.P. Korolyov and Wernher von Braun.

Even the ongoing nervous and aggressive decoupling of the American and Chinese divorce in the field of ICT and AI proves the whole commercial focus on unconditional leadership and market mainstream development from the standpoint of their own element bases, broken cycle technologies that are not capable of multiplying developing spontaneously formed competencies and denies the readiness of their subsequent introduction as unified standards of the international cooperative division of labor functions within the framework of IDL and IRE [3].

The collapse of globalization as a universal project for the development of all national economies through their growing transnational component, after covid tests of cross-border supply chains and a logistical collapse, proved to sovereign states the perniciousness of corporatocracy global management, conducted through the usual centers of power, which, as before, colonially and shamelessly multiplying any advantages only from the standpoint of maximizing profits, dumping both the environmental and climate agendas on the governments of countries divided by creeping conflicts and technological inequality.

Our Lunar program, after the completion of the mission of the ISS (International Space Station) and the launch of the ROS (Russian Orbital Station) by the end of this decade, will be repeatedly exposed to resource insufficiency shocks at all levels of their application, from AI systems and neural networks, to a component base that is not capable of to fully localize many technical solutions that could be available to us in the context of growing international isolation and waves of targeted sanctions (industry, personal and corporate) impact [4].

SC «Roscosmos» proposes to go beyond LEO (low Earth orbit): to the Moon, asteroids and Mars. There is also room for further cooperation in the BRICS and SCO, modeling the new architecture of the proposed infrastructure solutions in the field of satellite and modular space constellations themselves (near-Earth), to interplanetary manned complexes (bases). This space expansion will be done step by step, through modular (basic) groundwork - the creation of habitable complexes (universal bases) on the Moon, Mars and asteroids, depending on the tasks of their functionality and the degree of readiness of all participants to invest money, technology and knowledge (from these telescopes and remote sensing images (Earth remote sensing) to the joint development of galactic engines and structural materials for launch vehicles and spacecraft [1,5].
The exploration of deep space itself has been postponed until 2030, when a whole class of manned flying ships will have been created, advanced guidance means have been developed, technologies for creating interorbital tugs have been adopted and tested, technologies for manned and cargo take-off and landing complexes and interplanetary complexes have been applied and tested, and put into operation orbital and surface-based space nuclear power plants, as well as the use of lunar and asteroid resources as structural materials, life systems and everything that makes space safe and close ... [1,2]

Chinese colleagues are already ready to help us not only in the supply of technologies and potential dual-use systems for the ADF, which is very annoying to our opponents, but they are also ready to formalize a full-fledged Lunar program together with us by launching the maximum number of satellites and probes to our space alterego in 2023 [2]. About the same lunar missions, which are still being completed from the wishes and the exchange of data, we can consider our Hindu colleagues, as well as the Israelis, and after them the Iranians. And this makes the Russian path to the stars large-scale, meaningful and promising. This means that the issues of scientific leadership will again be on the agenda and will be able to further unite everyone who wants to build a new polycentric and multipolar world together with Russia [5].

Negotiations held by the Minister of Foreign Affairs of Russia S.V. Lavrov and his Chinese colleague Wang Yi showed that after the historic appeal to the Federal Assembly V.V. Putin [7], once again proved the sobriety and lack of alternatives to the path of original development. The results of our cooperation with the PRC were rated as highly as possible in the field of our allied relations and mutual obligations, which are growing stronger and diversifying in similar infrastructure and innovative projects that create mechanisms for the integration incorporation of our digital capabilities in Industry 4.0., bringing the arsenal of accumulated competencies to clear algorithms non-linear and extremely unpleasant answers for the Anglo-Saxons, such as the “war of balls”, which showed the subtlety and ability to knock the enemy out of his usual rut and make him a laughingstock in the eyes of the world community [8].

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CIRCADIAN RHYTHM OF DIASTOLIC BLOOD PRESSURE IN ACUTE RENAL FAILURE IN YOUNG CHILDREN

Muhitdinova Hura Nuritdinovna
Doctor of Medical Sciences, Full Professor
Center for the Development of Professional Qualifications of Medical Workers

Kutlibayev Muzaffarmirza Maksudboy ugli
Clinical resident
Center for the Development of Professional Qualifications of Medical Workers

Abstract. Increase in the mesor of the circadian rhythm DBP by 10 mm Hg by the end of the first decade of intensive care, including extracorporeal methods of detoxification: hemodialysis, plasmapheresis, is an unfavorable sign, an indicator of insufficiently effective intensive therapy of both the underlying disease and complications, as well as concomitant aggravating factors that led to the development of acute renal failure (ARF) in infants age.

Keywords: circadian rhythm, diastolic blood pressure, acute renal failure, children.

Relevance. Acute renal failure (ARF) is a violation of the homeostatic functions of the kidneys with the development of azotemia, changes in the balance of acids and bases, water and electrolyte balance, the development of anemia, osteopathy, hypertension and other manifestations due to the inability of the kidneys to perform basic functions. There are some differences between the malignant and benign course of nephrogenic hypertension. The aggressive form of the disease, as a rule, develops at lightning speed. The diastolic pressure indicator can jump to the mark of 120 mm Hg and almost equal to systolic. Nephrogenic arterial hypertension occurs in both adults and children. It is possible to normalize the pressure by restoring the functionality of the kidneys. In addition to high blood pressure (140/90 mm Hg and above), the syndrome of arterial renal hypertension is accompanied by characteristic symptoms: a steady increase in diastolic blood pressure, young age of patients, a high probability of a malignant form of the disease, poor effectiveness of drug therapy, and negative prognosis. There are
several main mechanisms for the development of renal hypertension: in case of impaired renal function in the body, an increase in the volume of circulating blood and fluid retention occurs; excess sodium in the blood increases the sensitivity of the vascular wall to the action of hormones that increase the tone of blood vessels; The impetus for the development of nephrogenic hypertension is given by a low level of prostaglandins and bradykinins (substances that help reduce the tone of blood vessels) in the blood against the background of damage to the kidney tissue. All these factors lead to an increase in blood pressure, especially diastolic, which is sometimes called renal for this reason. It is also possible to bring down elevated nephrogenic pressure with the help of antihypertensive drugs, however, prolonged symptomatic treatment without eliminating the etiological factor can lead to kidney shrinkage, which occurs even in childhood [1-4]. However, the issues of hemodynamic features in acute renal failure in young children are not sufficiently covered in the literature.

**Goal of the work.** To study the features of the circadian rhythm of diastolic blood pressure in children with acute renal failure at an early age.

**Material and research methods.** The data of hourly monitoring of diastolic blood pressure (DBP) were studied in 16 children with ARF admitted to the ICU of RSCEMC with anuria from 1 to 4 days at the age of 10 months to 3 years 4 months from the ICU of regional children’s hospitals and branches of RSCEMC. Prior to admission to the clinic, all patients received anti-inflammatory therapy aimed at the treatment of acute respiratory infections, pneumonia 15, All-1 patient. According to indications, due to severe progressive respiratory failure, patients received invasive mechanical respiratory support on the first day. All patients underwent hemodialysis, 4 - in combination with plasmaphoresis under the control of hemodynamics, acid-base balance, respiratory system, maintenance, antibacterial, anti-inflammatory, syndromic corrective intensive therapy according to the recommendations in the literature. A favorable outcome with the restoration of full functional activity of the kidneys and discharge from the hospital was observed in 12 children (groups 1 and 2), an unfavorable outcome in 4 children (group 3). The first group consisted of patients who received intensive care in the ICU for up to 10 days, the second - children with a favorable outcome after intensive care for 11-45 days.

**Results and its discussion.** Mean DBP in children with acute renal failure up to 3 years was increased in all subjects and, depending on the severity of the condition in group 1, amounted to 72±1.4 mm Hg; in 2 - 72.3±2.2 mm Hg. and in group 3 - 71.9±2.9 mm Hg, that is, they did not differ significantly. On the first day of observation, DBP was increased by 7-10 mm Hg in all subjects (Table 1). During the follow-up in groups 1 and 3, despite intensive drug vasodilating, detoxification therapy by hemodialysis almost daily and plasmaphoresis to increase the effectiveness of detoxification in the most severe children, the level
of the mesor of the circadian rhythm DBP remained at a consistently elevated level of 7-13 mm Hg. Art. in groups 1 and 2. In dynamics, in patients of group 3, a tendency was found to increase the studied indicator at a later date, when on the 10th day of treatment (Fig. 1) the mesor of the circadian rhythm DBP became higher than the level of the indicator in groups 1 and 2 by 8.9 mm Hg. (p<0.05), which indicated a negative dynamic of intrarenal mechanisms of DBP regulation, a possible increase in ischemia of the renal parenchyma, a decrease in the level of prostaglandins and bradykinins, being a factor contributing to the development of nephrogenic hypertension against the background of renal tissue damage, possibly being one of the prognostic indicators unfavorable outcome in the most severe children of the 3rd group. On the 20th-24th day of intensive therapy with the use of extracorporeal blood purification methods, mechanical respiratory support, there was a tendency to reduce the DBP circadian rhythm mesor to the level observed on the first day, which, unfortunately, did not improve the outcome of the disease. Apparently, an increase in DBP by the end of the first decade of intensive care should be considered an unfavorable sign, an indicator of insufficiently effective intensive therapy of both the underlying disease and complications, as well as concomitant aggravating factors that led to the development of acute renal failure in young children.

Table 1.

<table>
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<th>3 group</th>
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### Table 2.
Average blood pressure in the circadian rhythm

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</table>

* - significantly relative to the indicator at 8 hours
* - the difference is significant relative to the indicator in group 2
Significantly significant decrease in DBP at 11 o’clock by 5 mm Hg. (Table 2) characterizes the work of compensatory mechanisms with a physiological focus on reducing the tone of peripheral vessels in the circadian rhythm in children of the 1st group, which, apparently, is an indicator of a lesser degree of damage and, accordingly, impaired renal function in patients of the 1st group who received intensive therapy in conditions without the need for prosthetics of external respiration.

**Figure 1. Dynamics of the mesor of the circadian rhythm DBP, in mmHg**

**Figure 2. Average DBP in the circadian rhythm in acute renal failure up to 3 years**
The projection of the acrophase of the circadian rhythm of DBP in group 1 was noted at 22:00, the bathyphase at 11:00 am, which is typical for the inversion of the circadian rhythm of DBP. In group 2, the highest DBP values were noted at 8-9 am and at 6 pm. In group 3, acrophase was projected at 2 pm and bathyphase at 2 am, which of all groups is closest to the physiological effects of the pituitary-adrenal system on vascular tone. Apparently, the most pronounced rearrangement (inversion) of the DBP circadian rhythm in group 1 corresponded to the most active participation of vasomotor mechanisms in the process of adaptation to intensive treatment of acute renal failure with a more active (than in groups 2 and 3) participation of the central mechanisms of blood pressure regulation under conditions of adequate regulatory activity of the CNS function with preserved consciousness in young children.

![Figure 3. Dynamics of the amplitude of the circadian rhythm DBP up to 3 years](image)

The rhythmic nature of changes in the amplitude of the circadian rhythm DBP, which consisted of 3-4 daily phases, consisted of 9, 9, 12 day periods in groups 1 and 2 and 14 daily waves in group 3 patients (Fig. 3). The maximum amplitude of the DBP circadian rhythm was detected on day 1, characterizing the pronounced instability of peripheral vascular tone in the stage of anuria of acute renal failure.
Figure 4. Changes in diurnal DBP fluctuations in acute renal failure up to 3 years

The most pronounced diurnal changes in DBP, noted on day 1, reappeared in group 2 and on day 30 (Fig. 4).

<table>
<thead>
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<th>Norm</th>
<th>Moderate deviation</th>
<th>Inversion</th>
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</thead>
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<td>70% (7)</td>
<td>30% (3)</td>
</tr>
<tr>
<td>1 group</td>
<td>0</td>
<td>70% (7)</td>
<td>30% (3)</td>
</tr>
<tr>
<td>2 group</td>
<td>20% (6)</td>
<td>47% (14)</td>
<td>33% (10)</td>
</tr>
<tr>
<td>3 group</td>
<td>6% (2)</td>
<td>66% (20)</td>
<td>28% (8)</td>
</tr>
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</table>

The most pronounced deformation of the circadian rhythm DBP in the form of inversion was expressed in group 2 for 10 days, somewhat less in group 3 (table 3).
A direct strong correlation was found between the DBP level and the SBP indicator in all groups, regardless of the severity of the patients’ condition (Fig. 3). That is, one of the leading factors in the formation of arterial hypertension in acute renal failure in young children was the DBP indicator.

Conclusion. An increase in the DBP circadian rhythm mesor by the end of the first decade of intensive care is an unfavorable sign, an indicator of insufficiently effective intensive therapy of both the underlying disease and complications, as well as concomitant aggravating factors that led to the development of acute renal failure in young children.

References

INFLUENCE OF THE PSYCHOEMOTIONAL AND VEGETATIVE STATUS OF PATIENTS ON THE DEVELOPMENT OF CHOLELITHIASIS

Khokhlacheva Natalia Aleksandrovna  
Doctor of Medical Sciences, Full Professor  
Izhevsk State Medical Academy of the Health Ministry of the Russian Federation

Mikhailova Olga Dmitrievna  
Candidate of Medical Sciences, Associate Professor  
Izhevsk State Medical Academy of the Health Ministry of the Russian Federation

Vakhrushev Yakov Maksimovich  
Doctor of Medical Sciences, Full Professor  
Izhevsk State Medical Academy of the Health Ministry of the Russian Federation

Abstract.

Goal. To study the psychoemotional and vegetative status of patients with pathology of the biliary system and to determine their significance in the development of cholelithiasis (CL).

Material and methods. 396 patients with stage I of CL were examined. In the verification of the diagnosis, the results of ultrasound of the hepatobiliary system, multi-fractional duodenal probing with followed macroscopic, microscopic, and biochemical examination of bile (total concentration of bile acids, cholesterol, and subsequent calculation of the choloato-cholesterol coefficient) were used. The functional state of the hepatobiliary system was assessed using dynamic echocholecystography and dynamic hepatobiliscintigraphy. To characterize the psychoemotional state, we used indicators of the motivational sphere and orientation of the person and his mental state: reactive anxiety, personal anxiety, levels of depression and neuroticism, intra-extroversion. The vegetative status was determined by the vegetative tone, vegetative reactivity and vegetative provision.

Results. The dependence of bile lithogenesis on the psychoemotional and vegetative status was established. In CL we found an increasing of the reactive...
and personal anxiety of patients, the predominance of reduced parasympathetic and perverted sympathetic vegetative reactivity. It is shown that the signs of psychoemotional instability and vegetative dystonia becomes deeper with age, and the severity of the vegetative response depends on the degree of psychoemotional disorders.

**Conclusion.** The results of the conducted complex studies allow us to identify new pathophysiological patterns of the formation of lithogenic bile, expand the understanding of the pathogenesis of CL.

**Key words:** cholelithiasis, psychoemotional status, vegetative status.

The concept of the psychosomatic genesis of diseases of the internal organs began to develop in the XIX century, when in the classical works of Z. Freud was the first demonstrated the connection between somatic complaints and mental disorders. In recent years, many authors have increasingly returned to this topic [1,2,3,4,5,6], identifying the importance of psychoemotional factors, social maladaptation and violations of the vegetative balance in the development of diseases, in the occurrence of functional disorders of various organs and systems of the human body, including the digestive system. It is believed that they can be the initial link of pathogenesis, and in combination with a genetic predisposition determine the formation of the nature of motor disorders and visceral changes [7,8].

**The aim:** to study the psychoemotional and vegetative status in the pathology of the biliary system and to determine their significance in the development of CL.

**Materials and methods.** We examined 396 patients with stage I of CL [9], that developed on the background of hepatobiliary pathology (functional disorders of the biliary tract, chronic non-calculous cholecystitis, fatty hepatosis, chronic hepatitis of alimentary etiology). Calculating the required number of observations was carried out based on the calculation of the sample size with the level of statistical power of the study, p=0.80 and performed using the statistical software package Statistica 6.1 the company Stat Soft, allowing to estimate the sample, as appropriate normal distribution. The examination of patients was carried out on the basis of informed voluntary consent of the patient, in compliance with ethical principles.

In the verification of the diagnosis, the results of ultrasound examination of the hepatobiliary system, multi-factional duodenal probing, followed by macroscopic, microscopic, chemical and physical examination of the bile were taken into account. In portions “B” and “C” of bile, the total concentration of bile acids (BAb) and cholesterol (CSb) was determined [10], and the cholato – cholesterol coefficient (CCC), that is the index of bile lithogenicity, was calculated.

The functional state of the hepatobiliary system was assessed by dynamic echochecystography and dynamic hepatobiliscintigraphy: the motor-evacuation
function of the gallbladder (GB) - the speed of emptying of the gallbladder (SEGB), the half-life of the radiopharmaceutical medication (RPP) in gallbladder (T ½ GB) and latent time choleretic breakfast (LTCB), depositing a function of GB - time of maximum accumulation of the RPP in GB (Tmax GB), bile-secretion function of the liver at the Tmax of the liver, bile-excretion liver function - according to the time of maximum accumulation of RPP in the liver (T ½ liver).

To characterize the emotional state were used indicators of motivation and orientation of the individual and its mental health: reactive anxiety (RA), personal anxiety (PA), level of depression (D). Levels of anxiety were examined using a questionnaire developed by C. D. Spielberg and adapted by Yu. I. Hanin, allowing a way of self-assessment to establish the level of RA as a state at the moment, and PA, as the stable characteristics of the person. The questionnaire for the diagnosis of depressive states is designed for screening diagnostics in mass studies. The personal profile of the patients was studied according to the intra-extraversion scale and the level of neuroticism, using the test questionnaire of G. Aisenek.

The state of the autonomic nervous system was assessed based on the results of the study of vegetative tone (VT), vegetative reactivity (VR) and vegetative maintenance (VM). The VT evaluated due to the Kerdo index (KI), that allows to identify the predominance of parasympathicotonia or sympathicotonia. It is calculated by the formula KI=(1-D/P) x 100, where D is the value of diastolic pressure, P is the heart rate per minute. In the KI range of 0.94-1.14, vegetative tone was assessed as eutonic, less than 0.94 - as sympathicotonia, more than 1.14 - as parasympathicotonia. VR was examined using the ocular-cardiac reflex (Dany-Ashner), VM - according to the results of a clinoorthostatic test.

The results of laboratory and instrumental studies were compared with the data of the control group, that consisted of 50 practically healthy individuals aged 20 to 60 years.

The obtained results were analyzed using the statistical processing programs Microsoft Excel 2010 and PSPP. The normality of the distribution was checked using the Kolmogorov-Smirnov and Shapiro-Wilk criteria, and the distribution was close to normal. Due to the close-to-normal distribution, parametric statistical methods were used in the study. The data is presented in the form of M±SD.

When assessing the statistical significance of the differences (p) and comparing the quantitative indicators in the two groups, the Student’s criterion (T) was used. The differences between the groups were considered statistically significant when the probability of validity of the null hypothesis about the absence of a difference between the groups (p) was<0.05.

We used the method of correlation analysis with the calculation of the correlation coefficient (r) according to the Pearson formula.

**Results and discussion.** Ultrasound examination of the GB revealed signs of biliary sludge (microlithiasis, putty-like bile) in 72% of patients. At 75.4% of
cases, bile microscopy revealed crystals of cholesterol and calcium bilirubinate. The study of the biochemical composition of bile showed significant disorders in the portions “B” and “C” in all patients (Table 1).

**Table 1.**

*Indicators of the chemical study of bile in stage I GI*

<table>
<thead>
<tr>
<th>Data</th>
<th>Control group (n=50)</th>
<th>Examined group (n=396)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSb (mmol/l)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portion B</td>
<td>7.56±0.07</td>
<td>26.49±0.67**</td>
</tr>
<tr>
<td>Portion C</td>
<td>3.63±0.06</td>
<td>16.45±0.54**</td>
</tr>
<tr>
<td>Bab (mmol/l)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portion B</td>
<td>54.33±0.14</td>
<td>31.77±0.54**</td>
</tr>
<tr>
<td>Portion C</td>
<td>20.76±0.20</td>
<td>15.36±0.60**</td>
</tr>
<tr>
<td>CCC (un)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portion B</td>
<td>7.15±0.07</td>
<td>1.51±0.11**</td>
</tr>
<tr>
<td>Portion C</td>
<td>6.14±0.10</td>
<td>1.16±0.05**</td>
</tr>
</tbody>
</table>

**Note:** n - the number of observations; ** - P<0.0001 confidence in comparison to the control.

The content of the Bab, which is a stabilizer of the colloidal state of bile, decreases. Subsequently, the CSf precipitates, the bile becomes supersaturated, lithogenic, which confirms a sharply reduced HC.

As shown in the table 2, CL develops due to expressed disorders of the secretory-excretory function of the liver and decreasing of the motor-evacuation function of the GB (Table 2). The depositing function of the GB in the early stage of CL almost does not change, as indicated by a slight change in the Tmax of the GB.

**Table 2.**

*The data of functional statement of hepatobiliary system in patients with stage I Cl*

<table>
<thead>
<tr>
<th>Data</th>
<th>Control group (n=50)</th>
<th>Examined group (n=396)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tmax liver, min</td>
<td>11.59±0.22</td>
<td>20.77±0.64*</td>
</tr>
<tr>
<td>T ½ liver, min</td>
<td>15.59±0.16</td>
<td>27.97±0.33*</td>
</tr>
<tr>
<td>Tmax GB, min</td>
<td>43.54±0.27</td>
<td>56.26±0.37</td>
</tr>
<tr>
<td>T ½ GB, min</td>
<td>72.25±12.47</td>
<td>89.05±0.50*</td>
</tr>
<tr>
<td>LTCB, min</td>
<td>4.85±0.04</td>
<td>14.13±0.15**</td>
</tr>
<tr>
<td>SEGB (%/min)</td>
<td>1.05±0.01</td>
<td>0.85±0.042*</td>
</tr>
</tbody>
</table>

**Note:** n - the number of observations; * - P<0.05 confidence in comparison to the control. ** - P<0.0001 confidence in comparison to the control.

Levels of reactive, personal anxiety and depression in patients in all age groups (Table 3) were higher than similar indicators of the control group, and with age there is a deepening of signs of psychoemotional instability. The level of PA was
consistently high in all the examined groups. The maximum level of RA was revealed in patients aged 51-70 years.

**Table 3.**

*Results of the study of indicators of psychoemotional status depending on age*

<table>
<thead>
<tr>
<th>Data</th>
<th>Control (n=50)</th>
<th>Before 30 years (n=43)</th>
<th>31-50 years (n=169)</th>
<th>51-60 years (n=112)</th>
<th>61-70 years (n=72)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA</td>
<td>26.4±2.16</td>
<td>40.4±1.35**</td>
<td>51.4±1.02**</td>
<td>54.7±2.21**</td>
<td>47.2±0.95**</td>
</tr>
<tr>
<td>PA</td>
<td>34.6±1.35</td>
<td>43.5±2.22*</td>
<td>45.8±0.34**</td>
<td>45.8±2.15*</td>
<td>45.3±1.28*</td>
</tr>
<tr>
<td>D</td>
<td>36.7±2.21</td>
<td>46.7±2.15*</td>
<td>50.2±0.98**</td>
<td>50.2±1.39**</td>
<td>47.5±0.99**</td>
</tr>
</tbody>
</table>

*Note:* n - the number of observations; *- P<0.05 confidence in comparison to the control. **- P<0.0001 confidence in comparison to the control.

The analysis shows that the patients had significantly increased as reactivity to external and internal stimuli, and the frequency of persistent personality disorders, that characterize the tendency to perceive a large range of situations as threatening. These data are consistent with the information given earlier in the literature about an increase in the anxiety component in the personality structure of a patient with hepatobiliary pathology [11].

In patients under 30 years of age, the level of neuroticism and the index of intro -, extraversion were 12.6+0.02 units and 13.5+1.25 units, respectively, that practically did not differ from the control level (12.3+1.91 units and 12.8+2.07 units, respectively). With age, the tendency to introvert deepens, which is registered as a decrease on the scale of intro-, extraversion, the level of neuroticism reaches its maximum. In the age group of 51-70 years, data as 16.2+2.03 units and 9.6+1.23 units, respectively, were registered.

We made a correlation analysis between the indicators of the emotional state of patients and the functional status of the GB and liver, as well as between the indicators of the emotional state and the values of chemical composition of bile (table.4).

**Table 4.**

*The correlation between the indicators of the emotional state patients, the functional state of the hepatobiliary system and chemical composition of bile*

<table>
<thead>
<tr>
<th>Data</th>
<th>RA</th>
<th>PA</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEGB</td>
<td>-0.44</td>
<td>-0.43</td>
<td>-0.29*</td>
</tr>
<tr>
<td>T 1/2 GB</td>
<td>0.69*</td>
<td>0.66</td>
<td>0.53</td>
</tr>
<tr>
<td>LTCB</td>
<td>0.58*</td>
<td>0.59</td>
<td>0.38**</td>
</tr>
<tr>
<td>T max liver</td>
<td>0.6</td>
<td>0.56*</td>
<td>0.47**</td>
</tr>
</tbody>
</table>
Comparing the obtained correlation indicators, it can be stated that during the formation of lithogenic bile, there are close links between changes in mental status with violations of the functional state of the liver and the liver.

Analysis of the nature of vegetative dystonia showed a predominance of parasympathotonics among patients with stage I CL (51.4%). The results of our studies are consistent with the data of Guarino M. P. L. [12], Henson D. E. [13], on the prevalence of parasympathicotonia in patients with pathology of the hepatobiliary system. At the same time, there were significant differences in VT depending on age. In the group of patients under 30 years KI consistent to sympathetic one (0.9+0.02), in the group 31-50 years it was as eutonic (1.0+0.06), in the group 51-70 years and older there was a predominance of the influence of the parasympathetic nervous system (1.3+0.3). Thus, in the older age groups, there is a significantly predominance of the tone of the parasympathetic nervous system [14].

The existence of a direct relationship between parasympathetic regulation and indicators of the psychoemotional profile (between KI and PA r =0.39, between KI and RT r =0.41) indicates that the nature of the vegetative response directly depends on the severity of psychoemotional disorders.

If the change in VT is a consequence and a sign of general maladaptation of the body, then VR reflects the response of the VNS to external and internal stimuli. In the examined patients, there was a predominance of reduced parasympathetic VR (44.7%) and perverted sympathetic VR (41.4%), which is probably associated with the initial parasympathotonia and depletion of the functional reserves of the parasympathetic division of the VNS.

Moreover, with age, there is a tendency to decrease in in amount of patients with reduced parasympathetic VR and an even greater increase in patients with perverted sympathetic VR. So, at the age of 50, this ratio was 37.46+4.1% and 34.26+2.46%, respectively, after 60 years-26.03+3.28% and 53.85+6.19%, respectively.

Patients with reduced parasympathetic and perverted sympathetic autonomic reactivity predominate in hypomotorics of the gastrointestinal tract (Table 5); with

<table>
<thead>
<tr>
<th>T 1/2 liver</th>
<th>0.61*</th>
<th>0.57</th>
<th>0.38**</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSb Portion B</td>
<td>0.54*</td>
<td>0.51*</td>
<td>0.39**</td>
</tr>
<tr>
<td>CSb Portion C</td>
<td>0.42*</td>
<td>0.37*</td>
<td>0.21**</td>
</tr>
<tr>
<td>BAb Portion B</td>
<td>-0.46**</td>
<td>-0.45**</td>
<td>-0.42**</td>
</tr>
<tr>
<td>BAb Portion C</td>
<td>-0.28**</td>
<td>-0.21**</td>
<td>-0.26**</td>
</tr>
<tr>
<td>CCC Portion B</td>
<td>-0.38**</td>
<td>-0.37**</td>
<td>-0.31**</td>
</tr>
<tr>
<td>CCC Portion C</td>
<td>-0.31**</td>
<td>-0.34**</td>
<td>-0.33**</td>
</tr>
</tbody>
</table>

**Note:** n - the number of observations; * - P<0.05 confidence in comparison to the control. ** - P<0.0001 confidence in comparison to the control.
an increase in the tone of the GB, there is a decrease in the number of patients with perverted sympathetic reactivity and an increase in patients with normal and increased parasympathetic vegetative reactivity.

Table 5.

VR and VM indicators due to the functional state of the GB

<table>
<thead>
<tr>
<th>Data</th>
<th>Normal motor function (n = 86)</th>
<th>Hypomotor function (n = 150)</th>
<th>Hyper motor function (n = 74)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perverted sympathetic VR</td>
<td>21%</td>
<td>36%</td>
<td>13%</td>
</tr>
<tr>
<td>Reduced parasympathetic VR</td>
<td>31%</td>
<td>39%</td>
<td>29%</td>
</tr>
<tr>
<td>Normal VR</td>
<td>25%</td>
<td>12%</td>
<td>33%</td>
</tr>
<tr>
<td>Increased parasympathetic VR</td>
<td>23%</td>
<td>13%</td>
<td>25%</td>
</tr>
<tr>
<td>Normal VM</td>
<td>38%</td>
<td>30%</td>
<td>35%</td>
</tr>
<tr>
<td>Excessive VM</td>
<td>36%</td>
<td>56%</td>
<td>26%</td>
</tr>
<tr>
<td>Insufficient VM</td>
<td>26%</td>
<td>14%</td>
<td>39%</td>
</tr>
</tbody>
</table>

The study of various forms of VM also gives important information about the state of the VNS, which regulates all internal processes of the body.

In older age groups, there was a decrease in the number of patients with normal VM, which indicates a decrease in the adaptive capabilities of the body in old age. With age, there was a tendency to increase the number of patients with excessive VM and insufficient VM. If at the age of 50 this ratio was 64.8+3.7%, 19.4+2.35% and 15.6+3.55%, respectively, then after 60 years– 35.03+4.18%, 34.85+3.19% and 30.12+2.52%, respectively.

In hypomotorics of the gastrointestinal tract, excessive VM prevails, and in hypermotorics of the gastrointestinal tract, an increase in the number of patients with insufficient VM was observed (Table 5).

To clarify the role of VNS in the gall stone formation, we conducted a correlation analysis on the one hand between the indicators of the state of VNS and indicators of the functional state of the hepatobiliary system, with the other indicators of the state of VNS and index lithogenetic bile portions “B” and “C” (table.6). The data show the existence of close links between autonomic dysfunction and disorders of motor function GB, as well as indicators of lithogenic bile.
Table 6.

Correlation between indicators of the state of the VNS, the functional state of the GB and the liver, the index of bile lithogenicity

<table>
<thead>
<tr>
<th>Data</th>
<th>CEGB</th>
<th>T ½ GB</th>
<th>LTCB</th>
<th>T ½ liver</th>
<th>T max liver</th>
<th>CCC «B»</th>
<th>CCC «C»</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT</td>
<td>-0.45*</td>
<td>0.51*</td>
<td>0.48**</td>
<td>0.21**</td>
<td>0.15*</td>
<td>-0.58*</td>
<td>-0.56*</td>
</tr>
<tr>
<td>VR</td>
<td>-0.37*</td>
<td>0.43**</td>
<td>0.41*</td>
<td>0.13</td>
<td>0.22</td>
<td>-0.47**</td>
<td>-0.38*</td>
</tr>
<tr>
<td>VM</td>
<td>-0.53*</td>
<td>0.25**</td>
<td>0.39</td>
<td>0.25**</td>
<td>0.17*</td>
<td>-0.47*</td>
<td>-0.42**</td>
</tr>
</tbody>
</table>

Note: * - the reliability of the correlation indicator p <0.05, ** - reliability of the correlation indicator p <0.0001

Thus, comparing the results of the studies, we have compiled an emotional and personal portrait of a patient with CL, characterized by an increase in the level of neuroticism, anxiety and depression with a tendency to introversion, that contributes to the suppression of negative emotions, especially it was revealed in patients of older age groups. People with a high degree of neuroticism and a tendency to introversion according to psychological personality types are melancholic, of which 69% of the examined patients were. Negative experiences lead to the arousal of the emotional structures of the brain, the formation of foci of stagnant arousal due to pronounced changes in the chemical sensitivity of their constituent neurons to neurotransmitters and neuropeptides. On this base, changes in neurochemical processes occur in the brain, which disrupt the activity of regulatory systems and lead to somatovegetative disorders [15, 16].

CONCLUSIONS.

1. The conducted studies have shown an increase in reactive and personal anxiety in patients with CL, and with age there is a deepening of signs of psychoemotional instability.

2. In CL, the predominance of reduced parasympathetic and perverted sympathetic vegetative reactivity was noted. At the same time, the dependence of the vegetative response on the psychoemotional state was established.

3. Studies of indicators of the functional state of the hepatobiliary system on the one hand and indicators of psychoemotional and vegetative status on the other have revealed new pathophysiological patterns concerning of their role in the formation of lithogenic bile.

4. The results of complex studies of the psychoemotional state and vegetative status expand the understanding of the pathogenesis of CL.
References


SEXOGYNECOLOGY AS A HYPOTHESIS OF MEDICAL SCIENCE

Konovalov Vladislav Gennajevich  
Sexologist of the Voronezh Regional Clinical Psychoneurological Dispensary, Head of the Regional Sexological Clinic of the Voronezh region, Voronezh, Russia

Mendelevich Vladimir Davydovich  
Doctor of Medical Sciences, Professor, Director of the Institute for Mental Health Research, Head of the Department of Medical Psychology  
Kazan State Medical University  
World Health Organization (WHO) expert, Editor-in-Chief of the "Neurological Bulletin" named V.M. Bekhterev; Russia, Kazan

Abstract. Relevance: Modern gynecology is integrated with other medical specialties (oncogyneology, urogynecology, endocrine gynecology, etc.). Sexual disorders in gynecological patients are difficult for diagnosis and treatment.

Purpose of the study: To work out and characterize the hypothesis of a new interdisciplinary medical science based on the diagnosis, identification of the structure of sexual disorders and their examination in gynecological diseases.

Materials and methods: We examined 100 gynecological patients aged 18-38 (average 27.3±1.2) years with a diagnosis of CSO (N70.1 according to ICD-10), 67% of whom had behavioral and mental disorders. Research methods: clinical-psychopathological, psychometric, experimental-psychological, sexological, gynecological, statistical.

Results: Sexual disorders identified in 67% of women with chronic salpingoophoritis more often (40.3%) are of a mixed nature. Neurotic disorders are represented by somatoform (F45) – 29.9%; anxiety-phobic (F40) – 22.4%; conversion disorders (F44) – 14.9% and neurasthenia (F48.0) – 7.5%. In 20% of women, a special sexual scenario was revealed - female pseudo-paraphilic syndrome. The variety of sexual disorders in gynecological diseases depends on the presence of psychopathology, and the rate of formation of sexual disorders depends on the type of genital microflora.
Conclusion: An algorithm of interaction tactics for sexual disorders in women with gynecological diseases is developed. The introduction of the concept of "sexogynecology" as a hypothesis of medical science about sexual disorders in women with gynecological diseases is substantiated.

Keywords: sexogynecology, salpingoophoritis, gynecological diseases, mental, behavioral, paraphilic, sexual disorders, hypothesis of medical science.

Introduction: Women's sexual disorders are affected by negative factors in psychosexual development, sexual history, perception of one's own body [3]; mental disorders [4]. Female behavioral disorders include sexual disorders and paraphilic syndromes [5]. There are only separate studies, even without a relationship with gynecological diseases, according to the female sexual scenario: 5021 women in the Czech Republic recognized one (13.6%) or more (5%) paraphilia [1]. Modern gynecology is integrated with other medical specialties (oncogynecology, urogynecology, endocrine gynecology, etc.) [6]. Disorders of the reproductive function in women with gynecological diseases are simultaneously within the competence of a sexologist and an obstetrician-gynecologist [4]; according to ICD-10, dyspareunia, for example, belongs to the psychiatric (F52.6) and somatic (N94.1) subcategories [5]. Sexual disorders in gynecological patients, having a psychogenic-somatogenic etiopathogenesis, are difficult for differential diagnosis and therapy. Dyspareunia and vaginismus, as algic sexual disorders, are the only sexual dysfunctions in women that prevent sexual intercourse. Many sexual dysfunctions in women are emotionally saturated and veiled [4]. In this regard, the ratio of sexual disorders in women varies significantly: from 10-20% (Hill D.A, Taylor C.A., 2021) [7] and 20.3% (Erdős C., Kelemen O., Pócs D. et al., 2023) [3] up to 57% (Berghmans B., 2018) [2]. Sexual disorders in women negatively affect their quality of life, emotional and physical state and fertility [3]. Prolonged emotional tension in gynecological patients leads to mental and behavioral disorders, which mutually aggravate and mask the clinical course of gynecological diseases and sexual disorders. The tactics of interaction between somatic and psychologically oriented specialists for the complex treatment of sexual disorders in gynecological diseases have not been sufficiently developed. Dyspareunia is the leading sexual disorder in gynecological diseases. Certain nosologies of gynecological diseases, even taking into account the hormonal profile, have little effect on the clinical manifestations of sexual dysfunctions [4]. The most common (60-67%) gynecological disease is chronic salpingo-oophoritis (CSO) [6].

Purpose of the study: To work out and characterize the hypothesis of a new interdisciplinary medical science based on the diagnosis, identification of the structure of sexual disorders and their examination in gynecological diseases.
Materials and methods: 100 women aged 18-38 (mean - 27.3±1.2) years old were examined with CSO (ICD-10: N70.1) in remission. The duration of observation was 1 year. Endogenous mental and personality disorders, acute viral genital infections, endocrinopathies, pregnancy and lactation were excluded. There were no significant statistical differences in hormone levels. Patients with CSO (n=100) were divided into 4 groups according to sexopsychopathology, duration of CSO, type of genital microflora, adhesive process in the pelvic organs, peculiarities of psychosexual development:

1. Group I (n=17): organic (somatogenic) sexual disorder - dyspareunia (N94.1) + asthenia (F06.6) of somatogenic origin, but without neurotic disorders: CSO → adhesive process in the pelvic organs + somatogenic asthenia → activation of algic sensations → absence of psychogenic reactions → somatogenic dyspareunia).

2. Group II (n=20): sexual disorders initiated both by psychogeny in CSO with complications and directly by adhesions in the pelvic organs (CSO → neurotic disorder → sexual disorders; CSO → adhesions in the pelvic organs → algic sensations → somatogenic-psychogenic dyspareunia + dulling of sexual discharge).

3. Group III (n=30): debuting sexual disorders caused by dysontogenesis of psychosexual development and neurotic disorders that existed long before CSO. CSO "awakened a dormant psychopathology", which aggravated the manifestations of sexual disorders. Dysontogenesis of psychosexual development → sexual disorders (sexual discharge reflex not formed). Neurotic disorders → psychogenic sexual disorders → CSO → increased severity of sexual disorders + addition of psychogenic-organic dyspareunia and dullness of orgasm.

4. IV (K) group (n=33) – CSO, but without sexopsychopathology.

Research methods: clinical and psychopathological, psychometric (clinical scales), experimental psychological (electronic questionnaires), sexological, gynecological (objective methods of examination and gynecological medical records), statistical.

Results: According to the literature, female sexual disorders are influenced by negative factors in psychosexual development, sexual history, perception of one's own body and mental disorders. Modern gynecology is integrated with other medical specialties (oncogynecology, urogynecology, endocrine gynecology, etc.). Sexual disorders in gynecological patients are difficult for differential diagnosis and therapy. Mutual negative influence of violations of the recreational and reproductive functions in gynecological diseases was revealed. Behavioral and mental disorders in gynecological diseases are considered on the example of CSO.

Identified mental, behavioral disorders in CSO and three aspects of the study: 1) the structure of sexual disorders in CSO (F52); 2) the structure of mental
disorders: a) neurotic disorders (F40-F48); b) somatogenic asthenia (F06.6) due to CSO; 3) a strategy for the treatment of sexual disorders in CSO.

In the history of women with CSO, the most aggressive (mixed specific) genital microflora prevailed in 3 groups: I group – 100%; II group – 25.0; IV (K) group – 15.2%; and according to it, I and other groups showed significant statistical differences (p<0.05). The total duration of CSO by groups: I group – 5.5±0.4 years; II group – 4.2±1.2 years; III group – 4.6±1.4 years; IV (K) group – 3.6±0.5 years. According to the duration of dyspareunia, the distribution in groups was: I group – 1.6±0.3 years; II group -- 2.0±0.4 years; III group – 7.9±1.5 years; IV (K) group – absent. The adhesive process of the pelvic organs is presented as follows: I (100% mixed specific microflora) group – 100%; II group – 50%; III group – 56.7%; IV (K) group – 33.3%.

The prevailing personality accentuations in women with CSO are represented by the following radicals: hyperthymic (11±0.4 points) and hysteroid (15±0.4 points) – 25% each; epileptoid (11±0.6 points) and psychasthenic (11±1 points) – 19% each. The total proportion of radicals of sthenic personality accentuations (hyperthymic and epileptoid) was 44%; 100% of women in group I and 81.8% in group IV. Groups of women with CSO differed statistically significantly (p<0.05) in two sthenic accentuations: hyperthymic (groups I and II (p=0.006), groups I and III (p=0.007), groups I and IV (K) (p =0.007)) and epileptoid (I and IV (K) groups (p=0.045), III and IV (K) groups (p=0.035)). The total proportion of radicals of sthenic personal accentuations (hyperthymic and epileptoid) was 44%; 100% – group I and 81.8% – group IV. Significant (p<0.050) differences were revealed between the types of attitude to the disease (to CSO) in the groups: harmonic (p=0.039) – between groups I and IV; ergopathic (p=0.021) – between groups I and IV; anxious (p=0.035) – between groups II and III; neurasthenic (p=0.049) – between groups II and III. This made it possible to determine that the motivation for treatment was maximum in women of group I, who saw a 100% result in the elimination of sexual disorders only with gynecological therapy.

The groups of women with CSO significantly (p<0.05) differed both in terms of the level of depression on the Hamilton scale (p=0.000) and the level of anxiety of the Spielberg-Khanin (p=0.000). However, no affective pathology was detected in groups I and IV. In women with CSO, mental disorders included somatogenic asthenia (17%) and borderline mental (neurotic) disorders (50%): somatoform disorders (F45 – 29.9%); somatized (F45.0) and hypochondriacal (F45.2) – 50% each; anxiety-phobic (F40 – 22.4%) with conversion (F44 – 14.9%) disorders; neurasthenia (F48.0 – 7.5%). Clinical and pathogenetically neurotic disorders were formed in two directions: 1) as a psychological reaction to a gynecological disease and its complications (secondary) – 100% somatoform disorders; 2) long before the gynecological disease, women already had neurotic disorders (primarily) and
psychogenic sexual disorders caused by them. The role of CSO in this case was reduced to the activation of the "dormant" psychopathology. Neurotic disorders were found in women only in groups II and III, however, their duration (1.7±0.2 years) in group II was significantly lower (p<0.05) than in group III (9.2±0.7 years), since in group II they were the result of psychogenic for a gynecological disease, and in group III they gradually formed since childhood, long before CSO.

In women with CSO, the course of their sexual disorders was aggravated by somatogenic (25.4%) and somatogenic-psychogenic (74.6%) asthenia. Such aesthetic conditions were differentiated according to clinical manifestations, anamnesis, and the effectiveness of therapy (as a consequence of the treatment of a gynecological disease or antipsychoasthenic pharmacotherapy).

Sexual disorders (67%) in women with CSO more often (40.3%) have a mixed genesis: simultaneous influence of somatogenic (CSO with complications) and psychopathological (neurotic disorders and somatogenic asthenia) factors; in this regard, such sexual dysfunctions tend to be long and severe, more difficult to diagnose and treat, since both of these factors can be mutually masked.

The main sexual disorders in CSO included: dyspareunia – 54%, orgasmic dysfunction – 44% and decreased libido – 38%. Mixed dyspareunia (27%) prevailed over purely organic (17%). Dullness of orgasm arose secondarily against the background of dyspareunia. Primary coital and absolute anorgasmia were caused by dysontogenesis of psychosexual development, suppression of sexual reactions by neurotic disorders and a negative partner factor.

The main sexual disorder in CSO, organic dyspareunia (N94.1), is due to adhesions of the pelvic organs caused by CSO in the absence of neurotic disorders; which was objectively confirmed by a gynecological examination, ultrasound of the pelvic organs, anamnesis in medical documentation; the criteria for their diagnosis were: 1) a high or moderate degree of adhesions of the pelvic organs, which caused algic sensations during intercourse and during gynecological examination; 2) the time, nature and intensity of coital algic complaints corresponded to a clear anatomical localization and severity of the adhesive process of the pelvic organs in CSO.

The main factors in the formation of sexual disorders in CSO: A) organic dyspareunia: the duration (β=0.852) of persistence and the total amount (β=0.744) of mixed specific genital microflora. B) psychogenic dyspareunia: sensitive personality accentuation (β=0.758), negative maternal image of the mother (β=0.648), somatization disorder (β=0.333). C) orgasm disorder: phobic anxiety disorder (β=0.691), negative partner factor (β=0.664). E) decrease in libido: neurotic disorders (β=0.783), psychogenic for a long course of CSO with a single opportunistic microflora (β=0.776). E) dyspareunia of mixed genesis and dullness of orgasm: neurotic disorders (β=0.608); anxiety-phobic (β=0.691)
and hypochondriacal (β=0.548) disorders, negative partner factor (β=0.578), the amount of a single mixed microflora (β=0.512), adhesive process of the pelvic organs (β=0.550).

If algic sexual disorders (dyspareunia) in gynecological diseases are not cured in somatic medicine, then psychopathology and dysontogenesis of psychosexual development can influence resistance to therapy. CSO causes not only the development of sexual disorders, but also the speed of their occurrence; The most pathogenic influence was exerted by the presence of a specific mixed microflora in the anamnesis in women, since under these conditions dyspareunia occurred after 3.9 ± 0.1 years of the course of the inflammatory process.

The variety of sexual disorders in women with CSO depends on the presence of explicit or latent psychopathology in them (neurotic disorders predominated), and the rate of formation of sexual dysfunctions (emphasis on algic sexual disorder – dyspareunia) largely depends on the type of microflora (the most pathogenic-aggressive is mixed specific), severity and duration of CSO.

In 20% of women with CSO, a specific sexual scenario was identified – female pseudoparaphilic syndrome (F-PPS), as a factor in compensating for sexual frustration and leveling the affective state. 70% of women with F-PPS showed significant differences (p=0.035) in terms of such an indicator as indirect signs of minimal residual organic brain dysfunction. In addition, in 15% of women who were identified as self-harm (“self-harm”), the implementation of F-PPS temporarily removed the attraction to such negative behavior. F-PPS was complementary, therefore, it promoted sexual adaptation between sexual partners, included a sadomasochistic (75%) and bisexual (15%) scenario. The abnormal sexual scenario in women was considered with an emphasis on the characteristics of female sexuality (hypertrophy of the platonic and erotic components of libido, the predominance of extragenital erogenous zones with special stimulation). With F-PPS, according to the projective electronic test of L. Szondi, masochistic tendencies, a tendency to submit, the displacement of pronounced sexual aggression (h+s-!); undifferentiated sexuality with pronounced feminine passivity and passive masochistic tendencies (h±s-!!). According to the projective test "Coding" by Z. Starovich with F-PPS, women interpreted their own image as personal passivity, instability, dependence, the need for control and intense external influences. According to MMPI-566 for F-PPS, there were significant differences (p<0.05) in affective disorders of individual scales: hysteria (Hy) – 62.9±10.3 (p=0.0002); schizophrenia (Sc) – 71±16.2 (p=0.003) and psychasthenia (Pt) – 62.4±20.6 (p=0.030): Profile "387" MMPI-566 in F-PPS: emotional lability, inconsistency multidirectional tendencies, dramatization of circumstances, egocentrism, demonstrativeness, emotional tension, attraction to an external exciting situation. The main factors in the formation of F-PPS: neurotic
disorders (β=0.842), hysterical personality accentuation (β=0.707), asexually repressive education (β=0.517), children's games with exposure and examination of the genitals (β=0.471), mental trauma childhood (β=0.469).

The main strategies for the treatment of neurotic and sexual disorders in gynecological diseases are psychotherapy against the background of gynecological treatment and psychopharmacotherapy (reduction of asthenic, anxiety and depressive conditions):

I. Identification and treatment of psychosexual traumas and intrapersonal conflicts:


II. Therapy of neurotic disorders: In the treatment of emotional and cognitive distortions in neurotic disorders, attention was focused on 3rd wave CBT (metacognitive therapy) [12] and existential-analytic therapy [9].

III. Therapy of purely sexual disorders (dyspareunia, decreased libido and orgasmic dysfunction): analysis of psychosexual development with parental prescriptions with their subsequent adjustments, sex therapy, revitalization of feelings for sexual partners, hypnotic suggestive psychotherapy.

Significant differences (p<0.05) were obtained in the treatment of asthenic condition in women with CSO: somatogenic asthenia (group I) was reduced only after gynecological therapy (treatment of CSO) (p=0.0003); severe mixed asthenia (group II) was equally leveled by both anti-asthenic psychotropic and somatic (gynecological) therapy (p=0.0001); mixed asthenia with a pronounced predominance of the psychogenic pole (group III) was mainly eliminated by antiasthenic drugs (p=0.000).

The developed strategy for the treatment of sexual disorders in CSO allows to achieve a complete restoration of sexual function in 82.4% of cases (with purely organic dyspareunia), in 60% of cases (if sexual disorders are caused by a neurotic reaction to CSO and its complications) and only in 40% of cases (with sexual disorders caused by long-term neurotic disorders that arose before CSO). The effectiveness of the treatment of sexual disorders decreases in direct proportion with an increase in the severity of the existing psychopathology, and not with CSO. Women with the most severe course of CSO (group I) had the highest motivation for the treatment of CSO and sexual disorders, they were not characterized by withdrawal into the disease, since they did not have pronounced hypochondriacal, depressive, hysterical and psychasthenic features.

This scientific work focuses not only on the psychosomatic mechanism of the development of sexopathology, but also shows the following approaches for solving sexual disorders in women with CSO:
1. **Gynecological:** the type of genital microflora is taken into account and, as a result, the time of formation of the adhesive process of the pelvic organs: with mixed specific – 3.9 ± 0.1; with nonspecific – 5.1±0.6 years. Sexual disorders (67%) in women with CSO proceeded against the background of somatogenic (25.4% – group I) and psychogenic-somatogenic (74.6% – groups II and III) asthenia. Organic dyspareunia and somatogenic asthenia were caused by CSO.

2. **Psychopathological:** the somatogenic radical of the asthenic condition and neurotic disorders aggravate the course and treatment of sexual disorders in women with CSO.

3. **Sexopathological:** factors of stability of sexual function in women with CSO: absence of psychopathology, strong sexual constitution, compatible psychotypes (accentuations and sociotypes), complementary sexual scenario, including abnormal (F-PPS was detected in 20% of patients). In women with severe CSO (with organic dyspareunia and somatogenic asthenia), there were almost no deviations from intimate life, since they did not have hysteroid personality accentuation and neurotic disorders. The criteria for diagnosing reduced libido in dyspareunia of mixed and psychogenic origin are subjective experiences of pain, where its emotional and cognitive components are of greater importance.

4. **Sexogynecological:** CSO, somatogenic asthenia and neurotic disorders can mutually mask the etiopathogenesis of sexual disorders in women with CSO: a more severe course of CSO does not always lead to pronounced sexual adaptation. Sexual disorders caused by CSO, but without neurotic disorders, should be easier to treat. Somatogenic asthenia is reduced only after gynecological treatment. CSO determines the speed of education, and psychopathology - the diversity of sexopathology.

Medical tactics of interaction between gynecologists and women with gynecological diseases and sexual disorders should be based on differential diagnostics (organic, mixed and psychogenic sexual disorders), in order to exclude the involvement of the mental component in sexual dysfunctions: women avoid intimate life; long-term (more than 3 months) somatic treatment of a gynecological disease does not reduce sexual disorders; the clinic of sexual disorders becomes more complicated (libido decreases, sexual anhedonia occurs, orgasm disturbance, etc.), and at the same time, it is necessary to take into account the possible altered hormonal background. The variety of gynecological diseases does not increase the number of sexual disorders, and the main ones are: dyspareunia (as a reflection of the somatogenic factor) and dullness of orgasm (as a reflection of the somatogenic and psychogenic factors); decreased libido, lubrication, sexual anhedonia (as a reflection of the psychogenic factor).

Unlike female, in gynecological sexology it is possible to use more objective instrumental-laboratory and gynecological methods for confirming sexual
disorders (directly, alagic, associated with orgasm blunting and lubrication). The sexogynecological approach is the optimal approach to sexual disorders in gynecological diseases, possibly avoiding long-term conservative gynecological therapy, and if it is ineffective, surgical interventions; considering the problem at a higher and deeper level than the limits of psychosomatic disorders; based on the principles of evidence-based medicine [11] as an impartial, reasoned and rational use of modern scientific data and methods in individualized therapy for patients.

The classic biopsychosocial model in medicine, presented by R.R. Grinker (1964) – G.L. Engel (1977) and proposed in the ICD-11, is optimal in modern medicine (especially in psychiatry and chronic diseases), since it allows a deep study of all its domains: “bio-” (bio-medicine + genetic engineering), “psycho-” (experimental-clinical psychology) and "socio-" (stress modeling and retrospection of life crises) [10]).

Polietiopathogenesis of sexual disorders in gynecological diseases is recommended to be considered within the framework of the hypothesis of science.

Sexogynecology (gynecological sexology) as a hypothesis of a medical interdisciplinary science of sexual disorders in women with gynecological diseases, based on the biopsychosocial model of R.R. Grinker-G.L. Engel, the object of study of which are gynecological patients; and the subject is sexual disorders in gynecological diseases; using sexological, gynecological, clinical-psychopathological, psychometric, statistical research methods; the subject is a doctor professionally oriented in gynecology, psychiatry and sexology.

Conclusion
1. Analysis of the characteristics of the genital microflora, CSO and its complications, psychopathology allowed us to develop a diagnostic algorithm, identify the structure of behavioral disorders and substantiate the strategy for the treatment of sexual disorders in gynecological diseases using the example of CSO.

2. The introduction of the concept of "sexogynecology" is substantiated - a hypothesis of medical science about sexual disorders in women with gynecological diseases.

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References


THE ROLE OF EXOGENOUS AND ENDOGENOUS FACTORS IN THE FORMATION OF ENDOCRINOPATHIES

Polyakova Ludmila Viktorovna  
Candidate of Medical Sciences, Associate Professor  
Volgograd State Medical University

Kalashnikova Svetlana Alexandrovna  
Doctor of Medical Sciences, the Head of the Anatomy Department  
Volgograd State Medical University

Kondakova Larisa Igorevna  
Candidate of Medical Sciences, Associate Professor  
Volgograd State Medical University

Abstract. The article describes the main morphological changes in the organs of the endocrine system of rats under the influence of exogenous and endogenous factors at different periods of the experiment. We used models of 30-day dark deprivation followed by 14-day correction with exogenous melatonin, as well as a model of chronic endogenous intoxication with the formation of chronic liver failure due to the combined administration of carbon tetrachloride and bacterial lipopolysaccharide. A standard histological examination of the endocrine organs (testes, thyroid gland) was performed, followed by statistical processing of the data. It has been established that in experimental rats there is a decrease in the number of Leydig cells, their area and nuclei, and a decrease in the thickness of the spermatogenic epithelium. The introduction of exogenous melatonin led to a partial restoration of androgenesis and spermatogenic epithelium. When assessing the tissue of the thyroid gland, damage occurs, characterized by small droplet vacuolar dystrophy, as well as plethora of tissue, followed by the formation of zones of moderate proliferation and isolation of follicles into individual thyreons due to connective tissue. Thus, nonspecific damage to the organs of the endocrine system occurs, followed by the development of compensatory-adaptive processes and partial regeneration of cell populations.

Keywords: thyroid gland, thyrocytes, chronic intoxication, testis, dark deprivation, aging, endocrine organs.
Modern endocrinology solves a number of problems associated with changes in hormonal status under the influence of many factors associated with the negative influence of the environment [], as well as in combination with a change in the internal homeostasis of the body during the development of various somatic diseases [5]. We chose 2 models with an assessment of the influence of physical factors (dark deprivation) and a model of chronic endogenous intoxication (experimental hepatofibrosis with the formation of liver insufficiency) both on the testes of rats and on the thyroid gland [1,2]. It is known that these organs are highly sensitive to the effects of physical and chemical factors and react with morphological and functional restructuring of the tissue, followed by a change in the hormonal status [3,4].

The purpose of this study is to establish patterns of development of morphological changes in the testes and thyroid gland in rats under the influence of exogenous and endogenous factors.

Materials and methods. The study of the influence of physical factors with subsequent pharmacological correction was carried out on a model of premature aging caused by 30-day dark deprivation in combination with the introduction of exogenous melatonin. Accelerated aging in the experimental group and positive control was modeled by 30-day dark deprivation under constant artificial light (300 Lux). Animals of the negative control group were under 12-hour artificial light-dark illumination. At the end of the 30-day dark deprivation, the animals of the experimental group daily at the same time (20:00 Moscow time) orally (intragastrically through a tube) received melatonin for 14 days. Positive and negative control animals received 2% starch mucus in an equivalent volume for 14 days.

The second model with the reproduction of chronic endogenous intoxication was carried out by daily oral administration of a solution of carbon tetrachloride (CTCh) at the rate of 0.5 ml of a 30% solution. On day 7, the animals were intraperitoneally injected with bacterial lipopolysaccharide (LPS) 0.2 µg/kg. The duration of administration was 30 days, after which after 7 days (30+7), 30 days (30+30), 60 days (30+60) and 90 days (30+90) the animals were withdrawn from the experiment. To study the morphological state of the organs of the endocrine system, the sampling of the testes and the thyroid gland. Organs were placed in 10% buffered formalin, followed by automated histological wiring (Leica TP1020) and staining with hematoxylin and eosin. Microphotography of histological micropreparations was carried out using a Leica DM 1000 microscope (Leica Microsystems GmbH, Germany) and the LAS v.4.7 software package. Statistical processing of the results was carried out using Kruskal-Wallis rank one-way analysis of variance with Dunn’s posterior test using GraphPad Prism 8.0 software. To test the distribution for normality, the Shapiro-Wilk test was used. Changes were considered statistically significant at p<0.05.
Results and discussion. Histological examination of preparations of the testes of rats subjected to dark deprivation revealed desquamation of spermatogenic epithelial cells, affecting the populations of spermatocytes of the 1st and 2nd orders, which was accompanied by a decrease in the thickness of the spermatogenic epithelium by 26.3% (p<0.001). Spermatocytes of the 1st order were located unevenly, retaining their morphological characteristics and adjacent to the spermatogonia, which, in turn, were located directly at the basement membrane of the tubules in the presence of space between the layer of cells due to pronounced edema. It should be noted that spermatocytes of the second order were not observed in all tubules and their number significantly decreased, which indicates hypotrophy, and in some cases, atrophy of the spermatogenic epithelium. Single spermatids in the lumen of the tubule corresponded to the location of Sertoli’s pyramidal cells, where their population retained its abundance and location. Along with this, edema was observed both from the side of the spermatogenic epithelium and from the side of the interstitial tissue, where optically empty spaces of varying severity were visible. Leydig cells were located mainly singly, occasionally in groups around the blood vessels between the convoluted seminiferous tubules. The nuclei of Leydig cells are pale colored, round or oval in shape. A morphometric study of Leydig cells showed a significant decrease in their area and nuclei by 26.9% and 21.7%, respectively, compared with the rats of the negative control groups (p<0.001). Vessels of the microvasculature had pronounced plethora. Morphometric analysis showed a decrease in the area of the convoluted seminiferous tubules by 1.7% (p<0.05) compared to the rats of the negative control groups, which was confirmed by an increase in the ratio of the area of interstitial tissue and convoluted seminiferous tubules by 26.7% (p<0.01). There was a decrease in the index of spermatogenesis by 6.25% compared with the negative control group. Morphological analysis of the testes of rats treated with melatonin revealed that germ cells in the convoluted seminiferous tubule are located in accordance with the stages of spermatogenesis. In this case, all cell populations of the spermatogenic epithelium were examined, where small rounded hyperchromic cells (spermatogonia) were located near the basement membrane with slight signs of edema, manifested in the presence of spaces between the basement membrane and the spermatogenic epithelium. The stratification of the epithelium in the formation of layers of spermatocytes of the 1st and 2nd orders was preserved, the restoration of the thickness of the spermatogenic epithelium was observed with its increase by 26.6% (p<0.001) compared with the negative control group, as well as an increase in the index of spermatogenesis by 3%. Sertoli cells had a pyramidal shape and adhered to the basement membrane, retaining their connection with spermatids, which were partially determined in the lumen of the tubule. There was an increase in the area of Leydig cells and their nuclei by
14.95% (p<0.001) and 20.72% (p<0.001), respectively, compared with the positive control group. When assessing the area of the convoluted seminiferous tubules, it was found that it increased by 1.5% (p<0.05). Belong with this, there was a decrease in the ratio of the area of interstitial tissue and convoluted seminiferous tubules by 18.6% (p<0.01). Morphological changes in the testes of rats under conditions of dark deprivation indicate premature aging, which is also confirmed by a decrease in the Klotho protein level in positive control animals relative to the negative control level by 1.7 times. However, a complete recovery of the Klotho protein level in the blood in experimental animals treated with melatonin was not observed, the value of this indicator was statistically not significantly less than in negative control rats by 1.36 times.

A decrease in the ratio of the area of interstitial tissue and convoluted seminiferous tubules indicates the restoration of the level of activity of spermatogenesis.

When using the model of chronic endogenous intoxication, it was found that changes in the thyroid gland during the experiment of 30±7 days were characterized by cell damage with the presence of full-blooded vessels. Thus, in the lumen of individual follicles, desquamated cells of the follicular epithelium were observed, where thyrocytes retained a cubic shape with a basally located nucleus. At 30 days after the cessation of toxic exposure, some heterogeneity of the colloid was noted, which is apparently associated with the development of compensatory-adaptive processes and the presence of morphological and functional changes in cells. So, in the lumen of the follicles, single desquamated cells remained, however, the majority of thyrocytes were densely located on the basement membrane. However, some cells contained small light vacuoles with a displacement of the nucleus, which was combined with signs of colloid marginal resorption. This phenomenon can be regarded as a combination of dystrophic changes in individual cells, and an increase in secretion by thyrocytes. At the same time, the shape of the cells retained a cubic shape, which indirectly indicated the presence of a euthyroid state. Vessels of the microvasculature had a normal structure and blood supply, which were clearly visible around the follicles. The stromal component was represented by a network of thin single connective tissue fibers.

When assessing changes in thyroid tissue 60 and 90 days after the cessation of toxic exposure, follicles were separated into groups united by a single capillary network, which can be characterized by the term “thyreon”. This phenomenon was accompanied by an increase in extrafollicular epithelium located between groups of fairly large follicles. It is known that the proliferation of thyrocytes and folliculogenesis occurs due to the extrafollicular and intrafollicular epithelium, which in this case after 60 days can be regarded as replenishment of the thyroid parenchyma instead of the lost one. The follicular epithelium undergoes less
changes than the extrafollicular epithelium, where the cells retain a cubic shape with a homogeneous cytoplasm and a basally centrally located nucleus. In general, the colloid in the remaining follicles has a uniform color and is evenly distributed. It should be noted that the stromal-vascular component is not clearly visible due to the abundance of parenchymal elements. At 90 days after the cessation of toxic exposure, single small nodular formations are found in the thyroid tissue, which in their composition are represented by single follicles of various sizes with an abundance of extrafollicular epithelium cells. In this case, small follicles lined with cuboidal epithelium and filled with a fairly dense colloid predominate. On the part of individual follicles, proliferation of the intrafollicular epithelium was noted, which indicated the activation of an alternative path of folliculogenesis. Along the periphery of the nodule, a similar distribution of follicles was observed, only to a lesser extent represented by a component of the extrafollicular epithelium. At this time, strands of connective tissue were clearly visible, which reflected the consequences of exposure to endogenous toxic compounds. In addition, a change in the microvasculature with a redistribution of blood vessels depending on the areas of thyrocyte proliferation was revealed.

Conclusion. Thus, under the influence of negative factors on the organs of the endocrine system, nonspecific changes were observed, characterized by damage to endocrinocytes with their subsequent recovery during pharmacological correction or the development of adaptive-compensatory mechanisms upon termination of toxic exposure. So, with dark deprivation for 30 days, premature aging of the reproductive system with inhibition of spermatogenesis was observed, and with the introduction of melatonin, on the contrary, the restoration of all cell populations, including Leydig cells. The development of compensatory-adaptive reactions in the thyroid gland, on the contrary, was characterized by cell proliferation instead of those lost due to the extrafollicular epithelium and further activation of folliculogenesis due to the intrafollicular epithelium, which can lead to the formation of a morphological substrate of thyropathies in chronic endogenous intoxication syndrome.

References


