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## Cultural sciences

### ANALYSIS OF RATIONAL IDEAS IN ANCIENT CHINESE AND ANCIENT GREEK MYTHOLOGY

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#### **Abstract**

*With the establishment of Modern Mythology Chinese scholars began to study Greek Mythology. Scholars usually compare the cultural backgrounds and ways of thinking of the Ancient Chinese and Greek Mythology, this paper focuses on analysing the characteristics of the idea of rationality in the two mythologies. Firstly, it introduces the representation and influence of ancient Greek scientific thought, the comparison of the thinking trend between the pre-Qin doctrine of the mean in Ancient Chinese and the doctrine of the mean in ancient Greece, and the differences of rational ideas; Second, a survey was conducted mainly on 100 students from the School of Liberal Arts and History of Jining Normal University, and the students' understanding of the concept of rationality was compared through experimental data. The results show that the doctrine of the mean in Ancient Chinese and ancient Greek Mythology is consistent, accounting for 64% and 45% respectively, we also found that the understanding of the concept of rationality in ancient myths needs to be further improved.*

**Keywords:** Ancient Chinese Mythology, Greek Mythology, Rational Ideas, Feature Analysis

#### **Introduction**

*With the increasingly active cultural exchanges between China and the West and the torrent of Western learning spreading to the East in the early 20th century A number of modern disciplines emerged Mythology is one of them. Ancient Chinese and Greece are the toughening period of eastern and Western culture and thought respectively. At the same time, they are also the birthplace of eastern and Western civilization in human history. It is a miracle of human history that the ancestors created such a very similar scientific view, scientific method and scientific thought in almost the same historical time domain and almost independent regions. And science is a magnificent exploration of the human mind. The formation of rational ideas in Ancient Chinese and Greece can be said to be a great ideological change since the beginning of chaos.*

*Many scholars at home and abroad have studied the characteristics of rational ideas in Ancient Chinese and Greek Mythology. Nnn A identified and studied the first registered shoulder arthroplasty in ancient Greek Mythology, identified and analyzed the texts referring to Pelops Ivory shoulder mythology and the texts containing the first reference to shoulder arthroplasty in prehistoric times; It indicates the need for medical science and treatment of diseases and injuries, which is as old as human history[1]. Vasiliulo's Romanian opera, based on George ernescu's soundtrack, premiered in Bucharest, reflecting another interest in mythological themes. The artistic concept of realism and post romanticism is reflected in the unsolvable connection between text and music, the original synthesis of the most expressive composing techniques recorded in the mainstream tradition, and the openness to the sharp modern elements in the musical language [2].*

*This paper focuses on the theoretical and practical aspects, and makes a comparative study of the doctrine of the mean between Ancient Chinese and ancient Greek philosophy by using the methods of literature reference and theoretical analysis. Carry out more in-depth rational thinking and detailed logical analysis through the unified method of logic and history; Collected a large number of relevant documents on the study of the doctrine of the mean in the pre-Qin period and the ancient Greek philosophy period, carried out a comprehensive and profound analysis and discussion through the exegesis of the relevant literary and historical materials of the doctrine of the mean in the pre-Qin period and the ancient Greek philosophy period, and revealed the dual significance of comparing the two kinds of doctrine of the mean; Using the method of comparative research, this paper compares the two views of the golden mean to provide solutions to the problems in contemporary society [3-4].*

**Representation and Influence of Ancient Greek Scientific Thought.** *In ancient Greek Mythology and legend, both the stories of gods and heroic legends reflect the social organization form of ancient Greek*

ancestors to a certain extent: communes and City States organized by families, which embody the function of military community. In the long-term spread of myths and legends, they will inevitably be marked by the times they have experienced. Many of the contents were processed and recreated by dramatists, lyric poets and epic writers who lived in the city-state period. They have a strong imprint of city-state life and reflect the specific values under the city-state life form. In the form of the Greek city-state, it typically reflected respect for the gods. Most of the Greek myths and legends reflect social life in the age of kingship, and most of the heroes of the myths are the kings and nobles of the city-states.[5].

The brilliant development of ancient Greek philosophy is the concentrated embodiment of ancient Greek scientific thought. Ancient Greek philosophy and science are symbiotic and prosperous. Many Greek scientists are also philosophers. Many philosophers are also very concerned about nature and enthusiastic about studying natural phenomena. They are also scientists. The logical rationality and critical spirit in ancient Greek scientific thought have become the basic elements of modern scientific spirit. It is not only a comprehensive summary of previous achievements, but also points out the direction of logical rationality for ancient Greek scientific thought.

Ancient Greek scientists not only devoted themselves to non experimental science, but also tried to prove their claims with experiments. However, ancient Greek scientists did not understand the status and role of experiment in science, and ancient Greek philosophers did not put forward epistemological problems about experiment, and even despised experiment. What the ancient Greek philosophers pursued assiduously was to construct a broad and profound universe theory with rigorous logical reasoning. They regarded the experiment as a simple physical labor, which was done by slaves, and completely belittled the status and role of the experiment. However, the germination of experimental thought is still contained in Greek Philosophy [6-7].

#### **Comparison of the Thinking Trend of the Doctrine of the Mean in Ancient Chinese and**

**Greece.** The consistency of the political and ethical dimensions of the two golden mean Views: the golden mean view of Pre-Qin Confucianism and ancient Greek philosophy has political significance at the same time. First of all, the doctrine of the mean of pre Qin Confucianism was first spread by politicians as a kind of thought of governing the country. As an idea, "middle" is the best choice to maintain social balance and alleviate social contradictions. It is essential for the ruling class to maintain its own rule. When applied to politics, the doctrine of the mean points to peace and stability. The best way to continue its rule is for people in politics to clearly focus on the truth of "middle" instead of adhering to both ends and to be reflected in national norms. Therefore, it was adopted by the rulers. Rulers can use the doctrine of the mean to realize the stability of their own rule in political life. Only peace and stability can make the people submit to their own rule.

The end point of the existence of theory is practice, which endows the theory with new connotation. The two are based on each other, and so is the doctrine of the mean. At the practical level, both Ancient Chinese pre Qin Confucianism and ancient Greek philosophy regard the doctrine of the mean as an intelligent existence. Therefore, practicing the doctrine of the mean in the process of practice is the consensus of the two kinds of doctrine of the mean[8]. Before applying the doctrine of the mean, we should pay attention to its thinking.

The doctrine of the mean in pre Qin Confucianism has a thinking trend that the doctrine of the mean in ancient Greek philosophy does not have, that is, philosophy and metaphysics. The doctrine of the mean of Pre-Qin Confucianism is a philosophical theory, and the greatest feature of philosophical theory is philosophical thinking, that is, thinking with philosophical nature. Therefore, the doctrine of the mean of Pre-Qin Confucianism is philosophical, which is not available in the doctrine of the mean of ancient Greece. Although the doctrine of the mean is an integral part of ancient Greek philosophy, its theory itself is too thin and its field is too single, so it does not have the conditions to achieve philosophy.

In pre Qin Confucianism, the doctrine of the mean is very abstract, which provides conditions for the metaphysical thinking of the theory. However, in the doctrine of the mean in ancient Greece, although it will be affected by logic, this logic is easy to be mastered by people. Even if there are difficulties in practice, it does not hinder the simplicity and comprehensibility of its theory itself. Therefore, the doctrine of the mean in ancient Greece does not have the tendency of metaphysics. Nowadays, the doctrine of the mean in Ancient Chinese occupies a very important position in Chinese culture and has been used so far. At the same time, it has also been studied by the philosophical and literary and historical circles to explore its connotation and new ideas. This is undoubtedly not brought about by the philosophization and metaphysics of the doctrine of the mean, which is also the peak that makes the latter difficult to reach.

The depth of the theoretical connotation of the two golden mean views coincides. Ancient Chinese pre-Qin Confucianism regarded the doctrine of the mean as "supreme virtue", and ancient Greek philosophy also regarded the doctrine of the mean as the highest virtue, which is the consistent answer produced by civilizations originating in two different regions. Goodness is the ultimate of moral existence and the highest moral norm. The purpose of Confucius' adherence to the doctrine of the mean is to carry forward the essence of "goodness"; Aristotle also takes the middle way as the extreme right, which is a truth existence. Confucianism has always regarded "Zhongzhi" as the criterion for dealing with all things, because it is consistent with the way of heaven.

**Differences in Rational Concepts Between Ancient Chinese and Greek Mythology.** The basic unit of production and life in ancient Greek society was the individual family. In ancient Greek society, the individual family constituted the basic unit of society and the basic unit of economic activity. In ancient Greek myths and legends, most of them were based on the tradition of helping and defending, and the living form they reflected was often the form of large families living together. In comparison, the development process of pre-Qin mythology seems to be more tortuous. Because in ancient Greece, from the ancient Aryans to a special group of city-state societies - bards, a series of myths and legends represented by Homer's epics were formed through their singing; in the social and cultural background of respecting gods, many works similar to theogony were produced, thus forming a clear and complete system of ancient Greek mythology. Most of the ancient Chinese myths and legends are integrated into a complete series of ancient historical legends (sages, emperors, sages). Therefore, they are not integrated into a world of gods who dominate human destiny like ancient Greek myths.

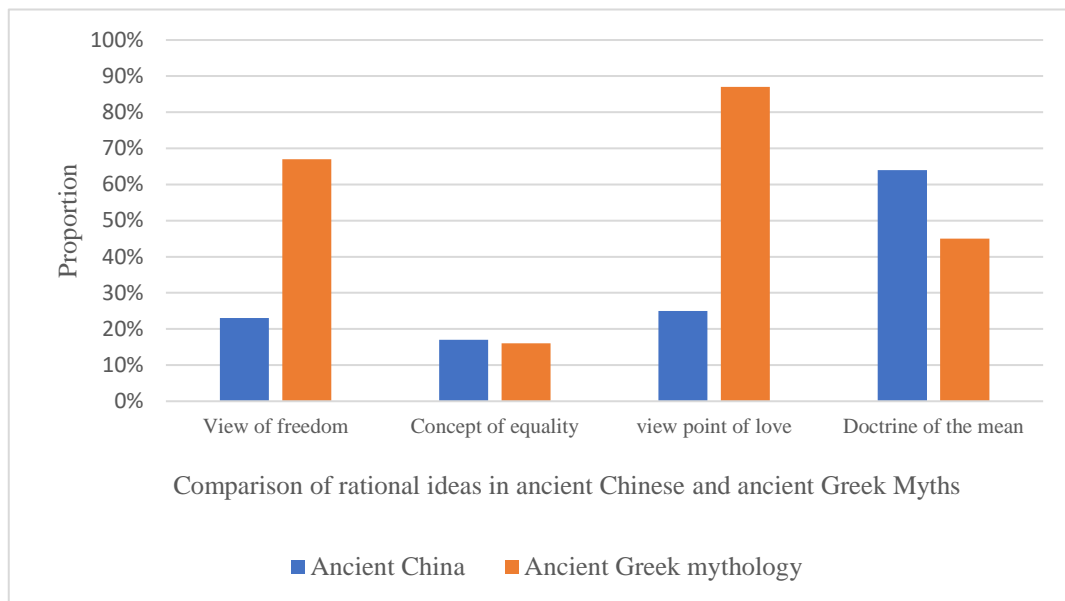
Comparison of the theoretical connotation of the doctrine of the mean, they have different views on the "people" in politically. Although the two views of the golden mean have similarities, there are still differences in their theoretical connotation. For Ancient Chinese, the people were the executors and beneficiaries of the doctrine of the mean, and their importance in ethical and moral life was much higher than their role in political life. The stipulation of the doctrine of the mean in Pre-Qin Confucianism to the ordinary people is at the ethical level, and educating the people to use the doctrine of the mean is to realize the perfection of personal morality. The same situation is different from the doctrine of the mean in ancient Greece. There were classes in ancient Greek society, but for citizens, class was not their label, it was of practical significance. Aristotle divides people into three categories: extremely rich, middle and extremely poor. Under the influence of the doctrine of the mean, people believe that the "good" is the most appropriate state. Then the people in this class are naturally the class with the most rational guidance, and the ruling class of the country is naturally the most appropriate. Democracy gave citizens in ancient Greek city states the right to participate in political life. The application of the doctrine of the mean in politics was agreed by every citizen. They were not only practitioners of the doctrine of the mean, but also direct participants in the political field.

**Experimental Comparison of Rational Ideas in Ancient Chinese and Greek Mythology.** This study searched relevant literature from 2012 to 2022 based on China National Knowledge Infrastructure, and based on the keywords "Pre-Qin Confucianism", "Ancient Greek mythology", "Ancient Chinese mythology", "rational concepts", "Comparison between ancient Chinese mythology and ancient Greek mythology", etc., collected 160 relevant documents. Through the analysis of documentary materials, a comparison of rational concepts in the pre-Qin period and the ancient Greek philosophy period was obtained, as shown in Table 1 and Figure 1.

Table 1.

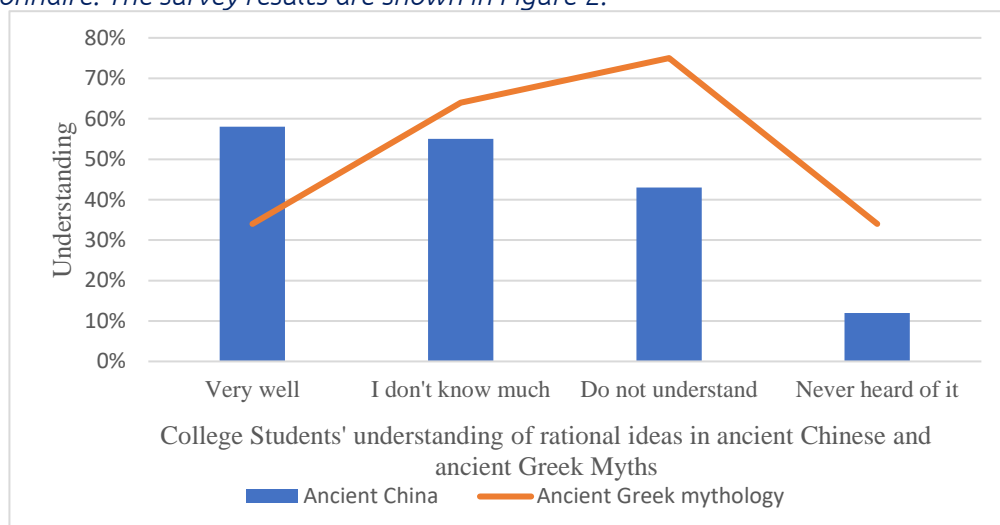
Comparison of ideas in ancient Chinese and Greek Mythology

Rational concept	View of freedom	Concept of equality	view point of love	Doctrine of the mean
ancient Chinese Mythology	23%	17%	25%	64%
Ancient Greek Mythology	67%	16%	87%	45%



**Figure 1.** Comparison of rational ideas in Ancient Chinese and Greek Mythology

It can be seen from the above statistical results that the doctrine of the mean in Ancient Chinese and Greek Mythology is relatively consistent, accounting for 64% and 45% respectively. Compared with Ancient Chinese, ancient Greece advocates freedom more, accounting for 67%, and the concept of love in ancient Greek Mythology also reaches 87%, while Ancient Chinese obeys the arrangement more in love, so the proportion is only 25%. Next, this paper also investigated the contemporary college students' understanding of the rational concept in Ancient Chinese and ancient Greek Mythology by means of online questionnaire. The survey results are shown in Figure 2.



**Figure 2.** College Students' understanding of rational ideas in Ancient Chinese and Greek Mythology

According to the above survey, college students' understanding of rational concepts in Ancient Chinese and Greek Mythology is not ideal. Only 58% of them know Chinese ancient ideals and concepts well, and 12% do not know them; 34% did not know about ancient Greek Mythology, and only 34% knew it well. It can be seen from this that now everyone's understanding of the rational concept in Ancient Chinese and Greek Mythology needs to be improved.

### Conclusion

Scientific thought is the link between the achievements of natural science and philosophy. It is the scientific thought that can be directly summarized into the scientific philosophy. Ancient Chinese and ancient Greece are the source of Chinese traditional philosophy and the whole western philosophy, and also the originator of Chinese traditional scientific thought and the whole western scientific thought. It is very important to study and analyze the characteristics of their rational ideas. Although this paper



*makes a more comprehensive analysis of the characteristics of rational ideas in Ancient Chinese and Greek Mythology through a large number of documents, there are also deficiencies. Due to the limited literature, the analysis results are not completely accurate, and the characteristics of rational ideas need to be further studied.*

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## ***Economic sciences***

### **ANALYSIS OF THE MAIN INDICATORS OF THE REAL ESTATE MARKET AT THE PRESENT STAGE**

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### **АНАЛИЗ ОСНОВНЫХ ПОКАЗАТЕЛЕЙ РЫНКА НЕДВИЖИМОСТИ НА СОВРЕМЕННОМ ЭТАПЕ**

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#### **Abstract**

The property market is fundamental to all economic sectors without exception. At the same time, like other markets, it has a set of unique indicators that make it different from others, as well as dictate a certain set of rules to be observed by its participants. The article highlights such indicators as uniqueness, liquidity, legal rights, and mechanisms of functioning. The author pays attention to the main factors affecting the property market, namely: specifics, risk level, capital market conditions, supply and demand, external and internal factors. Segmentation of the real estate market allows for the most systematic and comprehensive analysis of its functioning.

The article points out that the purposes of property market analysis can be very different, it allows the study of all economic processes in the past in order to predict possible trends in the future. In order to assess the current state of affairs, the current economic environment and the current supply/demand ratio are taken into account. To the most important questions, answers to which such an analysis can provide, the author refers: the feasibility of investing monetary assets in the object under construction, the level of risk for the lender in the allocation of funds, the study of market sectors that are the most promising at the moment, the search for assets to obtain stable profits at a low level of risk, the degree of formation of a competitive segment of the market with high income, objective evaluation of individual types of real estate. The author of the article emphasises that today the prospects for the development of the primary market remain very high. This is due to the fact that the available residential and commercial stock is not able to cover all the needs of buyers: individuals and legal entities. In conclusion, it is noted that in the next few years the volume of new property commissioned is expected to increase.

#### **Аннотация**

Рынок недвижимости является основополагающим для всех без исключения экономических отраслей. В то же время, как и другие рынки, он обладает совокупностью уникальных показателей, делающих его отличным от других, а также диктующих определенный набор правил, которые необходимо соблюдать его участникам. В статье выделяются такие показатели, как уникальность, ликвидность, юридические права, механизмы функционирования. Автор уделяет внимание основным факторам, влияющим на рынок недвижимости, а именно: специфике, уровню риска, состоянию рынка капитала, спросу и предложению, внешним и внутренним факторам. Сегментирование рынка недвижимости позволяет проводить наиболее системный и комплексный анализ его функционирования. В статье отмечается, что цели анализа рынка недвижимости могут быть самыми разными, он позволяет провести изучение всех экономических процессов в прошлом для того, чтобы спрогнозировать возможные тенденции в будущем. Для оценки текущего положения дел во внимание берется актуальная экономическая обстановка и актуальное соотношение предложения и спроса. К наиболее важным вопросам, ответы на которых способен дать такой анализ, автор относит: целесообразность вложения денежных активов в строящийся объект; уровень риска для кредитора при выделении финансовых средств; изучение отраслей рынка, являющимися самыми перспективными на

текущий момент; поиск активов для получения стабильной прибыли при невысоком уровне риска; степень сформированности конкурентоспособного сегмента рынка с высоким доходом; объективное оценивание отдельно взятых видов недвижимости. Автор статьи подчеркивает, что на сегодняшний день перспективы развития первичного рынка остаются очень высокими. Это связано с тем, что имеющийся в наличии жилой и коммерческий фонд не в состоянии покрыть всех потребностей покупателей: физических и юридических лиц. В заключение отмечается, что в ближайшие годы прогнозируется увеличение объемов вводимой в эксплуатацию новой недвижимости.

**Keywords:** real estate market, real estate market indicators, segmentation, real estate market structure, development prospects.

**Ключевые слова:** рынок недвижимости, показатели рынка недвижимости, сегментирование, структура рынка недвижимости, перспективы развития.

Процесс купли-продажи жилья или коммерческих строений относится к разделу рынка с так называемой несовершенной конкуренцией. Это значит, что производители, в данном случае строительные и девелоперские компании, имеют возможность самостоятельно влиять на ценообразование, а также определенным образом регулировать колебания спроса и предложения.

Главные свойства рынка недвижимости, которые делают эту экономическую сферу отличной от других, представлены несколькими весомыми показателями [3].

**Уникальность.** Каждый без исключения недвижимый объект является уникальным в своем роде. В этом случае речь не идет о разных архитектурных проектах – абсолютно идентичные, типовые строения также признаются уникальными, поскольку на такое определение влияет множество прямых и косвенных факторов: географическое расположение, экологическая обстановка, инфраструктура и многие другие нюансы. Не последнюю роль в этом процессе играют и отведенные под застройку земельные участки.

**Ликвидность.** Общая характеристика рынка недвижимости приписывает его объектам низкую ликвидность. Под ликвидностью подразумевается время, за которое товар обратится непосредственной прибылью – то есть, срок, в течение которого он будет продан. Таким образом, низкая ликвидность недвижимости объясняется тем, что продажа любого здания или помещения, как жилого, так и коммерческого, по сравнению с другими товарами, требует много времени. С одной стороны, ускорить процесс продажи может скидка, но с другой – чем выше станет дисконт, тем ниже будет ликвидность.

**Юридические права.** Когда речь идет об объекте недвижимости, регистрация юридических прав на него, особенно когда дело касается права собственности, превращается в довольно сложный и нередко запутанный процесс. При этом сложности владения касаются не только покупателей, но и строительных компаний. Для того, чтобы начать строительство любого здания, необходимо пройти множество юридических процедур, а также подготовить и должным образом заверить большое число документов. Как правило, сложность юридических прав относительно недвижимости связана с ее высокой стоимостью как товара, а также тем фактом, что она является популярным и выгодным объектом инвестиций.

**Механизмы финансирования.** Рынок недвижимости, как сложное и обособленное образование, насчитывает множество форм и методов финансирования. Оно может выражаться как в привлечении девелопером исключительно собственных средств, что на практике встречается крайне редко, так и в использовании кредитных денег, акционных активов и добровольных вкладов. Чаще всего работы ведутся с помощью смешанных механизмов финансирования, а нередко – с привлечением бюджетных средств, выражающихся в предоставлении разнообразных льгот и субсидий.

В последнее время сохраняется тенденция к повышению активности этой отрасли рынка вследствие привлечения активов в инвестиционных целях. При этом наблюдается рост числа компаний, которые специализируются исключительно на таком виде финансовой активности [5].

Рынок недвижимости является основополагающим для всех без исключения экономических отраслей. Причина очень проста: другие рынки, чья деятельность касается товаров, услуг и

других видов деятельности, должны располагаться в помещениях или отдельных зданиях. Ими их обеспечивают как раз те организации, которые специализируются на создании, продаже или сдаче в аренду недвижимости.

Некоторые характеристики рынка жилой недвижимости не позволяют отнести его к отрасли с совершенной конкуренцией, поскольку они имеют некоторые особенности функционирования, присущие только процессу торговли недвижимым имуществом. Такими факторами являются:

Специфика. Ключевыми понятиями для определения специфики недвижимых единиц служат [2]:

стационарность – невозможность переместить объект в пространстве;

материальность – свойство объекта пребывать в осязаемой физической форме;

долговечность – длительный, по сравнению с другими видами товаров, срок эксплуатации;

уникальность – невозможность в точности повторить сочетание всех сопутствующих характеристик для двух разных строений;

капиталоемкость – высокий уровень привлечения материальных, технических, трудовых и финансовых ресурсов для создания и последующей реализации недвижимости.

Уровень риска. Для рынка недвижимости этот уровень считается стабильно высоким. В общеэкономическом понимании, уровень риска – это колебания между вероятностями получить или не получить доход. Чем большей выявится такая неопределенность, тем выше уровень будет присвоен разновидности торговой деятельности.

В операциях с недвижимостью уровень риска регулируется соотношением капиталовложения и планируемым размером доходной ставки. Соответственно, чем более высокий риск будет зафиксирован, тем большая ставка установлена для итогового получения прибыли.

Рынок капитала. Рынок капитала принимает непосредственное участие в динамике рынка недвижимости и напрямую на него влияет. Время от времени между ними устанавливается равновесие, которое выражается в том, что затраты на строительство равняются стоимости самих объектов.

В других же случаях интенсивность капиталовложения зависит от ставок доходности: абсолютной и относительной. На практике, когда наблюдается рост инвестиций, автоматически увеличивается количество предложений от строительных компаний, и наоборот – при уменьшении предложений от застройщиков инвесторы обращаются к более доходным вариантам распоряжения денежными активами.

Спрос и предложение. Спрос и предложение – основные характеристики рынка недвижимости, которые влияют на многие его нюансы, в частности, на формирование средней рыночной цены жилья. На самом деле баланс между этими понятиями практически недостижим, и в этом не последнюю роль играет именно ценообразование.

Например, при увеличении спроса на одну из категорию квартир, постепенно будет расти и число подобных предложений. Однако это случится не ранее, чем новые объекты с такими квартирами будут построены. При этом гораздо раньше возникнет повышение цены на пользующееся популярностью жилье. Разумеется, это очень быстро приведет к падению спроса, а баланс сдвинется в сторону избыточного количества предложений. Достичь необходимого равновесия возможно только с помощью строгой политики ценообразования, которая на сегодняшний день еще не отрегулирована должным образом [5].

Внешние и внутренние факторы. Нюансы, которые влияют на рынок недвижимости, касаются как внутренней политики государства, так и изменений, происходящих в мире и отражающихся на общей экономической ситуации. Ко внутренним факторам относятся [6]:

политика банков относительно финансирования как строительных компаний, так и покупателей;

нормативные акты по отдельным нюансам, касающимся жилищного законодательства, вопросам по торговле недвижимостью и т.д.

Наиболее значимые внешние факторы – это валютные колебания, инфляция, социально-экономическая обстановка.

Отечественный рынок недвижимости – это не единая структура, а совокупность отдельных единиц: федерального, региональных и локальных рынков. Они могут значительно отличаться по динамике ценообразования, эффективности и количеству инвестиций, рискам и другим важным показателям.



Характеристика рынка недвижимости России на современном этапе включает несколько подходов к структуризации этой отрасли экономики. Каждый выбранный подход зависит от целей и приоритетов, выдвигаемых к интересующим объектам различными организациями и структурами. Например, для экспертов-оценщиков очень важное значение обретает степень готовности зданий, а для инвесторов – уровень риска и актуальная доходная ставка.

Принято выделять основные сегменты рынка недвижимости [1]:

**Тип недвижимости.** В этом сегменте разграничивают жилую, коммерческую, промышленную, складскую, служебную недвижимость, а также ее смешанные варианты. Отдельно оцениваются жилые и нежилые помещения, а также узкоспециализированные строения. Для коммерческой недвижимости основным показателем является прогнозируемая прибыль, которая может быть получена в результате эксплуатации такого объекта в процессе какой-либо деятельности.

**Регион.** Структуризация по регионам проводится, исходя не только из их густонаселенности, но также и по показателям трудоустройства. Таким образом, отдельно выделяются области страны с высокой и невысокой занятостью, а также регионы, в которых намечается спад или рост такой занятости. Это дает возможность прогнозировать развитие отдельно взятого регионального рынка, понимать, насколько эффективными будут инвестиции и ликвидность строительства.

**Методы инвестирования.** Рынок недвижимости включает многие инструменты инвестирования, которые применяются в разных целях. Например, существует рынок аренды, смешанных и общих долговых обязательств, ипотеки, личных финансовых активов и т.д.

Вторую важную структуру рынка составляет первичная и вторичная недвижимость. Жилье в новостройках представляет собой товар, выставленный на продажу впервые, тогда как вторичная недвижимость является уже бывшей в употреблении. Такая градация существует и для других видов товаров с одним отличием – недвижимость является статичным объектом, который невозможно переместить на другое место, а также привязанным к конкретному региону или даже району города.

Связь между этими двумя сегментами очень тесная. Если по ряду причин, например, более выгодной экологической обстановки или сниженной цены, все большую популярность набирает вторичное жилье, то спрос на первичное автоматически снижается. Так же дело обстоит и с повышением спроса на новостройки – торговать недвижимостью, относящейся к категории вторичной, становится невыгодно.

На сегодняшний день перспективы развития первичного рынка остаются очень высокими. Это связано с тем, что имеющийся в наличии жилой и коммерческий фонд не в состоянии покрыть всех потребностей покупателей: физических и юридических лиц. Таким образом, на ближайшие годы прогнозируется увеличение объемов вводимой в эксплуатацию новой недвижимости.

Кроме вышеупомянутой классификации, существует такое понятие, как «дерево признаков». Такая схема формируется из многоотраслевых классификаций, каждая из которых относится к определенному аспекту рынка и может заинтересовать узкую целевую аудиторию. Непосредственно рынок недвижимости составляет основание этой схемы, тогда как ее ответвления представляют собой наборы показателей, необходимых для узкого или всестороннего анализа состояния этой отрасли экономики [7].

Цели анализа рынка недвижимости могут быть самыми разными. Он проводится для изучения всех экономических процессов, касающихся такого рода деятельности в прошлом для того, чтобы спрогнозировать возможные тенденции в будущем. Для оценки текущего положения дел во внимание берется актуальная экономическая обстановка и актуальное соотношение предложения и спроса.

К наиболее важным вопросам, ответы на которых способен дать такой анализ, относятся [4]:

- насколько целесообразно вкладывать денежные активы в строящийся объект;
- высок ли риск для кредитора при выделении финансовых средств;
- какие отрасли рынка являются самыми перспективными на текущий момент;
- где найти активы для получения стабильной прибыли при невысоком уровне риска;
- как сформировать конкурентоспособный сегмент рынка с высоким доходом;
- насколько объективно оцениваются отдельно взятые виды недвижимости.

Кроме этого, выделяют как краткосрочные, так и долгосрочные цели анализа. Прогнозы на ближайшее время используются строительными компаниями, возведение объектов которых уже близится к завершению, и встает острая необходимость реализовать не проданные ранее квадратные метры. Более длительное рассмотрение тенденций развития рынка выгодно кредиторам, обеспокоенным его стабильностью, колебанием цен и рисков.

Разумеется, в каждом аналитическом подходе играет свою роль баланс спроса и предложения, а также выявление причин, приведших к такому положению дел. При этом учитываются и региональные особенности каждого рынка, его специфика и тенденции.

В заключение стоит отметить, что анализ основных показателей рынка недвижимости на современном этапе приобретает все большее значение, поскольку в последние годы все страны мира столкнулись с экономической нестабильностью и некоторыми сложностями, касающимися построения точных прогнозов на тех или иных рынках. Постоянный анализ и понимание специфических черт рынка недвижимости позволяет минимизировать вероятность негативных последствий для его функционирования.

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## *Historical sciences*

### **PEDAGOGICAL AND PSYCHOLOGICAL BASES OF USING EDUCATIONAL TECHNOLOGIES DURING THE TEACHING OF THE SUBJECT "HISTORY OF AZERBAIJAN"**

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#### **Abstract**

The main purpose of the article is to study the pedagogical and psychological bases of using educational technologies during the teaching of the subject "History of Azerbaijan".

Actually, the utilization of educational technologies during the teaching of Azerbaijani history lessons is an important component of the lesson. During the period after the restoration of our independence, a great cultural upsurge took place in our country. The reforms carried out in the fields of national statehood, socio-economic and cultural construction led to the creation of a legal-normative base. Education is one of the areas that play a key role in the development of our republic. Implementation of the creation of the economic model of education was the main issue. During the period of the President of the Republic of Azerbaijan, Mr. H. Aliyev signed the decree "On the state commission on reforms in the field of education in the Republic of Azerbaijan" on March 30, 1998, and the decree "On the reform program in the field of the Republic of Azerbaijan" on July 13, 1999. The history of Azerbaijan has a unique place in world history. In the development of history, period, the mass of the people, the personalities that came out of the people, the geographical position and environment of the country play a big role.

One of the most important points during the teaching of the history of Azerbaijan is the formation of the student's personality, and this process cannot be imagined without psychology. If we are talking about the formation of the student's personality, we should turn to social-psychological processes. Social-psychological processes are related to social consciousness and its structure. Because social consciousness plays an important role in the life of society and in the formation of personality. Social consciousness reflects both material social relations and ideological relations arising on the basis of material relations.

The literature on psychology shows that people's social feelings, moods, habits and customs form the social psychology of people belonging to a society. The characteristics of the mental face of each nation and people also belong to social psychology. In social psychology, the decisive factor is personality and activity. Thus, a certain group of students using new learning technologies strives to learn broader issues involving historical processes. To achieve this, they begin to use various means. In such a situation, interests appear as a constant stimulating mechanism of cognition in the study of the history of Azerbaijan. It is the material and moral nature of the socio-political issues that motivates provocation and sets it in motion.

One of the requirements that ensure the efficiency of forming work with new learning technologies is a history teacher's personal example. He should stand out from other subject teachers in the school. These differences should manifest themselves in political vigilance, flexibility, literacy, and the ability to defend the interests of the Motherland in all circumstances.

Thus, every person living and studying in our republic should have broad economic knowledge about Azerbaijan, its formation, its formation as a state, its natural resources, their use, their role in economic growth, and their potential opportunities. The young generation should be educated in this spirit.

**Conclusion.** To sum up, the rapid technological processes taking place in Azerbaijan and the world have not been ignored in education. These processes created an opportunity to teach the history of Azerbaijan in secondary schools based on new teaching technologies. According to it, the tasks, principles and requirements of teaching the history of Azerbaijan are determined. The methods and forms of teaching the history of Azerbaijan are also important.

**Keywords:** republic, methodology, history, independence, cultural, technology.

**Introduction.** The state of teaching the history of Azerbaijan is primarily related to the programs and textbooks on the subject. In recent years, attention has been paid to the teaching of the history of Azerbaijan. In 2000, the great leader of Azerbaijan, Heydar Aliyev, recommended the writing of the history of Azerbaijan, especially the materials of the 19th and 20th centuries, with a new perspective. This issue has already been resolved. On November 23, 2006, the board meeting of the Ministry of Education of the Republic of Azerbaijan made a relevant decision on the state of teaching the history of Azerbaijan. From this point of view, the teaching of Azerbaijani history in the republic's higher educational institutions, secondary specialized educational institutions and general education schools, certain works have been done in teaching the history of the Independent Republic of Azerbaijan. First of all, let us point out that in 2000, according to the instructions of the great leader, the Ministry of Education published the original textbooks "History of Azerbaijan" for classes VI-XI in 2000. These textbooks were written by historians, scientists, leading teachers of Methodist schools. The Ministry of Education has created a special commission for this. Subsequent and new editions of textbooks were also published with the participation of this commission. It is very good that the program of the subject is given at the end of the textbook for each class. The teaching of the history of Azerbaijan in secondary and higher education institutions is carried out in two directions according to the curriculum:

- a) History major;
- b) History of Azerbaijan is taught to the non-specialists.

It is clear that the students studying the history of Azerbaijan in the history faculty have more hours of lectures and seminars than the history of Azerbaijan, while the non-specialized faculty have relatively fewer hours of lectures and seminars.

**Main part.** The teaching of XX century history of Azerbaijan is of special importance. This period has been a very complicated one. It was also a breakthrough period. During this period, there was a period of economic, political and cultural growth. This period is also characterized by the emergence of states that replaced each other according to their political structure.

At the beginning of the 20th century, the South Caucasian Federal Republic, the Azerbaijan Democratic Republic, the Azerbaijan Soviet Republic and the Azerbaijan Independent Democratic Republic, which separated from Tsarist Russia, can be mentioned. Despite the existence of these states with different political structures, economic policy was important and had a great importance in the life of the Azerbaijani people. After Azerbaijan gained its independence in 1991, along with the development of the political situation, the economic situation came to the fore. As a result of the political activities of Heydar Aliyev, the brilliant leader of the young republic, which takes democracy as its basis, Azerbaijan established and expanded its international relations. In result, the economy of Azerbaijan has been developed.

Actually, privatization was started in Azerbaijan and market economy, free economic policy was implemented and etc. All this has found its broad solution in the programs and textbooks of the history of Azerbaijan.

Many fields - patriotism, statehood, nationality, science, economy, etc. education leads to the formation of political and economic knowledge, which in the process of education of students in the spirit of patriotism, the importance of determining the pedagogical and psychological foundations of the problem in order to correctly determine the content, character and direction of the work on political culture, and to organize them appropriately.

Additionally, patriotism, due to the nature and essence of political events, is a constantly moving process, in a state of interaction and development with other areas of social life. In the teaching of Azerbaijani history, students' attitude to our past history, the formation of the spirit of patriotism and the ability to express their opinion on political issues form the dialectical unity of teaching and education by means of new teaching technologies. When talking about the pedagogical and psychological foundations of the discussed problem, it is necessary to establish the process of history education in accordance with the age and mastery level, and to influence their consciousness, feelings, and will during the pedagogical activity. The requirements of didactics and educational theory should be expected in all forms of the implementation of this work. If the history teacher implements it with all his strength, the school management and other organizations should provide students with the necessary conditions for teaching with new learning technologies. Thus, the school should implement the content, forms and methods of teaching the history of Azerbaijan to students using new learning technologies in accordance



with the internal and international situation of our republic, and should be able to respond adequately to the new developments and processes. In the history education of Azerbaijan, new learning technologies and work forms should be paid attention to in history classes, extracurricular and extracurricular activities. School events should reflect unity of words and deeds. A history teacher should take teaching in the spirit of Azerbaijan's interest while using new teaching technologies [2, s. 47].

Pedagogical teams should approach the use of new learning technologies in schoolchildren with high awareness and professionalism, openness to all innovation and the ability to evaluate it from a positive position. The globalized world requires teaching in Azerbaijan, especially the history of the Motherland, based on new teaching technologies [1, p. 197-199]. In particular, the following conditions require the teaching of Azerbaijani history based on new educational technologies, based on the principles of personalized education:

1) the current economic conditions, international tension, the state of war, the occupation of a part of our lands make it necessary for every Azerbaijani boy and girl to stand in the position of mature citizenship by demonstrating high knowledge and skills;

2) if high political awareness, political and legal culture is not created in school youth, we cannot achieve the formation of intellectual personalities;

3) The history of Azerbaijan, which was under the influence of the Soviet empire for 70 years, was not taught as it was. After the collapse of the Soviet ideology, it is required to create sufficient conditions to improve the political views of every young person on the basis of the national ideology of independent Azerbaijan;

4) as long as Azerbaijan has enemies, we must protect, increase and develop our political vigilance. We must develop a high spirit in our youth to fight uncompromisingly against our enemies. The teaching of our historical past, which constitutes the content of the history of Azerbaijan, is ultimately the formation of citizens who are patriotic, worthy of the state and society, have a worldview, and have a high political culture. In this regard, the work "Some Issues of Worldview Formation" [3, p. 57-64] which was written by N. Kazimov has an particular importance. In order to clarify the nature of worldview, the author pays attention to the issue in the existing literature. The definitions given by F.F.Koralyov, V.E.Gumurman, Y.K.Babanski, and G.I.Shukina to worldview are reviewed, analyzed and evaluated. The author shows one of those definitions as an example. "A worldview is a whole system of scientific, philosophical, social, political, moral, aesthetic views on the world (that is, on nature, society and thinking)" [9, p. 125].

The researcher rightly disagrees with this definition. The facts prove that it does not meet the requirements of our national pedagogy. One of the novelties in the article is the opening of signs of worldview. Professor N. Kazimov gives the following definition to the worldview: The single view that directs a person's understanding and action of natural and social phenomena is essentially either materialistic (scientific) or non-scientific (religious, idealistic, etc.). The school experience and existing literature related to the solution of the problem were studied and summarized. Generalizations make it possible to determine the tasks of the political culture of students in the following order:

1. healthy idealism and political awareness should be brought up in schoolchildren;  
2. should be educated against lack of ideas and enemy ideologies;  
3. citizen position, the need to participate in social activities should be formed in students;  
4. in addition to shaping the students' political views, ideas, and habit system, it should theoretically prepare them for the management of social processes;

5. the ability to learn about the social and political events happening inside and outside the country in a timely manner, to cope with them and to correctly evaluate these events should be formed [5, p. 78].

In the teaching process of Azerbaijani history through educational technologies, patriotism and worldview appear as an ideal quality of personality. During history education, knowledge, belief and action, which make up worldview, are formed in the pedagogical process. In the teaching of the history of Azerbaijan, the determination of its working principles has an important training-educational significance for the formation of work habits in students with new learning technologies. Regarding the problem, N. Kazimov, Y. Talibov, M. Muradkhanov, Z. Garalov, H. Ahmadov, A. Hashimov, Y. Karimov, A. Agayev, A. Abbasov and other Azerbaijani researchers expressed their opinions and suggestions in their articles. Those considerations and proposals do not fundamentally differ from each other.

**Literature review.** Təbiiyin prinsipləri rus alimlərinin də diqqətini cəlb etmişdir. Onlardan N.A.Sorokinin, S.A.Yejovanın, İ.M.Lebedevanın, A.V.Drujkovanın, F.İ.Kazakovanın, M.F.Ovçinnikovanın, V.A.Orlovun, İ.Dzerevin, V.N.Maksimovanın, L.N. Boqolyubovanın və başqa tədqiqatçıların adlarını

*çəkmək olar. Azərbaycan tədqiqatçıları kimi rus tədqiqatçılarının da bu problemə bağlı nəticələri bir-birindən köklü şəkildə fərqlənir.*

*In the training process, patriotism education is formed in interaction with political culture. This work should be accompanied by consideration of the national and state interests of Azerbaijan in every issue based on national consciousness.*

*A history teacher's personal example is one of the requirements that ensure the efficiency of forming work with new learning technologies. He should stand out from other subject teachers in the school. These differences should manifest themselves in political vigilance, flexibility, stability, and the ability to defend the interests of the Motherland in all conditions. In order to make the teaching of Azerbaijani history more effective with the help of new learning technologies, teachers should periodically coordinate extracurricular and extracurricular activities with lessons. [6, p. 311].*

*In the process of training and education, students should develop a sense of respect and trust in the symbols of the national state - our flag, language, coat of arms, constitution, religion and national ideology.*

*As a result, we can say that the teachers, school leaders and tutors who carry out the work of teaching the history of Azerbaijan with the help of new learning technologies should constantly intensify the study of innovations in order to ensure the more effective organization of their activities in this field.*

*Patriotism, which is evaluated as one of the main qualities of personality in scientific literature, is formed in Azerbaijani history lessons starting from secondary schools. That is why they consider this concept to be one of the components of moral education. Therefore, we have to face the need to take into account our national ideology and national characteristics when forming the student's personality.*

*Regarding this problem, psychologist R. Aliyev writes: "The issues of moral education have been the focus of attention of all nations in all times, each nation approached this problem in accordance with its own wishes and characteristics and tried to solve it. Historically, the Azerbaijani people have taken a serious approach to moral education and human perfection. Although the changes in social and political life in certain periods of history exposed the spirituality of our people to the influence of foreign tendencies, and certain deformations occurred, the people were able to preserve and protect their national characteristics, character, and traditions. [2, p. 45].*

*In Azerbaijan, psychologists, pedagogues, sociologists, political scientists, philosophers, historians, lawyers, ethnopsychologists, ethnopedagogues have again chosen the national characteristics of the people as an object of research. Thus, A.A. Alizade, A.S. Bayramov focused on the foundations of ethnopsychology and noted the relevance of solving the problem both in our society and in education [8, p. 32].*

*The problem is indirectly, if not directly, related to ethnopsychology. Because other peoples live in Azerbaijan along with Azerbaijani Turks.*

*One of the most important points during the teaching of the history of Azerbaijan is the formation of the student's personality, and this process cannot be imagined without psychology. If we are talking about the formation of the student's personality, we should turn to social-psychological processes. Social-psychological processes are related to social consciousness and its structure. Because social consciousness plays an important role in the life of society and in the formation of personality. Social consciousness reflects both material social relations and ideological relations arising on the basis of material relations. The qualitative characteristics of different types of ideological relations are reflected in the qualitative characteristics of different forms of social consciousness (political, legal, scientific, philosophical, aesthetic, spiritual and religious consciousness). In short, psychological knowledge begins [8, p. 24].*

*The literature on psychology shows that people's social feelings, moods, habits and customs form the socio-psychology of people belonging to a society. The characteristics of the mental face of each nation and people also belong to social psychology. In social psychology, the decisive factor is personality and activity. This in itself is related to concepts such as demand, interest, belief, goal, and effort [8, p. 35-46].*

*Human needs, his upbringing, are formed in the process of joining the world of culture. One of these cultures is political culture [7, p. 12]. A person develops and forms his political culture depending on certain needs. Human needs have a social-personal nature. He uses means and principles that have historically emerged in a certain social environment to satisfy his needs. Demands are natural and cultural in origin. The activating activity of a person, his dependence on the conditions necessary for the protection and preservation of his own life and the life of his descendants are expressed in natural needs. In turn, natural needs also have a socio-historical character.*

*Spiritual needs are organically connected with material needs. As the student gradually understands the world, there is a need to study economic, moral, philosophical, political, religious, aesthetic, legal and environmental issues. These requirements are related to the student's life and activities. Adoption of different forms of social consciousness is a vital necessity [1, p. 63].*

*Belief in religion and national ideology is formed from generation to generation. That formation ends in educational institutions and workplaces. This process itself is one of the main components of social psychology [2, p. 124].*

*Teaching the history of Azerbaijan through new educational technologies creates the need for students to apply the acquired theoretical knowledge in life.*

*So, from the above reasoning, it is clear that the acquisition of new learning technologies by students comes from the needs arising out of vital necessity. Every teacher and student feels the need for new technologies as it has become the main demand of our modern day. Such a necessary inclination becomes curiosity. Interests are emotional manifestations of human cognitive needs. Their provision helps to eliminate the deficiencies in knowledge, to be well acquainted with important facts, to understand, to get acquainted. The role of interests in the process of action is exceptionally large. Curiosity leads the personality to actively seek ways and means to satisfy the attempt to know and understand the development that has occurred in it. The conducted observations and studies show that the various oriented topics in the history courses of the VI-XI grades form students' economic, political, legal, philosophical, aesthetic, religious, ecological knowledge. The participation of schoolchildren in extracurricular and extracurricular activities of various nature deepens their knowledge and interest in theoretical and practical issues with political content.*

*Thus, a certain group of students using new learning technologies strives to learn broader issues involving historical processes. To achieve this, they begin to use various means. In such a situation, interests appear as a constant stimulating mechanism of cognition in the study of the history of Azerbaijan. It is the material and moral nature of the socio-political issues that motivates provocation and sets it in motion.*

*Əqidələrin təkamülü, hər şeydən əvvəl, onların məzmunu ilə müəyyən edilir. Şəxsiyyətin dünyagörüşünün əlamətləri daha çox onlarda nəzərə çarpır. Məktəblilərin fikir və ideyaları, onların həyatlarının məzmunu, bilik ehtiyatları ilə müəyyən olunur, baxışlar sistemində zəruri tərkib hissəsi kimi daxil olur, insan üçün sabit məna kəsb edir. Buna görə də şagirdlər bu fikir və prinsipləri təsdiq və müdafiə etməklə, başqa adamların da onlarla razılaşmasına nail olmaq üçün zəruri tələbat hiss edirlər [6, s. 313].*

*The use of new learning technologies can be related to various mental processes, the formation of which depends on self-evaluation. So, at this time, the teacher uses new learning technologies and learns some new features. Always taking into account that those around him, i.e. the teacher, expect innovations, he checks himself for innovations in educational technologies.*

*It takes into account the opinions, feelings and requirements of the pedagogical environment. This self-examination and self-evaluation is possible during the rereading of the history of Azerbaijan through new learning technologies as follows:*

- 1) sustainable usage of new learning technologies in the teaching process;*
- 2) in the performance of tasks which was given to students;*
- 3) conducting conferences and events regarding the history of Azerbaijan;*
- 4) in student presentations, etc. [4, p. 425-426].*

**Conclusion.** *Observations and studies show that the rapid technological processes taking place in Azerbaijan and the world have not been ignored in education. These processes created an opportunity to teach the history of Azerbaijan in secondary schools based on new teaching technologies. According to it, the tasks, principles and requirements of teaching the history of Azerbaijan are determined. The methods and forms of teaching the history of Azerbaijan are also immense and actual nowadays.*

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## *Jurisprudence*

### **ISSUES OF THE SOCIAL STATE, JUSTICE AND LEGALITY IN THE POLITICAL AND LEGAL DOCTRINE OF THE EASTERN THINKERS**

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#### **Abstract**

The article analyzes the issue of forming a new scientific worldview facing the social sciences. The author scientifically studied the works of Eastern thinkers on the formation and development of views on society, state management, law. Emphasis is placed on the importance of concepts such as legal and social state, politics, democracy, legislation, and justice. The political and legal doctrines of Eastern scientists were further studied from the point of view of jurisprudence, and it was recommended to use them widely in the formation of a legal state and civil society.

**Keywords:** legal and social state, politics, democracy, legislation, justice

**Introduction.** In the process of determining and implementing the priority directions of building a legal state and civil society in our country, relying on historical, political and legal roots, new modern ideas and approaches are being formed. In other words, the development of conceptual bases of political and legal studies intended for the current and future stages of the development of statehood is becoming an urgent issue of jurisprudence and legal science. Naturally, an important component of this concept is the political and legal doctrines that have been formed in Uzbekistan for many years. Therefore, at the current stage of the development of national statehood, the creative use of political and legal doctrines and the formation of a methodology for their research is considered one of the urgent issues facing jurisprudence and legal science in our country.

The level of study of the problem. The political and legal doctrines of Eastern thinkers, especially their views on society and the state, their ideas and suggestions on state management, have attracted the attention of researchers, politicians, and figures for many years. The bibliographic studies, which give a general idea about their scope, can be a proof of our opinion. For example, Ibn Khallikon, Bayhaqi, Abu-l-Faraj, Sarakhsi, Burhanuddin Marginani, Davani, Koshifi created in foreign Western countries: K. Brokelman, E. Brown, KE Bosworth, G. Gibb, I. Goldzier, G. von Grünebaum, A. Mets, E.E. Rosenthal, F. Rosenthal, as well as Ahmed Mubarak al-Baghdadi from Eastern Arab scholars, V.V. Bartold, A.M. Bahovuddinov, E.E. from orientalists. Bertels, S.N. Grigoryan, B.G. Gofurov, M.D. Dinorshoev, A.M. Johid, A.Kh. Kasimjanov, A.V. Sagadeev, S. Satibekova, L.R. Syukiyainen, A.B. Kholidov, G.B. Shaymuhambetova, in particular, the scientific works of Uzbek scientists I. Mominov, A. A. Semenov, S. P. Tolstov, M. M. Khairullaev, T. N. Qoriniyozov, A. Yakubovskiy.

The third group of publications includes specific chapters on the topic. Ahmadjanov, H. Alikulov, H. Boboev, S. Jabbarov, A. Juzhonij, Z. Islamov, M. Ishakov, S. Ishakov, A. Ishanov, D. Karimov, L. Kashinskaya, N. Komilov, M. Komilov, A. Mansur, Z. Muqimov, Q. Nazarov, N. Obidova, R. Obidov, H. Odilkoriev, M. Rajabova, A. Rakhmanov, D. Rahimdjano, A. Saidov, J. Tashkulov, U. Uvatov, Q. Umarova, A. Hasanov, M. Hasanov, Sh. Eshonova and B. Eshonjanov's textbooks, monographs, essays and other works can be included.

**Research object:** the views of Eastern thinkers about the state and law, their scientific activities related to the doctrines of the state and its management are listed.

**The subject of the research:** the political and legal doctrines of Eastern thinkers, the problems that arise during the study of their views, and the search for their solution.

**The theoretical and methodological basis of the research.** The theoretical-methodological basis of the research was dialectical, historical-legal, systematic, structural-functional, comparative-legal and other methods.

#### **Discussion-Discussion**

In order to build a model state and society in the future and to make mankind fully happy, the great ancestors specifically advocated the establishment of a perfect government, the establishment of special

bodies, the appointment or election of officials, and the priority of justice and human interest in their work. This scientific heritage of Eastern thinkers provides rich information about cultural and spiritual life, natural-scientific, social-political issues of the Middle Ages East. Interest in the scientific heritage of thinkers began from the time when they lived and created. Because they wrote their works in Arabic, which was considered a scientific literary language in Eastern countries at that time.

In particular, the works of Abu Nasr Farabi were translated into Latin, ancient Jewish, Persian languages, and later into other languages, and spread widely throughout the world in the 12th-13th centuries. Copies copied in recent centuries are kept in libraries and institutions of many countries.

Consequently, the development of political and legal views and philosophical thoughts created during the period of the Eastern Renaissance, i.e., the transition from the stagnation of medievalism to a new era, is a great contribution to the enrichment of human thinking. In fact, the Eastern Renaissance included a unique economic, social, political, cultural and scientific environment, so it is not for nothing that this period is called the "Renaissance". As a matter of fact, Farabi's state-legal teaching is significantly different from the teachings of Western European thinkers, both in terms of content and in terms of its main rules. For example, Farabi's scientific research methods were later used in the studies of Leonardo da Vinci and Galileo in Europe.

The ideas of an ideal state such as a virtuous city, a state, a mature cultural state, an enlightened state advanced by Farabi, Abu Rayhan Beruni, and Ibn Sina were later developed in the political views of medieval utopian theorists - Thomas More and Tommaso Campanella.

It is worth noting that the political and legal views of the thinkers of the Eastern Renaissance period over a long historical period were similar to those of Western European thinkers, such as B. Spinoza, T. Hobbs, J. Locke, Sh. The views of Montesquieu, D. Diderot, P. Holbach, Voltaire, Gelvatsi were further developed and these views were the basis for the development of new doctrines of democracy and humanism.

According to the French researcher A. M. Guachon: "Issues of consciousness and faith in Ibn Sina's philosophical views constitute the main goal of Western scholasticism."

The concept of "social justice" in the political and legal views of Eastern Renaissance thinkers can be understood in two ways: if we analyze it from the point of view of political science: in the sense of political rights and freedom, if we approach it from the point of view of jurisprudence, it can be understood in the sense of the legal guarantee of the activity of the individual, society and the state.

In this respect, the political and legal doctrines of the thinkers of the Eastern Renaissance gained importance in the European Renaissance as an idea promoting the selfless service of each individual for the common good. The meaning of the phrase "general welfare" reflects the essence of the state in the form of a republican structure, based on the principles of equality and justice of citizens.

Accordingly, guarantees of mutual equality and justice should be expressed in the adopted laws.

In our opinion, it would not be a mistake to say that the ideas about the law and the improvement of legislation put forward in the legal views of Farabi were developed by the famous French thinker Francois Marie Arouet Voltaire and his contemporaries Charles Louis Montesquieu and Jean-Jacques Rousseau. In particular, according to Voltaire, the limits of freedom are determined by laws. For this reason, the idea of "rule of law" is widespread in the West.

Along with freedom of speech, freedom of conscience, inviolability of property, Voltaire advocates freedom of labor. Because in the views of Farabi and Ibn Sina, it was noted that a member of society should have his favorite profession and have the right to freely choose a profession, Voltaire's views on freedom of labor were the peak of political and economic views in French society, a unique aspect of the new era. Voltaire was a supporter of the reform of feudal society and preferred an absolute monarchy in government. Also, in the East, the idea of an enlightened ruler can be seen in Voltaire's views on an enlightened monarch. According to Voltaire, if the monarch is enlightened, it is good for the society, so absolute monarchical rule is enlightened. The qualities that a ruler should have should not be limited to being enlightened. In order to rule the society justly, the ruler must understand the wishes of his classes and be kind. If we compare the political-legal views of Eastern Renaissance thinkers with the views of the French philosopher Jean-Jacques Rousseau: Eastern thinkers' thoughts about a virtuous city, a just state, and just government are concerned about the poor in Rousseau's political-legal views, the "natural state" of people, i.e. are in sync with the idea of glorifying an era when everyone is equal and free. For example, Rousseau condemns social inequality in his "Reflections on the Origin and Reasons of Inequality among Men" (1755). According to Rousseau, the main cause of inequality between people is private ownership of land.

Rousseau covers the topics of society, state and law from the point of view of people's sovereignty. As a continuation of Farabi's thoughts on the virtuous city and its management, Rousseau's "Social Contract" is a great contribution to the treasury of world political and legal views. According to the author, the process of transformation of the state of the Civil society into a Political organism is completed with the union of the members of the society as a result of contractual relations. This political organism is the State. This union (association) as a whole - the people, when viewed separately - is a citizen participating in the supreme power, a class subject to the laws of the state. Also, Rousseau's ideas about law and legislation are noteworthy.

The views of Eastern Renaissance thinkers on society and the state were later reflected in the teachings of European scientists, including Montesquieu. If we recall the views of Farabi, Beruni, thinkers condemned wars, and even Farabi pointed out war and natural disaster as one of the reasons for the need for law in society. According to the French scientist Montesque, people forget their weakness as soon as they join society. The equality that existed before will disappear between them, various wars will arise between individuals and nations. "The occurrence of such wars," writes Montesque, "makes it necessary to establish certain laws between people." As a result, laws regulating relations between nations (international law); laws governing the relationship between rulers and ruled (political law); laws regulating the mutual relations of all citizens (civil law) are created.

The need for common laws of people living in the society creates the need for the emergence of the state. According to Montesquieu: "Society cannot live without government. "The combination of all separate forces," Gravina said, "forms a phenomenon called a political state (state). Such unification of the forces of individuals means that they have a single will, that is, the existence of a civil state.

For the formation of the state (political state) and the establishment of general laws, it is enough that people can live in the society, which Montesqui called the state of citizenship.

The law is the human consciousness that governs all people in general, - says Montesque. Therefore, "the political and civil laws of each nation must be separate links of this consciousness." It is known that in any society, law has played the role of a link between the state and the citizen.

According to the opinion of M. M. Khairullaev about the influence of the political and legal legacy of the thinkers of the Eastern Renaissance on the teachings of Western scientists: "One of the highest merits of Farabi in the Eastern culture is that he was the first in the Middle Ages East to create a virtuous, ideal community, a state, a just leader and a state with intelligence. advanced the utopian doctrine of management based on For his free thoughts, Farabi was accused of blasphemy and impiety by the reactionary priests, and later his works were burned. But his advanced rationalist and humanistic thoughts greatly influenced the formation of the worldview of Ibn Sina, Ibn Rushd, Nizami, Omar Khayyam, Maimonides, Roger Bacon, and Spinoza. He played a great positive role in the development of world culture."

Eastern Renaissance thinkers, in particular, about the "virtuous city-state" in the imaginary dream of Pharoabi; views on the concept of building a virtuous state were developed through the idea of an ideal state in the work "Utopia" by the English scientist, jurist Thomas Morning. For example, according to the political and legal views of Thomas Morning, it is possible to establish such a state (actually in imagination) that the property for the citizens of this state is common, all citizens work equally, and everyone's equality and freedom are protected by law. In Utopia, there are equal conditions for the members of society and their families, and the 6-hour workday is universally applicable to all. The political system of Utopia is organized on the basis of elections, and the central and local governments are organized on the basis of elections with the participation of the people. The supreme authority is the Senate, which is also formed on the basis of elections.

In Utopia, the "Code of Ethics" applicable to all was adopt, and its main idea is focused on humanitarianism and philanthropy. It is noted that only with this idea, people in utopia can achieve happiness. Since the family is the main link of society, Thomas More presented the issues of solving problems in the family to the Senate.

In "Utopia" government officials are people who serve the people. The head of state is elected and he is called by the name of the prince. Officials are called phylarchs and are the head of the family, and moral standards are highly valued in this society.

The Italian Tommaso Campanella, who developed the ideas of the imaginary state, put forward his ideas about the ideal society in his work "The City of the Sun", that there is no private ownership, that the means of production belong to the society, and that all the citizens of the City of the Sun should work. In the City of the Sun, women and men have equal rights, and the head of state is elected from



among the wisest and most educated citizens. The state administrator was consider a religious and secular leader.

In short, many more examples of the influence of the political-legal teachings of Eastern Renaissance thinkers on the political-legal thoughts of the Western people can be given.

In general, the ideas of Eastern Renaissance scholars about the just society, the eternity of the universe had a strong influence on the European Renaissance, and this is a historical fact. At the same time, during the time of the above-mentioned thinkers, the period of awakening and growth reached its peak in the countries of the Muslim East, and it would not be a mistake to say that the next stage of development was transfer to the West.

Thanks to independence, Uzbekistan has been able to fully use the progressive doctrines and ideas of the past thinkers about the state, management, and power, based on its historical and traditional identity, and realize its goals. Therefore, now we have chosen our own path of independence and development, which can lead our republic to a perfect national statehood. But today is not the same as tomorrow, the period of fundamental change and renewal is complicated, and it is natural that sometimes it is difficult even to set a goal. This is the truth. First of all, nowadays it is extremely complicated and difficult to find common points of contact that allow us to apply or transfer the rational aspects of the socio-legal heritage of the past to the concept of modern national statehood. Second, Eastern and Western models, when combined with each other, do not always provide optimal options for the state structure. Nevertheless, this option adopted by the republic can be said to be a scientific result and a scientifically based succession of past experience and current influence.

Thus, the effectiveness of the implementation of the idea of building a legal state in Uzbekistan will largely depend on the extent to which we can apply the rational directions of the socio-legal heritage of the past in the concept of our national statehood.

Summary,

Eastern thinkers' views on the emergence and development of society and the state were analysis;

The ideas of Abu Nasr Farabi, Abu Rayhan Beruni, Ibn Sina about the nature of society and the state, forms of state management were consider;

The views of scientists on laws, their implementation and improvement of legislation, at the same time, their teachings related to the problems of legal culture were researched, and the concept of justice was studied and interpreted from a political and legal point of view for the first time, including the general views of thinkers on justice as divine, the science of the word. if interpreted with, from the worldly point of view, justice depends on the righteous ruler, and the solution of justice problems is one of the moral teachings.

The equality of citizens in the polis, the responsibilities of the state and rulers to the members of society are the main features of the teachings of ancient Greek thinkers, and this doctrine was developed by the thinkers of the Eastern Renaissance, the idea of a just ruler-just state symbol was generalize;

The impact of political-legal teachings of Eastern scientists on the development of political-legal thoughts of Eastern and Western nations was highlight;

The political and legal views of Eastern thinkers were study from the point of view of today and jurisprudence, and the most important conclusions, proposals and recommendations were put forward.

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## Medical sciences

### CONTINUING EDUCATION-AN ESSENTIAL AUDIT TOOL FOR ACHIEVING QUALITY MIDWIFERY CARE

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#### **Abstract**

*The dynamics of the regulatory framework, the digitization of Health and care activities and the advancement of scientific knowledge require continuous improvement of the professional competencies of the midwives. This implies the development of skills and routine in the performance of duties that help to cope with a number of stressful situations. An important element of the profession is communication with colleagues and patients, in order to improve the technical abilities to work with electronic devices.*

*This study aims to examine the attitudes of midwives in hospital structures towards continuous and continuing training as part of professional development. A survey of 135 midwives working in hospital structures in the 4 cities of the northeastern Bulgaria was conducted using a semi-structured questionnaire. The key elements are continuous development and training, which lead to upgrading of skills and knowledge for the activities performed and improving the quality of the services provided. A large part of the respondents (over 77.78%) share the need for training, but a small part of them (33.34%) actually participate in training courses. The constantly changing legal framework requires increasing knowledge, acquiring new skills and applying new therapeutic and diagnostic methods in obstetric practice. Continuous development of technologies, diagnostic and treatment methods, as well as increasing user requirements require continuous audit of obstetric activities.*

*In conclusion, the motivation for acquiring higher educational qualifications among working midwives is great, which inevitably leads to the search for better working conditions. The desire to acquire new knowledge, regardless of its form, is an incentive for the development of knowledge and skills, which leads to increased responsibilities in the workplace. This element should become a normative requirement.*

**Keywords:** *audit, training, midwifery competencies, satisfaction, quality*

#### **Introduction**

*Scientific technical progress, the digitization of the health sector [6,7], in conjunction with evidence-based medicine, requires a constant increase in the knowledge and skills of healthcare professionals in order to be able to respond most adequately to the growing health needs [3,5]. The new form of organization, by working with a hospital information system and an electronic database, requires the acquisition and development of new digital skills and knowledge [1,2].*

*Human resources are expensive for organizations in the hospital sector, given the constant changes and uncertainty associated with the financial maintenance and functioning of healthcare facilities. A large part of the costs of medical institutions are related to the people who work there [8,10]. These funds go to wages, additional material stimulation, training, improvement of working conditions [10]. Investments in staff lead to improvement of the quality and efficiency of work, to better motivation, improvement of the image and authority of the medical institution.*

*A significant influence on performance is the motivation, manifested as a desire to do a job, good quality of work and timely execution [1,2,3], because the provision of health care is carried out and consumed by the patient at the moment [2,9]. Proper communication is part of the medical and diagnostic activities carried out [4].*

*For the quality conduct of the adaptation of midwives to the specific activities of hospital wards and for the improvement of their professional competences, continuous training is necessary both inside and outside the hospital structures.*

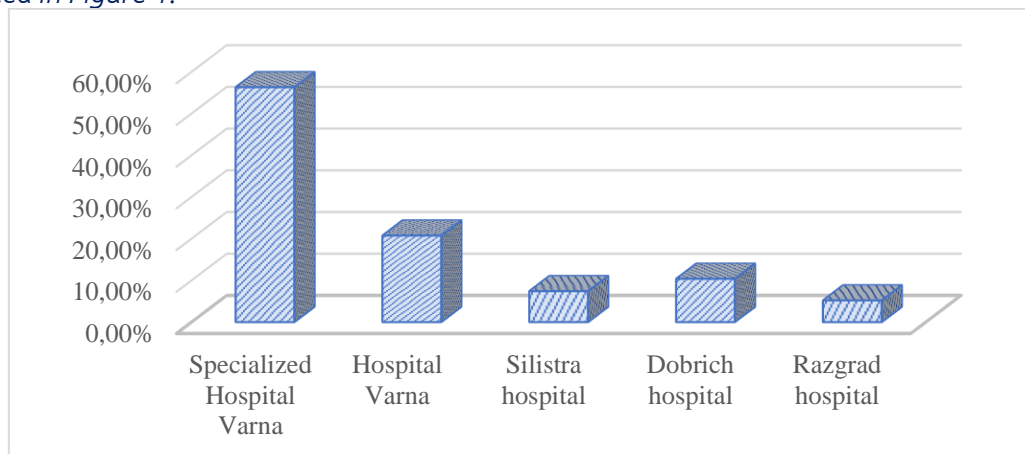
### **Purpose**

*This article aims to explore the attitudes of midwives from hospital structures for continuing education and professional development.*

**Material and methodology:** *A survey was conducted among 135 midwives working in hospital structures in the cities of Varna, Dobrich, Razgrad and Silistra. The information was obtained through a direct anonymous survey with a semi-structured questionnaire. The data has been processed and the results are illustrated using the MS Word and Exel 2016.*

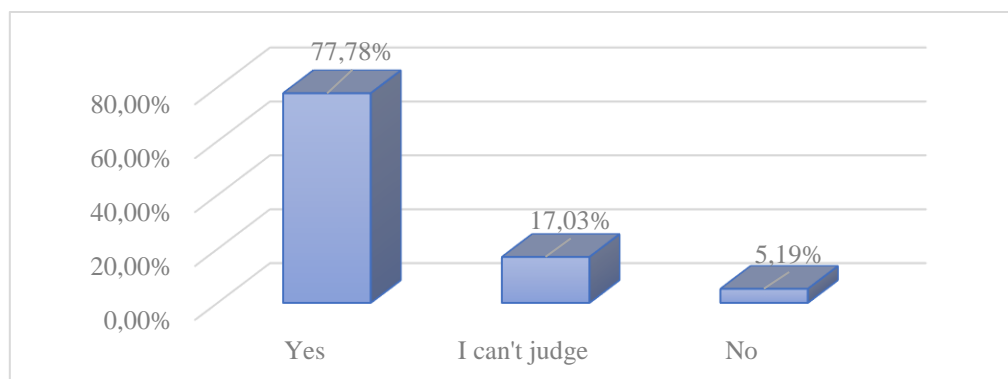
### **Results and discussion**

*The distribution of the 135 midwives participating in the study from different cities and hospitals is presented in Figure 1.*



*Fig. 1. Distribution of respondents by City and medical institutions.*

*The constantly changing regulatory framework, the increasing demands of users and control bodies, the mobility between medical institutions, require midwives to constantly increase their knowledge, regardless of age and length of service, to upgrade skills and professional competence. Driven by the need for self-improvement, 77.78% of respondents said they needed training in their work (Figure 2).*



*Fig. 2. Need for courses and training*

*The respondents share the need for specific courses that would be useful for enhancing their qualification. Preferred training courses are in terms of techniques for working with the team, for special practical midwifery colleges, courses for improving communication and learning foreign languages. With such courses, working midwives from hospital structures place an emphasis on improving their professional qualities.*

*42 (31.11%) of the respondents say that they rarely participate in courses due to their high workload, lack of time and sometimes lack of funds to participate in different trainings. A significant part of the respondents 37 (27.42%) said that they often participate in the courses organized by the professional organization of healthcare professionals. Despite the desire to increase the knowledge and skills of Midwives, due to personal motives or demanded by the dynamics of the working environment, it is not surprising that 28 (20.74%) did not participate in the training and qualification opportunities provided to them (Figure 3).*

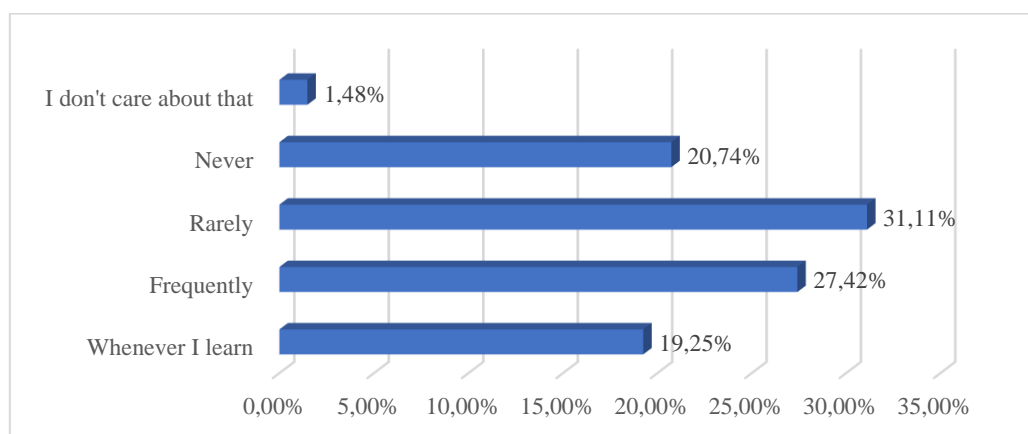


Fig. 3. Participation in courses

The checks of the control institutions in 100% are related to certifying qualification conformity and proving professional competencies with regard to the possession of job-specific trainings. This requires managers to examine the need for specific health care needs to be met through internal or external training. Continuing education is necessary both to update the qualification level and to upgrade competencies and knowledge regarding the requirements of the organization and the regulations.

The various forms of postgraduate study that present the innovations and developments of the different fields of health care help to acquire specific knowledge relevant to the growth of the organization as a whole. The responsibility is shared between the medical institution and the health professionals for the development of these activities, as a guarantor of the quality of the medical care provided.

The interest in continuing education is not accidental, but is a well-realized need of the personality of the professional and of the time and place where he works. As the qualification level increases, midwives expand their competencies, leading to better health care delivery. Continuing qualification is an indispensable condition for expanding, maintaining and updating the knowledge and skills necessary to build the image of the obstetric profession. This is how the professional self-esteem of medical professionals is formed. This also determines a new look at the care provided by highly qualified midwives, knowledgeable and capable, developing themselves in the dynamics of the development of Medicine and technology. Half of the midwives participating in the study have acquired or are in the process of acquiring an advanced degree (Figure 4). The acquired master's degrees are in Health Care Management, Health Management, social activities, pedagogical specialties, as well as law, psychology, accounting and control. Those who at the time of the study are in the process of acquiring additional education are studying health care management, psychology, speech therapy. Of the respondents surveyed, 43 (31.85%) said they would consider if there were mechanisms to guarantee higher tuition fees.

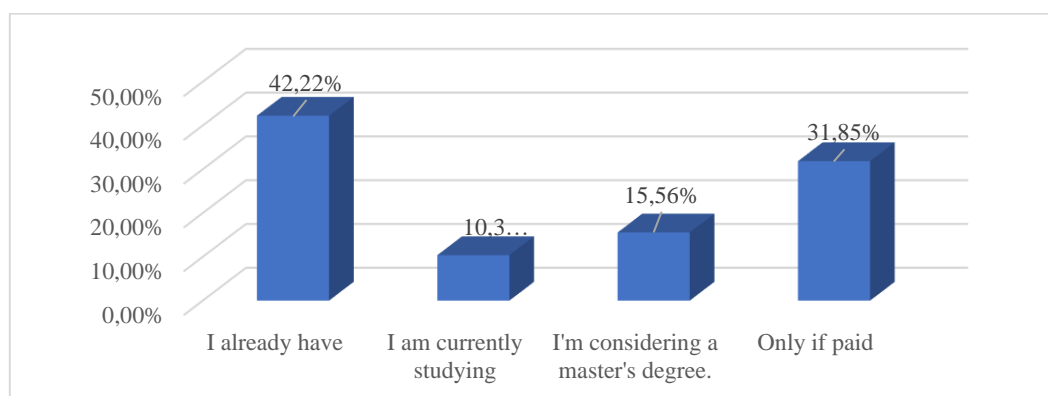


Fig. 4. Possession of a higher educational qualification degree

The modern requirements of the health sector place the patient at the center of health care and all activities are aimed at him for better health. The continued upgrading of education is a prerequisite for the implementation of these activities in an efficient manner. Despite the prestige of further education and personal satisfaction 92 (68.15%) of the respondents said that having a higher degree does not benefit them when looking for a job (Figure 5). In the context of a crisis for staff in the healthcare system, this is neither a prerequisite nor an advantage when applying for a job in hospital structures and other medical institutions.



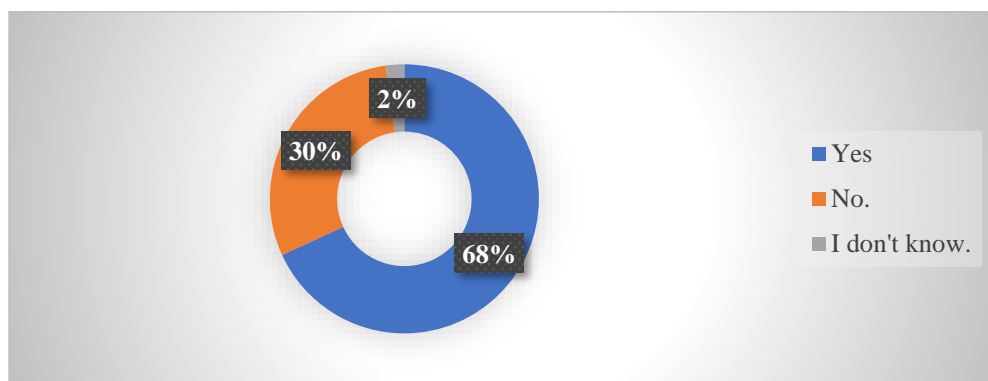


Fig.5. Education as an advantage in finding a job

A guarantor of the quality of the training of young professionals is the application of the acquired knowledge (theoretical and practical skills) in the course of work under the guidance of a mentor, together with the team from the Department. Hospital employees must not only successfully perform their work, but also be ready to receive new knowledge and skills that will allow the healing structures to develop: to seek and create new solutions, to be flexible, to be able to benefit from complex situations, through continuous audit of the skills needs of workers and control of activities.

It is necessary to understand the needs of healthcare professionals and to undertake activities to involve workers in the workload and responsibilities of the work environment. In the course of training, the objectives that need to be achieved can be clarified. Each position has a specific training scheme, which must be followed and applied to achieve good results and good pay. Training on and off the job enables each employee to develop their potential and the potential of the structure in which they work.

### Conclusion

It is necessary to have an organizational policy to promote the development of employees in order to be able to be integrated into the tasks and objectives of the specific structures. Each healing structure can always invest in its employees by training them on the basis of a direct need or expressed interest on their part relating to work and the workplace.

Ongoing training is of utmost importance in the dynamics of the changing regulatory framework for medical care providers and affects the motivation of medical staff. The workload, the many responsibilities and the lack of a clear regulatory framework in terms of pay of the sector is a demotivating factor for the continued development of competences, or because they do not see direct material benefit from upgrading the qualification.

A motivated to learn employee can be stimulated to use their knowledge and skills to develop their qualities in the workplace, to increase their satisfaction and self-esteem. In addition to improving competencies, training is a way to ensure audit of human resources according to the requirements for the exercise of the profession.

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### **АНАЛІЗ ОСНОВНИХ ПОКАЗНИКІВ ІНФЕКЦІЙНОЇ ЗАХВОРЮВАНOSTІ В ЧЕРНІВЕЦЬКІЙ ОБЛАСТІ**

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В 2022 році продовжувалась епідемія коронавірусної хвороби. Протягом року Чернівецькій області було зареєстровано 48115 випадків COVID-19 проти 79314 у попередньому році, захворюваність знизилась на 39,3%. Захворіло 4781 дітей та 1318 медпрацівники. Летальних випадків – 418 проти 2220 у 2021 році. Летальність у 2022 році становила 0,9%. Частка дітей серед всіх захворілих становить 10%.

За результатами оперативного епідеміологічного аналізу за 11 тижднів 2023 року в Чернівецькій області зареєстровано 401 випадок COVID-19, в тому числі 64 випадки серед дітей. В порівнянні з попереднім 10 тижнем захворюваність зросла на 11,4%, одночасно, захворюваність серед дітей залишається на рівні. Госпіталізовано за тиждень з підтвердженим діагнозом 131 хворий, що на 37,9% більше ніж за попередній тиждень.

За 11 тижднів 2023 року у Вижницькому районі зареєстровано 19 випадків COVID-19, у Дністровському районі – 80, у Чернівецькому районі – 302 випадки. Відбувся ріст захворюваності на 7 випадків, 21 випадок та 4,5% відповідно.

За 11-й тиждень року інтенсивний показник захворюваності по області на 100 тисяч населення становить 44,73. Найвищий показник захворюваності зареєстровано серед населення Новодністровської територіальної громади – 217,19 та Кіцманської територіальної громади – 130,25.

За даними рутинного епідеміологічного нагляду за 11 тижднів 2023 року в Чернівецькій області зареєстровано 5130 випадків ГРВІ, з яких 2913 серед дітей (56,8%). Інтенсивний показник захворюваності становить 578,10 на 100 тисяч населення, та знаходиться вище рівня епідемічного порогу на 17,6%. В порівнянні з минулим 10 тижнем захворюваність зросла на 12,4%.

На 11 тижні 2023 року в Чернівецькій області зареєстровано середній рівень інтенсивності епідемічного процесу захворюваності гострими респіраторними вірусними інфекціями.

Всього в епідемічному сезоні 2022-2023 років в Чернівецькій області зареєстровано 96233 випадків ГРВІ, з яких 54753 серед дітей (56,9%). Госпіталізовано 967 осіб (1,0% від захворілих), з них 593 дітей. З початку епідемічного сезону в Чернівецькій області вакциновано проти грипу 3043 осіб.

За результатами лабораторних досліджень матеріалу від хворих з ознаками ГРВІ підтверджена циркуляція вірусу грипу типу А та вірусу грипу типу В, домінує вірус грипу типу А. Також виявлялись віруси респіраторної групи інфекцій – парагрип, аденовірус, РС-вірус, риновірус, бокавірус, метапневмовірус.

Що стосується епіднагляду за поліомієлітом – цільові показники на території Чернівецької області не забезпечено у 2022 році, зареєстровано 7 випадків гострих в'ялих паралічів при

цільовому показнику якості епіднагляду за ГВП – 5 випадків. Індикаторні показники якості епіднагляду за ГВП у всіх випадках виконані на 100%.

У зв'язку з ускладненням епідемічної ситуації з кору в Україні в області проводяться заходи для забезпечення готовності та реагування на спалах кору в Чернівецькій області.

Епідеміологічний аналіз захворюваності на кір в Чернівецькій області протягом 1990-2022 років показав, що за цей період спостерігалось чотири епідемічні підйоми: в 1990-1993, 1996-1998, 2006, 2017-2020 років.

Останній спалах кору 2017 – 2020 років, коли було зареєстровано 6460 хворих, тому числі 4357 дітей (68%) обумовлений значним залученням у епідемічний процес дітей та дорослого населення, який відбувся на фоні зниження стану імунітету до кору за рахунок значного зменшення у 2013-2016 роки обсягу вакцинації і, особливо ревакцинації проти кору.

Отже, стан інфекційної захворюваності в Чернівецькій області є тривожним, що до того ж погіршується низьким рівнем вакцинації. До ефективних шляхів вирішення даної проблеми, на нашу думку, належать можливість виявляти розповсюдження інфекції на більш ранніх етапах та посилення контролю якості вакцин.

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## ***Pedagogical sciences***

### **USE OF THE METHOD OF CLINICAL SITUATION TASKS IN STUDYING INTERNAL MEDICINE BY DENTAL STUDENTS**

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#### **Abstract**

The article analyzes ways to improve the organization of forms of the educational process when studying internal medicine by dental students using interactive technologies. The purpose of the work was to study the introduction of the method of analysis of clinical tasks by the Department of Propaedeutics of Internal Diseases in optimizing the training of students in the 3rd year of the dental faculty. This method increases the quality and interactivity of the educational process, allows the teacher to transfer knowledge, skills and abilities through the activities of the student himself, provides an opportunity to manage the learning process and control the studying of the learning material, ensures active participation in the learning process of all its participants throughout the entire period of the lesson, increases motivation to independent work, develops students' communication skills.

**Keywords:** internal medicine, analysis of clinical situational tasks.

Medicine and medical education are rapidly changing and reforming today. The key to efficient education is the active participation of students in the learning process [3]. Methods that include the analysis of educational material on the example of a specific clinical situation are recognized as very fruitful [2, 4]. The growing interest in the formation of clinical thinking based on the inextricable connection of basic and clinical sciences in the education strategy leads to the formation of new methods that allow the training of future medical specialists, who can apply the acquired knowledge in specific clinical situations [6]. Analysis of clinical situations as a teaching method has long been used in pedagogical practice, it is defined in several ways depending on the discipline and the type of "case" used [5, 8]. Researchers in the article writes that the goal of the clinical case method is to prepare students for clinical practice using authentic cases. It connects theory and practice by applying theoretical knowledge to practical medicine, using learning methods based on modeling situations [1, 3]. Large meta-analyses and reviews have demonstrated the positive value of the method of analysis of clinical tasks in the educational process. Solving situational tasks contributes to the development of self-organization skills, the ability to navigate theoretical material, increase the level of functional literacy, the formation of key competencies, preparation for professional choice [4]. This method allows the participants to analyze the given clinical situation, to justify the proposed methods of examination and treatment, to work on errors without any risk of harming the patient or disturbing him [7].

In the article, we give an example of an approach to the study of internal medicine, in particular, the cycle of cardiology pathologies, at the Department of Propaedeutics of Internal Diseases using the method of analysis of clinical tasks for students of the 3rd year of the dental faculty. The tasks were compiled based on real clinical situations and met the requirements of the National Center for Case Study Teaching, were consistent with the goals and tasks of training: they reflected a real clinical situation; contained enough data about the clinical manifestations of the disease, specific questions needed to be answered; stimulated interest in the clinical situation, or encouraged students to think logically and take responsibility for the decisions made. A properly organized scenario includes three mandatory stages: preparatory, main, and final. Stages differ in their organization and rules. On the eve of the class, the students of the academic group familiarized themselves with methodical materials for the problems of the given topic, the rules regarding the methodology for finding ways to solve the specified problems and evaluation criteria. At the beginning of the class, students were divided into two or more mini-groups that competed with each other in solving a certain clinical problem, sometimes one of the groups acted as an arbiter. The advantages of the method of competitive training groups, according to the literature, are the following: the use of interaction; work in small groups; increasing the level of assimilation of the

material by students through action, game, demonstration of video-audio materials; discussions between representatives of competitive groups that form the process of logical thinking and professional skills; group interaction of all participants with an emotional component and everyone's activity in the work process; is a means of self-knowledge and knowledge of other people; form a worldview; contribute to personal development; improve understanding of actions and motives of people's behavior; develop communicative competence necessary for specialists working in the field of human relations [1]. In such a way, professional self-awareness enables a young specialist to become competitive.

When dividing into groups, the principle of heterogeneity must be observed, since studying in heterogeneous groups stimulates weak students to the level of average students and at the same time stimulates the educational process of average and strong students. The optimal number of participants is 3-5 in each group. Such a group has the highest degree of work capacity and is also the most convenient for group communication. Mini-groups of students received the same set of tasks in emergency cardiology, which consisted of atypical tasks and tests of increased complexity with special methodical support of the topic (audio and video materials, photo documentation). Students, working among themselves in mini-groups, solved a set of tasks and, applying the methods of mutual learning and discussion, formulated a collective solution. Each group presented its algorithm of actions, based on the positive or negative result of each of the assigned research methods. Participants of other groups evaluated the actions of their colleagues, explained the mistakes made and offered alternative solutions.

During the discussion, the teacher asked questions that provoked a lively and objective discussion. All students were equally employed, and subjective or objective limitations in planning or conducting additional research were assessed; adequacy and completeness of the prescribed treatment. The teacher's questions were focused both on the management of a patient with a certain diagnosis following existing recommendations, and on management tactics in this clinical situation. During the discussion, the teacher stopped at irrational conclusions and directed the student's consideration with appropriate questions toward optimal patient management tactics in a specific clinical situation. In addition to assessing clinical knowledge and skills, identifying knowledge of fundamental disciplines, students' orientation in the ethical and deontological aspects of this clinical case was also assessed.

The main tasks of conducting classes using the method of analysis of clinical tasks were: organization of training in such a way that students discover new aspects of the medical profession every time, increase their interest in training and motivated search for the optimal solution. A questionnaire was conducted among students at the beginning of the cardiology cycle to assess their opinion on the use of the method of analysis of clinical situational tasks in the learning process. Before the cycle on cardiology, a survey was conducted among 60 people, of which 51% of students did not agree to include the method of analysis of clinical tasks in the educational course, justifying it by insufficient understanding of the method, 28% were doubtful. Only 20% of students reacted positively to the introduction of new methods into the educational process. After completing the cardiology cycle, 80% of students believed that with the help of learning by the method of clinical task analysis, they improved their clinical skills, 70% of students noted the expansion of knowledge, and 67% - a more detailed and multifaceted study of the subject. The majority of students expressed the opinion that the learning strategy using the method of analysis of clinical tasks had a positive effect on their learning, they acquired the knowledge, skills, and abilities necessary for their professional activities, developed creative abilities, and the skill to solve problems independently. In particular, the ability of students to form their point of view, based on objective data, to find out the causes and conditions of the "clinical situation", the ability to put forward and defend their point of view, to collect information from various sources, to analyze their quality and credibility were increased.

### **Conclusions.**

1. The study of internal medicine by dental students using the method of analysis of clinical tasks increases the quality and interactivity of the educational process, allows the teacher to transfer knowledge, skills and abilities through the activities of the student himself, provides an opportunity to manage the learning process and monitor the assimilation of educational material, ensures active participation in the educational process of all its participants during the entire period of the lesson. Working in a team helps students solve tasks together, helping each other, accept and respect the decisions of a team member, teaches to defend one's point of view, promotes the development of communication skills, and fosters collectivism.

2. The educational process using the method of analysis of clinical tasks contributes to the activation of mental activity and clinical thinking, which involves the ability to find a connection between various symptoms and syndromes, interpret the data of additional studies, give a pathophysiological

*explanation for these phenomena, clarify the etiological factor of the disease, the mechanism of the development of the disease, determine patient management tactics.*

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**PROBLEMS OF DISTANCE EDUCATION DURING THE PANDEMIC****Baltabayeva Zh.**Professor of Abai KazNPU,  
Doctor of Pedagogical Sciences**ПАНДЕМИЯ КЕЗІНДЕГІ ҚАШЫҚТЫҚТАН ОҚЫТУ ПРОБЛЕМАЛАРЫ****Балтабаева Ж.Қ.**Абай атындағы  
ҚазҰПУ профессоры, п.э.д.**Abstract**

The pandemic period has become a real test for people and has changed almost all areas of public life and activity. Changes in the economy, medicine, science, and social relations also affected the educational field. The entire society has gone into self-isolation mode, and education has been shifted to an online format. In this regard, educational materials were adapted to online classes, and students began to practice learning online. Due to the COVID-19 pandemic, technical problems have been addressed in universities, and preparations such as internet connection have been made for the urgent transition to distance learning. During a pandemic with a high risk of coronavirus infection, universities and schools have used the necessary resources to implement the distance education process during online classes. The higher educational institutions' basic management system was carried out through the "UNIVER 2.0" information and education portal and additional systems - ZOOM, WEBEX, WhatsApp, and YouTube platforms. Also, e-mail systems: mail.ru, Gmail. com, Google Document Cloud storage, and Google Cloud Office services were used. It was difficult to conduct lessons in the distance learning format when the pandemic began. The COVID-19 pandemic and related distance learning accelerated the global transformation of the entire education system, forcing it to adapt to the changes in education, especially distance learning. Distance learning technology in the online format was used as an information-pedagogical method that allows a teacher and the student to implement the process of interactive communication through the technical means of teaching. It was a way to overcome the difficulties in the education system during the pandemic and concretely solve the problem. Due to the unprecedented and unusual situation in the process of distance education, although classes were held regularly in schools and higher educational institutions, students could not connect to the same level because of defects, such as when organizing online lessons due to the weakness of the Internet, the lack of devices that they used in their hands, etc. It was also noticed that the teachers could not adapt to the new situation. It is also true that in conditions of psychological isolation, self-learning without the support of teachers at first was very difficult for both schoolchildren and students.

The main challenges and problems of distance learning during the pandemic were considered in the article. To do this, the goal was to determine changes by taking a questionnaire about the pros and cons of the distance education system from teachers of some secondary schools and tutors of higher educational institutions. The article was written within the framework of the research project "Language content of the Kazakh society: changes and updates (during the pandemic; 2020-2022)" IRN AR14870178 (state registration number 0122PK00597).

**Аңдатпа**

Пандемия кезеңі адамдар үшін қиын сынаққа айналды және қоғамдық өмір мен қызметтің барлық дерлік салаларын өзгерістерге ұшыратты. Экономика, медицина, ғылым, әлеуметтік қатынастардағы өзгерістер білім саласын да қамтыды. Бүкіл қоғам өзін-өзі оқшаулау режиміне көшті, ал білім саласы онлайн форматқа ауыстырылды. Осыған байланысты оқу материалдары онлайн-сабақтарға бейімделіп енгізілді, студенттер онлайн режимде білім алуға машықтана бастады.

COVID-19 пандемиясына байланысты қашықтықтан оқытуға жедел түрде көшу үшін университеттердегі техникалық мәселелер қолға алынып, интернетке қосылу секілді дайындық жұмыстары жүргізілді. Коронавирустық инфекцияның жоғары қаупімен



байланысты пандемия жағдайында университеттер мен мектептерде онлайн сабақтар кезінде қашықтықтан білім беру процесін жүзеге асыру үшін қажетті ресурстар пайдаланылды. Жоғары оқу орындарындағы оқытуды басқарудың негізгі жүйесі «UNIVER 2.0» ақпараттық білім беру порталы мен қосымша жүйелер – ZOOM, WEBEX, Whats APP, Youtube платформалары арқылы жүргізілді. Сондай-ақ электрондық пошта жүйелері: mail.ru, gmail.com, google.com. құжаттардың бұлтты қоймалары, Google бұлтты кеңселік сервистері қолданылды.

Пандемия басталған кезде сабақтардың қашықтықтан оқыту форматында өткізілуі оңай болған жоқ. COVID-19 пандемиясы және онымен байланысты қашықтықтан оқыту бүкіл білім беру жүйесінің жаһандық трансформациясын жеделдетті, білім берудегі, әсіресе қашықтықтан білім берудегі өзгерістерге байланысты бейімделуге мәжбүр етті. Онлайн форматында қашықтықтан оқыту технологиясы оқытушы мен студенттің оқытудың техникалық құралдары арқылы интерактивті қарым-қатынас әрекеті процесін жүзеге асыруға мүмкіндік беретін ақпараттық-педагогикалық әдіс ретінде пайдаланылды. Бұл пандемия кезіндегі білім беру жүйесіндегі қиындықты жеңудің, мәселені нақты шешудің жолы болды.

Бұрын соңды кездеспеген, қалыпты жағдай болмағандықтан, қашықтықтан оқыту процесінде мектептерде де, жоғары оқу орындарында да сабақтар жүйелі жоспарланғанмен, онлайн сабақтарды ұйымдастыру кезінде интернеттің әлсіздігінен білім алушылардың барлығының бірдей қосыла алмауы, қолдарында пайдаланатын құрылғыларының болмауы, жарамсыздығы т.б. секілді кемшіліктер орын алды. Сондай-ақ мұғалімдердің жаңа жағдайға бейімделе алмағандығы да байқалды. Психологиялық тұрғыдан да оқшаулау жағдайында педагогтердің қолдауынсыз өзін-өзі оқыту алғашқыда мектеп оқушылары үшін де, студенттер үшін де өте қиынға соққаны да рас.

Мақалада пандемия кезіндегі қашықтықтан оқытудың негізгі қиындықтары мен мәселелері қарастырылды. Ол үшін бірқатар жалпы білім беретін орта мектеп мұғалімдері мен жоғары оқу орындары оқытушыларынан қашықтықтан білім беру жүйесіндегі кемшіліктер мен жетістіктер жайында сұхбат, сауалнама алу арқылы өзгерістерді анықтау мақсат етілді.

Мақала **ИРН AP14870178 (Мемлекеттік тіркелу номері 0122PK00597) «Қазақ қоғамының тілдік контенті: өзгерістер мен жаңарулар (пандемия кезі; 2020-2022 жж.)»** тақырыбындағы ғылыми жоба негізінде жазылды.

**Keywords:** distance learning, teaching-methodical design, online training, the pros and cons, optimization of education.

**Кілт сөздер:** қашықтықтан оқыту, оқу-әдістемелік дизайн, онлайн оқыту, пандемия, кемшіліктер мен жетістіктер, білім беруді оңтайландыру.

Пандемия кезінде инфекция қаупін азайту және коронавирустық инфекцияның таралуын болдырмау мақсатында көптеген елдердегі білім беру жүйесі қашықтықтан оқытуға көшті [1].

Әлем халықтарын дүрліктірген COVID-19 пандемиясына байланысты төтенше жағдай кезінде республикамызда орта, арнайы, жоғары, жоғары оқу орнынан кейінгі білім саласының барлығында оқыту процесі тарихы XIX ғасырдан басталатын қашықтықтан оқыту технологиясымен іске асырылды. Қашықтықтан оқыту технологиясы оқытушы мен студентке анағұрлым көп еркіндік берді. Білім алушылар өздеріне ыңғайлы уақытта тапсырмаларды орындап, өздігінен іздене бастады. Оқытушы материал мазмұнын жедел түрде өзгерте отырып, қашықтықтан оқытуға сай дайындалған материалды студентке ұсына алды, ал студенттер үшін онлайн сабақтарға қатысып, уақтылы тапсырмаларды орындау басты назарда болды. Интернет жүйесінің негізгі бағыты - оның сенімділігі, интернет-арналардың сыйымдылығы, контентті құру және орналастырудың қарапайымдылығы, мұғалімдер мен студенттерге арналған қызметтер мен платформалардың қолжетімділігі секілді талаптарды қамтиды. Қашықтықтан оқытуда онлайн сабақтарды кесте бойынша өткізіп, видеодарістерді жазып, тапсырмаларды арнайы порталға салуда педагогтарда азды-көпті тәжірибе болғанымен, онлайн форматтағы сабақтарды интербелсенді әдістермен түрлендіріп өткізуде, студенттердің орындаған тапсырмаларын, жауаптарын бағалау бойынша жетілдіретін тұстардың бар екені анықталды.

Пандемия кезінде Қазақстан Республикасындағы Білім және ғылым министрлігінің әдістемелік ұсыныстарын ескере отырып, университеттер қолжетімді сыртқы ресурстарға сәйкес қашықтықтан оқытуды жүзеге асыру сценарийлерін және олардың IT-инфрақұрылымын дамыту деңгейін ескере отырып, оқу үдерісінің форматтарына қойылатын талаптарды әзірледі. Соған сай еліміздегі әрбір мектептер мен жоғары оқу орындарында онлайн ортада оқытуды ұйымдастырудың өзіндік құралдары мен сценарийлері құрастырылып, бағдарлама бойынша сабақтар ұйымдастырылды. Сол кездегі Білім және ғылым министрі А.Аймағамбетов төрткүл дүниеге тараған COVID-19 коронавирусына байланысты білім ордалары қашықтықтан оқу жүйесіне көшкен кезде Білім және ғылым министрлігі арнайы төрт бағытты қолға алғандығын атап өткен еді, бірінші - телеарналар арқылы, яғни «Балапан» мен «Ел арна» телеарналарымен бірге қажетті бейнероликтер түсірілгендігін, екінші, қазақ радиосымен бірге тікелей эфир арқылы жоспарлаған жұмыстар іске асырылғандығын, үшінші, почта арқылы тапсырма беріп, сол орындаған тапсырмаларды қабылдау, ал төртіншісі, Google Class room сынды бірнеше интернет платформалардың құрылып жұмыс жасап жатқандығын айтқан болатын[ 2].

Онлайн оқытудың тәсілдерін меңгеріп, ғаламтордың шексіз мүмкіндіктерін игеріп, қашықтықтан оқыту технологиясын қолдана отырып, толыққанды білім беру оқу процесінің нақты құрылымын және бағдарламаның аудио-видео материалдарын дәрістер арасында үздіксіз, ыңғайлы және сапалы түрде таратуды қамтамасыз ететін қызметпен үйлескенде ғана мүмкін екендігі анық болды. Сабақтар дәрістерге, практикалық жұмыстарға бөлінгендіктен, қашықтықтан оқыту форматында білімгерлердің оқытушылармен бірге нақты уақыт режимінде білім алумен қатар, берілген материалды студенттің өз бетінше оқып үйрену түрі де қарастырылған. Ішкі сервиспен қатар студенттер Microsoft Teams, Skype, Zoom секілді басқа да балама IT-құралдарды қолдана алды. Осындай мүмкіндіктерді пайдалана отырып, ынталы, белсенді студенттер тапсырманы жақсы орындады, бірақ, өкінішке орай, білімгерлер арасында білімдері де, тәжірибелік дағдылары да төмен көрсеткіш деңгейінде қалғандары болды. Сөйтіп, пандемия жағдайында дәстүрлі білім беруден қашықтықтан білім беруге көшу бірқатар проблемаларды тудырды.

Қашықтықтан оқыту кезінде білім беруді оңтайландыру, әсіресе ақпараттық-коммуникациялық технологияларды қолдану арқылы оқыту сапасын төмендетпеу мұғалімдерге де, студенттер мен мектеп оқушыларына да, жалпы білім беру жүйесі үшін ең басты өзекті мәселе болды. Еліміздегі пандемия кезінде оқу орындарында оқыту үдерісінің онлайн режимге көшуіне байланысты оларды техникалық құралдармен қамтамасыз ету, оқу платформаларының мүмкіндіктерін мейілінше тиімді пайдалану қажеттігі анық байқалды.

Сондай-ақ қашықтықтан оқыту жағдайында жекелеген мұғалімдердің жаңа жұмыс форматына бейімделе алмағандығы, бұл олардың күйзелісі мен түңілуі сияқты жай-күйінің бұзылуына әкеліп соқтырғандығы жасырын еместігіне назар аударған «НЗМ» ДББҰ Педагогикалық шеберлік орталығының әдіскері Г.Есмагулова мұндай жағдайдан шығудың шарттарын қарастырған.

Әдіскердің көрсетуінше, басты шешім – жаңаша оқу. Бұл тек білім алу емес, сонымен қатар балаларды оқыту барысында дамуға, қалаған нәтиже мен жетістіктерге жетуге кедергі келтіретін ескі әдеттен, наным-сенімдерден, ескірген және тиімсіз тәсілдерден арылу қабілеті. Келесі кезекте «оқып-үйрену» дағдысын атаған. Үшінші, «қайта оқу – бір нәрсені жаңа қырынан, жаңа көзқараспен тануды үйрене білу», - деп пайымдай келе, педагог қашықтықтан оқу жағдайында сұранысқа ие маман болып қалу үшін және жаңа кезеңде күйзеліске ұшырамай, күйіп жанбай әрі мамандыққа деген сүйіспеншілікті жоғалтып алмаудың жолдарын көрсеткен»[ 3,85-88-бб. ].

Студенттердің сауалнамаға берген жауаптарында оқудың бұл түрінің тиімді жағы ретінде студенттің университетке бармай-ақ, өзіне ыңғайлы жерде отырып, берілген тапсырманы орындай беретіндігі, яғни уақыттың ұтымдылығы(32%) деп атап көрсетілді Ал онлайн оқудың қиындықтары жайында студенттер сауалнама сұрақтарына берген жауаптарында интернеттің нашарлығына, үзілістердің әсерінен қосыла алмауларына, техникалық проблемалардың болуына (43%), курстастарымен қарым-қатынас жетіспеушілігіне (41%), сабақта бетпе-бет пікірталастардың (39%) болмауына, үйде сабаққа дайындалғанда керекті әдебиеттердің тапшылығына (35%) және материалды өз бетінше оқудағы қиындығына(30%) шағымданды. Сауалнамаға қатысқан студенттердің жауаптарынан

(42%-ы) тапсырмаларды уақытында орындамай, кейінге қалдырып, жиі кешіктіретіндері де байқалды.

Бұл мәселе жайында бұқаралық-ақпарат құралдары беттерінде мектеп мұғалімдерінің, жоғары оқу орындары оқытушыларының мақалалары да жарық көрді. Мысал, әдіскер-мұғалім Т.Ш. Сейтмағанбетова мақаласында: «Таяқтың екі ұшы болатыны сияқты, қашықтан оқытудың да тиімді тұстары мен өзіндік қиындықтары бар екендігіне көз жеткіздік», - дей келіп, білім алушылардың тапсырмаларды орындауда еркіндігі мен уақыттың ыңғайлылығы және үнемділігі, мұғалім мен оқушы арасындағы арақашықтыққа қарамастан оқытудың қолжетімділігі, шығындардың қысқаруын қашықтан оқытудың тиімділігі деп есептеген. Сондай-ақ пандемия кезіндегі қашықтан оқыту ұстаздар қауымына жаңа технологияларды, әдістерді, жаңа дағдыларды меңгеруге, шығармашылығын дамытуға, жаңа идеялардың пайда болуына, заман талабына сай тез бейімделуіне мүмкіндік бергендігін де атап көрсеткен.

Әдіскер ұстаз сонымен қатар қашықтықтан оқыту кезіндегі қиындықтарды санамалап көрсеткен: «Бір отбасында бірнеше оқушы болған жағдайда бір компьютер немесе бір смартфонды пайдаланудың ыңғайсыз болуы немесе кейбір жағдайларда қажетті техника мүлдем болмауы, кейбіреулерінде интернет байланысы да жоқ болуы, педагог пен оқушы арасында нақты бетпе-бет байланыстың болмауынан оқушыларды ынталандыру әдістерінің аз болуы, қойылған міндеттердің орындалуына тұрақты бақылаудың болмауы» [4]. Мұғалімнің пайымдауынша, бұл себептердің барлығы оқу үлгерімі мен білім сапасының төмендеуіне де алып келумен қатар, ақпараттық-коммуникациялық технология құралдарын көп қолдану – баланың физикалық және психикалық денсаулығына, жұмыс қабілеттілігіне кері әсерін тигізуі мүмкін екендігін ескерткен. Сонымен қатар оқшаулау жағдайында педагогтердің қолдауынсыз өзін-өзі оқыту алғашқыда мектеп оқушылары үшін де, студенттер үшін де психологиялық тұрғыдан өте қиынға соққаны рас. Оқушының да, студенттің де тапсырманы өз бетімен орындаудың орнына ғаламтордан дайын материалдарды алып пайдалануы, ұстаз бен шәкірт арасында бетпе-бет қарым-қатынастың жүзеге аспауы, білімалушы жауабына эмоционалды қолдаудың болмауы да білім сапасына әсер етті.

Оқу процесінде ақпараттық сауаттылық пен тәжірибе жан-жақты дайындықты қажет ететін күрделі үдеріс екендігі белгілі жайт. Қазіргі цифрлы төңкеріс заманында оның мүмкіндіктері шексіз екендігі де ақиқат.

Қашықтан оқытуды жүзеге асыруда кездескен техникалық қиындықтарды қоспағанда, оқушылардың бойындағы әлеуметтік құндылықтар кеміп, тәжірибелік дағдылар төмендеп кетуі мүмкін. Бұл, әрине цифрлық білім беру ресурсы мұғалімді алмастыра алмайтынының дәлелі. Осы кезеңде педагогтің міндеті – оқушының тапсырманы өз бетінше орындауына қолдау көрсету, бағалау жұмыстарын басқару. Осыған орай педагог түрлі сервистер мен интернет тұғырнамаларды пайдаланады.

Қорыта айтқанда, қашықтан оқытудың тиімді болуы ең алдымен, студенттермен бірге интернетпен жұмыс істейтін оқытушыға тікелей байланысты. Оқытушы білімгерлермен интернет арқылы жаңа оқу-танымдық ортада жұмыс істеуге психологиялық тұрғыдан дайын әрі қазіргі заманғы ақпараттық және педагогикалық технологияны жүйелі меңгерген болса, жұмыс нәтижелі болатындығы анық. Сондай-ақ пәндерге қатысты ақпараттың электрондық көздері, электронды оқу құралдары, виртуалды кітапханалар деректер базасы, т.б. бірыңғай ақпараттық-білім кеңістігі де талапқа сай болуы сапалы білім алуға оң ықпал етеді.

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## Pharmaceutical sciences

### GOOD FOR THE SKIN GREEN FOR THE NATURE, OR HOW TO CARE FOR THE SKIN NATURALLY

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#### **Abstract**

*Developing a proper beauty regimen requires not only regular cleansing in order to apply skin moisturizing products. Understanding your individual needs and choosing the right cleanser that suits your unique skin type are also of great importance for those who care for their appearance.*

*Nowadays, the market is full of various cleaning offers and it is quite natural for consumers to find it difficult to choose. First of all, they need to understand that there is no universal cleaning agent. Different cleansers meet different skin types and needs, and therefore dermatologists advise to approach the appropriate type with understanding.*

**Material and methods:** *documentary-literature sources studied; research - developed pilot project of skin products.*

**Results:** *a project has been prepared to create a prototype of cream and modified gel for sensitive skin*

*a new approach to care for keratosis pilaris. The products are durable, easily applicable, for sensitive skin, without the allergic component.*

**Keywords:** *keratosis pilaris care, hydration, comfort, bio.*

#### **Introduction**

*A quick overview of all types of cleansers [10], what they do and which skin types they are suitable for.*

*Cleaning gel: Cleaning gels have a clear, jelly-like consistency and after application should be rinsed. They offer a deep cleansing with just one application, unclog pores, remove excess oil and clean out acne-causing bacteria. Gel products are highly moisturizing and abundant with moisturizing ingredients that help the skin feel moist and fresh [4,5]. This type of means is ideal for removing makeup.*

*Suitable for the following skin types: normal, oily, combined and prone to acne.*

*Cleaning cream: Cream cleansers have moisturizing properties. They also do not produce much foam and do not remove the skin's natural oils, which comes to show that they will not leave the skin dry and dehydrated. As their negative quality could be noted their tendency to leave a creamy texture, which subsequently causes clogging of pores. Cleansing creams are ideal for removing makeup and can also help control sebum secretion.*

*Suitable for the following skin types: dry and sensitive [3].*

*Cleaning foam: Cleaning foam is available in the form of a cream or gel and mixed with water until a frothy consistency is formed. The foam reaches the pores and cleans them from the inside, removing dirt and layering from makeup. The main ingredient that causes the frothy effect is sodium lauryl sulfate (Apostille), which, however, can increase sensitivity and cause a skin reaction*

*Suitable for the following skin types: oily and combined [1,2].*

*Cleaning clay: This type of cleanser contains clay and is best known for its detoxifying benefits similar to clay masks. Clay preparations remove dirt and particles remaining on the surface, draw excess sebum and layering from the pores.*

*Suitable for the following skin types: oily, acne-prone and Combination Skin [6,7].*

*Detergent powder: Powdered preparations usually become creamy or frothy when they come into contact with water. Users can control the consistency by deciding how much water to mix with the powder. This type of cleanser has exfoliating properties; they are highly concentrated and good for removing makeup as well as deep cleansing of the face.*

*Suitable for the following skin types: oily, combined and sensitive.*

*Micellar cleaning water: Micellar water is the mildest form of facial cleanser that has a structure similar to ordinary water. This type of tool is composed of micelles, small oil molecules that remove dirt. Micellar water is usually applied with cotton swabs and does not need rinsing. It is a reusable product that removes makeup, cleanses and tones the skin.*



*Suitable for the following skin types: dry, oily, normal skin and sensitive.*

*Soap cleaners: Body soaps contain too heavy ingredients that can affect the sensitivity of the skin. Face soaps contain moisturizing ingredients that nourish the skin and balance the levels of urgencies.*

*Suitable for the following skin types: oily and combined [8].*

*Detergent without rinsing: Rinse-free detergents are available in many forms such as foam, creams and lotions, and many are soap-free. Strong soap formulas can be very rough and dry the skin. Preparations that do not require rinsing with water are great for removing makeup and quickly refreshing the skin.*

*Suitable for the following skin types: dry, sensitive and prone to acne.*

*Cleaning oil: Cleansing oils are gentle to the skin and super effective at removing makeup. Some of them are even waterproof, do not dry the skin and nourish it. Cleaning oils are not so suitable for deep cleaning, they act on the surface as means before the main cleaning [9].*

*Suitable for the following skin types: dry, normal and combined.*

*Cleansing Balm: Cleansing balms have similar properties to cleansing oils, but are thicker in texture, have a rich and creamy texture that melts on the skin. They are great for removing makeup as they can pamper the skin with nourishing ingredients. Options can be found on the market both with rinsing and without [11].*

*Suitable for the following skin types: dry and normal.*

**Material and methods:** documentary-literature sources studied; research - developed pilot project of skin products.

### **Discussion**

*Cleansing forms the basis of a solid and effective skin care routine. Removing all traces of dirt, sebum and makeup to prevent clogging of pores and allow the skin to breathe, repair and regenerate, allows routine care products to penetrate deeply and nourish the skin effectively. As a first step in the process of maintaining and restoring the appearance, cleaning is essential to stabilize the areas where the selected serums or anti-aging creams are to be applied.*

*What prompted the development of the project is the need for gentle, daily cleansing as the first step in an effective skin care routine. Cleaning twice a day is important. It is necessary to choose the best cleansing product for the skin type, its condition, and consumer preferences regarding texture.*

*As a researcher, I am interested - Why is cleaning important?*

*Cleaning removes pollution. Cleansing the face removes dirt, makeup and excess sebum, which, if left on the skin, can irritate it and impair its ability to perform its function as an effective protective barrier. Cleansing also supports skin regeneration and is particularly important for acne-prone skin.*

*Care products have a better chance of penetrating skin that has been cleaned. This means that they are more effective and you can enjoy the maximum benefits they provide to the skin.*

*Goose skin, which you may have noticed on different areas of the body, is a non-dangerous pathological condition, also called keratosis pilaris. This is a very common condition that dermatologists even now define as a skin type. It occurs in 50% to 80% of teens and 40% of adults, and is thought to disappear after age 30.*

*It is also called "strawberry skin" because of the small, hard, red or brown dots on the skin. These spots are not pimples, but keratin or more dead skin cells that have accumulated in the hair follicles on the body. Most often they occur in the upper arms or on the legs, but it is not excluded that they occur in other places that are hairy. The cause of keratosis pilaris is unclear, but transmission is thought to be genetic or linked to other medical conditions such as eczema, asthma, hypothyroidism, diabetes or obesity. This condition is not dangerous to health and the only harm it brings is aesthetic. Goose skin is harketrized by the fact that it is not painful, the skin is dry and in places itchy, and the dots themselves can have a different color, depending on the color of the skin and can be red, white, brown, dark brown or black.*

*The condition is more likely to appear in the cold months and disappear in the summer. Therefore, our efforts are focused on understanding the problem and its effective treatment. This skin needs gentle and special care*

*It is recommended to clean the face twice a day every day. Clean your face morning and evening*

*Why clean in the morning?: The sebaceous glands in your skin produce sebum - an oily substance that prevents it from drying out-during the day and at night. Cleaning in the morning ensures the removal of excess sebum and dead skin cells.*

*Why spend the night?: Cleaning in the evening provides a complete elimination of the pollution collected during the day (as well as sweat), any remnants of makeup - concealers and sunscreen filters before going to bed. This helps the skin to recover and renew at night.*

*The project is developing a new hormone for cleansing skin that is resistant to the factors H of the environment (temperature, humidity, air, microbial number). The product contains a gentle formula that provides an exfoliating effect for the skin. The washing gel is applied with soft circular movements, until the formation of foam, then washed with warm or lukewarm water (Figure 1).*



Figure 1. Washing product

The composition of the product is shown in Figure 2.

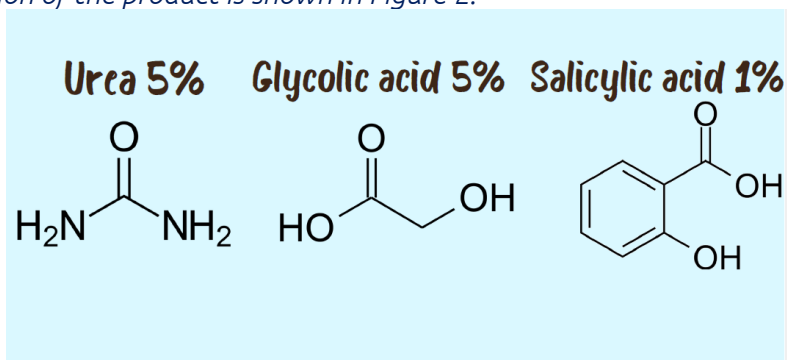


Figure 2. Composition of the washing product

The composition of the products may also vary in the following ratio:

Composition for washing gel for: Moisturizing and exfoliating ingredients:

Urea (5%): moisturizes the skin and helps break down dead skin cells.

Salicylic acid (2%): exfoliates the skin and helps break down dry and rough areas.

Glycolic acid (1-2%): exfoliates the skin and helps remove dead cells.

Cleaning and moisturizing ingredients:

Aqua (Water): basic base for the gel.

Sodium Lauroyl Methyl Isethionate: Cleanses the skin and helps the penetration of the active ingredients.

Cocamidopropyl Betaine: Cleans the skin and leaves it moisturized.

Glycerin: Moisturizes the skin and nourishes it.

Sodium Hyaluronate: Provides long-lasting moisturizing and nourishes the skin.

Ingredients for texture and stability:

Hydroxyethylcellulose: Helps create the texture and consistency of the gel.

Polyquaternium-10: maintains moisture in the skin and improves the texture of the gel.

Preservatives:

Phenoxyethanol: A preservative that protects the product from spoilage.

Ethylhexylglycerin: An alternative to the preservative, which helps to extend the shelf life of the product.

Hydration helps dry and itchy skin and improves the look of the puls.bg suitable creams for keratosis pilaris are those that have in their composition urea, salicylic acid or glycolic acid, as these ingredients remove dead skin cells and clean pores. No less important is the regular exfoliation of the skin, which helps with the separation of dead cells, not their accumulation in the pores. Showers with warm water can help to unclog pores, and wearing wider clothes prevents friction that irritates her. The appearance of keratosis pilaris is also associated with vitamin A deficiency, so taking vitamin A supplements or using creams with it may also be beneficial.

Other more professional methods of treating goose skin include an Intensive Exfoliating Treatment called microdermabrasion, which removes unnecessary dead skin cells from the surface of the skin using a special device that polishes the skin with diamond microcrystals. Another method is chemical peeling, where thin layers of organic matter are placed on the skin, which remove the surface layer of the skin and thus help the production of collagen.

A Cream has been developed (Figure 3) that complements the care of the face and body. It has a powerful long-lasting effect, hydrates the skin in depth. apply to clean and dry skin.



**Ingredients:** Urea 5%, Salicylic acid 2%, Petroleum jelly, Aqua, Butanol, Shea butter, Caprylic/capric triglyceride, Cetearyl alcohol, Dimethicone, Disodium EDTA Hydroxyethyl acrylate/sodium, Acryloyldimethyl taurate copolymer, Methylparaben, Mineral oil, Polysorbate 60, Propylparaben, Simethicone, Sodium hydroxide, Squalane, Stearic acid

150 ml e



Figure 3. Cream

Moisturizing Face And Body Cream has a powerful long-lasting moisturizing effect, specially adapted for the needs of dry skin with keratosis pilaris. The composition of the product Cream is shown in Figure 4.

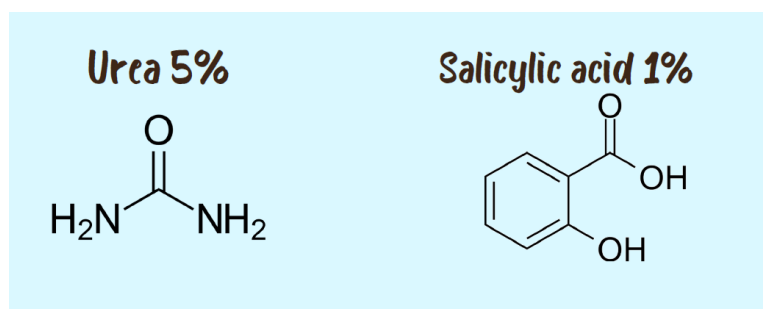


Figure 4. Composition of the Cream

### Conclusion

Timely skin care makes it live longer. The skin of the face is more sensitive than that of other places on the body and is always in contact with external influences. A good cleaning product removes various types of contamination from the surface of the skin. Cleaning the face prevents clogging of pores, pimples and other skin problems. It also leaves the skin with a feeling of purity and freshness.

The correct use of cosmetic products together with bone efficiency gives results before the onset of maturity and the appearance of changes related to the provenance of the body (Figure 4).

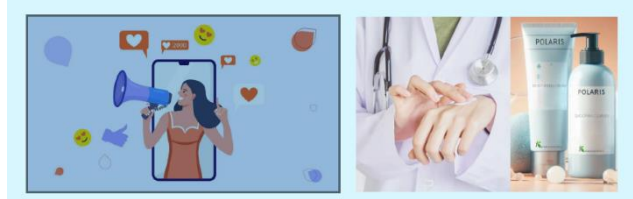


Figure 5. Good for the skin green for the nature

*An important task of the product is to affect skin imperfections and to give a healthier and radiant appearance for a longer time*

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## *Philological sciences*

### **THE IMPACT OF NEW MEDIA LANGUAGE IN THE PERSPECTIVE OF NEW MEDIA COMMUNICATION**

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#### **Abstract**

*The article focuses on the concept and characteristics of new media, the concept of new media language, and its main features. From the perspective of communication science, the article analyzes the characteristics of new media communication. Subsequently, it concludes the trend of symbolization of new media language and its performance characteristics. Through the analysis, we can determine the primary trend of developing new media language in the virtual space, i.e., the extensive use of emoticons and the further development of symbolized language to save time. This situation not only makes people's thinking tend to be simplified but may even affect people's expression in reverse, making language expression more scarce and affecting the inheritance and dissemination of language and culture. In conclusion, new media language is a source of supplementary language vocabulary; however, many problems must be further studied and standardized in its development.*

**Keywords:** new media, emoticon, buzzwords, language, communication

#### **Introduction**

*As a media platform, the Internet provides the public new ways of presenting information. With the development of the Internet and information technology, information is disseminated and exchanged more rapidly and in diverse ways. In today's era, new media is famous all over the world. New media has greater openness, self-media, and interactivity than traditional media. At the same time, with the help of the Internet and communication technology, new media also has the technical attributes of rapidity and innovation of the two.*

*With the increasing development of new media, new media language comes into being, and, as new media language, as an essential part of mass information dissemination, has vivid vitality and unlimited creativity, new media language also influences the state of social language and cultural life.*

*When we talk about new media language, we cannot but mention Crystal's concept of "Internet language." His books (2006[1], 2011[2]) describe the language of Internet services ranging from e-mail, blogs, chats to social networks. New media language is a product of the increasing popularization of the Internet and the maturity of digital technology, and it is a new development of network language with a distinctive epochal character.*

*Language is an essential carrier of media communication, and new media language also has unique and distinctive features compared with traditional media, which are worth studying and exploring. However, it is also because of the self-media nature of the new media, resulting in a lot of fabricated words, abbreviated words, mixed letters, and other irregularities in the language of the new media. Due to its extensive dissemination, the media quickly affects the public's use of the language, so the standardization of the language of the new media is also imperative.*

#### **New media**

*The term "new media" initially originated from a commodity development program of P. Goldmark, director of the Institute of Technology of CBS (Columbia et al.) in 1967. Earlier, UNESCO defined new media as online media. Similarly, new media is "a medium for disseminating information based on digital technology and utilizing the Internet as a vehicle." [3] Media technology advances with the development of the times. The term "new media" is merely a relative concept, and its connotation will continue to expand with the changes in network communication technology. In our opinion, "new media" contains two layers of content: On the one hand, it emphasizes*

*the material carrier, which refers to the tools, channels, carriers, intermediaries, or technical means used by the public to transmit information and access to information [4], with relative objectivity*

and independence, and technical attributes; on the other hand, it is a communication institution as a social organization with relative subjectivity and social nature. Relative subjectivity and social nature. Therefore, today's cell phone media, digital television, Internet new media, and so on belong to the new media category.

Compared with traditional media, new media has the characteristics of interactivity and immediacy, mass and sharing, multimedia and hypertext, personalization, community, etc., and it is rich in form and flexible in content [5]. After the birth of new media, the form of media communication has undergone an essential change, and its most important feature is that it breaks down the barriers between media and the boundaries between media, geography, and even between the communicator and the receiver, which gradually tend to disappear. In addition, technological innovations such as networking, digitization, and intelligence have contributed to the continuous evolution of media forms, and a new generation of "networked selves"[6] is realizing the interaction of discourse and cultural dissemination in the virtual and real world.

### **New media language and its characteristics**

The creation and spread of new media language is related to the communication mode of new media. Since its predecessor is network language, new media language itself has the characteristics of network language. The network language comes from the network environment, including the initial network technical terms, buzzwords used by netizens, the symbols that integrate letters, numbers, punctuation, the emoticons selected by Oxford Dictionary 2015, and other forms. New media language is a set of mixed and diversified language symbol systems formed by integrating more language symbol resources based on network language.

From the perspective of human society and culture, "symbolic thinking and behavior are the most representative features of human life" [7]. Language itself is a symbol system. The arrival of the new media era has made the symbols used by human beings to record themselves and convey information enter a brand new era. New media not only encompasses the symbols of traditional media such as books, newspapers, radio, television, and other traditional media but also brings together dynamic elements such as text, pictures, audio, video, and animation, integrating a variety of sensory experiences, so that the new media users have a more diversified symbolic experience.

New media language is a product of media development, with the characteristics of innovation, simplicity, and diversity of expression. However, it cannot be ignored that the tendency to use symbolic expression also makes the new media language have the negative characteristics of entertainment, fragmentation, and pomposity.

### **Impact of new media language**

A large part of new media language is network buzzwords, often in pursuit of novelty and convenience, and the need to follow language norms in grammar, word formation, and phonetics. With new media's fast and rapid communication, all these unstandardized languages are widely spread in cyberspace. The leading group of Internet users is teenagers, who are happy and good at accepting new things and will quickly accept the novelty of new media language but must distinguish between right and wrong. Teenagers are in the stage of language learning and cultivation; many use and come into contact with new media language, which is bound to be affected by this non-standard language and thus form non-standard expression habits, which will undoubtedly hurt language learning. In the long run, their writing ability, reading ability, and appreciation of language are slowly declining. Expressions like "YYDS," "XSWL," "炸裂" and "城会玩" in Chinese lack connotation and depth and are characterized by banter and exaggeration. They are also characterized by jokes and exaggeration, which weaken the function of traditional language.

In addition, there are numerous English acronyms in cyberspace, such as IRL (In Real Life), ROFL (Rolling On the Floor, Laughing), TBT (Throwback Thursdays), IDK (I Dont Know), ICYMI (In Case You Missed It), while simple in form, can be easily misunderstood, especially by older generations unfamiliar with these online languages. Moreover, these acronyms require context and contextualization to be understood correctly and involve issues such as identity and cultural recognition. For intergenerational communication, such acronyms undoubtedly exacerbate generational segregation.

The 20th to 21st century is a period of rapid change in human society, manifested in various fields such as politics, economy, and culture. Computers and the Internet have radically changed human life, and people can know everything about the world without leaving their homes. Many foreign words have also come into people's view with the popularization of the Internet. In today's globalization, English communication is more frequent and broader in scope. More obviously, the influence of English on other

languages should be considered. In the new media communication, the practicality of English stands out. Please see the following table:

Table 1

*Loanwords from English into the Chinese and Russian New Media Language*

<i>Chinese</i>	<i>English</i>	<i>Russian</i>	<i>English</i>
瑞思拜	respect	косплей	cosplay
奈斯	nice	флуд	flood
因吹斯听	interesting	смайл	smile
秀	show	селфи	selfie
吧	bar	энивей	anyway
欧耶	Oh yeah	го	go
爱豆	idol	нуб	noob
麻豆	model	юзер	пользователь

On the one hand, foreign words have enriched the means of expression in Chinese and Russian. However, on the other hand, they have also led to the production of more words that do not conform to linguistic norms, which in turn threaten the purity of the language and are not conducive to the inheritance and preservation of the language and culture. The study on the aspect is a point to which sufficient attention must be paid.

In addition, an essential phenomenon in new media communication is the extensive use of emoticons. According to Emojipedia, 2023 is the most used year for emoticons on Twitter globally, with 26.71% of tweets containing at least one emoticon [8]. Accordingly, emojis will not stop and will even increase further with the continuous innovation of emojis. As we all know, the variety of emoticons makes our communication in cyberspace faster, and without thinking, typing emoticons has become the norm in our communication and interaction. It should not be overlooked that emoticons can replace body movements and facial expressions in honest and virtual communication. However, in network communication, the overuse of emoticons is a direct consequence of the figure of speech; in the long run, in the face of the other side of the virtual space and time, the sender of emoticons will not know what to say. If emoticons flood the text space of the network, communication between people is limited to sending emoticons, and the diversity of language expression disappears; it is not only as simple as behavioral art but also a symptom of the flattening of thinking.

Symbols are traditionally used as tools for communication and identification. In the network society covered by network symbols, people have been alienated and become "one-way people" [9]. In the digital era, new media communication is more rapid and diversified, and the unidirectional mode of thought and behavior has become more common. People are satisfied with the convenience of sending symbols in cyberspace. The happiness triggered by this convenience is happiness without negativity, utterly submissive to the network, and the false happiness created by modern technology.

### **Conclusion**

With the increasing globalization of the economy, communication between countries, regions, organizations, and people is more and more frequent, which is not only limited to the field of economy and trade but also the development of cultural industry exchanges more and more closely. Language as an essential carrier of communication is also increasingly emphasized. In the era of new media, new media language is a new language phenomenon produced with the development of society, which significantly influences language culture and social life. It affects people's language expression, which is not conducive to the normality and purity of language, and also affects people's way of thinking in reverse. Therefore, avoiding the risks of new media language communication is a concern for future research.

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**LINGUISTIC STUDY OF LANGUAGE UNIONS: DYNAMICS OF FORMATION AND INTERACTION****Haqverdiyeva Kamala Haqverdi**

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**ЛИНГВИСТИЧЕСКОЕ ИССЛЕДОВАНИЕ ЯЗЫКОВЫХ СОЮЗОВ: ДИНАМИКА ФОРМИРОВАНИЯ И ВЗАИМОДЕЙСТВИЯ****Хагвердиева Кямала Хагверди кызы**соискатель на ученую степень доктора философии по филологическим наукам  
Преподаватель Бакинского государственного университета, Азербайджан, Баку**Abstract**

Analyzing various cultural-linguistic unions, this conversation significantly contributes to understanding the processes of language union formation in different regions of the world. Three key examples—the Volga-Kama, Central Asian, and Irano-Arazian language unions—are thoroughly explored in the context of prolonged cultural interactions and influences. Elevating the Volga-Kama language union, the author delves into its formation, highlighting key features such as phonological, morphological, syntactic, and lexical commonalities. The fundamental conditions fostering union formation, such as language development, shared social and economic circumstances, and cultural elements, are discussed, along with examples of specific languages within the union and their linguistic characteristics, emphasizing the importance of cultural exchange in shaping a cohesive linguistic community. The Central Asian language union is examined as a complex network encompassing multiple language families and groups unified by shared phonetic, morphological, syntactic, and lexical traits. The author underscores that this union emerged from prolonged contact and multilingualism, resulting in enrichment and diversity within the languages of this region. The Irano-Arazian language union represents a symbiosis of various linguistic groups, influenced by culture and historical events. Laz, Kurdish, Greek, and Armenian languages are united under a common denominator, highlighting the impact of cultural context on language union formation. The study also delves into the phenomenon of cultural-linguistic unions, where languages with a shared cultural past unite based on similarities in vocabulary, writing, style, and grammar. Examples such as the European Cultural-Linguistic Union, formed under the influence of Greek and Latin languages, are presented. The amalgamation of these analyses provides a profound understanding of language union formation, revealing its complex and interconnected aspects that reflect the richness of cultural interactions and their influence on linguistic diversity.

**Аннотация**

Анализируя различные культурно-лингвистические союзы, данная беседа вносит значительный вклад в понимание процессов формирования языковых союзов в различных регионах мира. Три ключевых примера - Волжско-Камский, Среднеазиатский и Ирано-Азийский языковые союзы - подробно исследуются в контексте длительных культурных взаимодействий и влияний. Возвышая Волжско-Камский языковой союз, автор углубляется в его формирование, выделяя ключевые черты, такие как общность в фонологии, морфологии, синтаксисе и лексике. Обсуждаются основные условия, способствующие образованию союза, такие как развитие языков, общие социальные и экономические условия, а также культурные элементы. Приводятся примеры конкретных языков, входящих в союз, и их языковые особенности, подчеркивая важность обмена культурными чертами для формирования единого лингвистического сообщества. Среднеазиатский языковой союз рассматривается как сложная сеть, включающая множество языковых семей и групп, объединенных общими фонетическими, морфологическими, синтаксическими и лексическими чертами. Автор подчеркивает, что этот союз сформировался в условиях длительного контакта и многоязычия, что привело к обогащению и разнообразию в языках этого региона. Ирано-Азийский языковой союз представляет собой симбиоз различных языковых групп, влияние которых определено

культурой и историческими событиями. Лаз, курдский, греческий и армянский языки объединены под общим знаменателем, что подчеркивает влияние культурного контекста на формирование языковых союзов. Исследование также касается явления культурно-языковых союзов, где языки с общим культурным прошлым объединяются на основе схожести лексики, письма, стиля и грамматики. Приводятся примеры Европейского культурно-лингвистического союза, сформировавшегося под воздействием греческого и латинского языков. Совокупность этих анализов обеспечивает глубокое понимание формирования языковых союзов, выявляя их комплексные и взаимосвязанные аспекты, отражающие богатство культурных взаимодействий и их влияние на языковое разнообразие.

**Keywords:** language unions, cultural-linguistic connections, multilingualism and prolonged contact, compatibility of cultural lexicons, cultural-linguistic unions, global linguistic landscape.

**Ключевые слова:** языковые союзы, культурно-лингвистические связи, многоязычие и длительный контакт, совместимость культурной лексики, культурно-языковые союзы, глобальный лингвистический ландшафт.

Под термином «языковые союзы» подразумевается объединение языков в определенной территориальной зоне (или лингвогеографической зоне), образованное в результате длительного и интенсивного взаимодействия и контакта их носителей. Это объединение, будь то родственные или неродственные языки, формируется в результате продолжительного взаимодействия и контакта их носителей в определенной территориальной области. Другими словами, языковые союзы представляют собой территориально-историческое единство, обусловленное наличием общих признаков (как структурных, так и материальных), сформированных в результате долгого и интенсивного взаимодействия языков в едином географическом пространстве.

Термин «языковые союзы» впервые был использован Н.С.Трубецким в его работе «Вавилонская башня и смещение языков» [5], где он различал его от общности языков, выражаемой термином «языковое семейство». Согласно Н.С.Трубецкому, если общность в языковых союзах проявляется преимущественно синтаксически, морфологически и фонологически, то в языковых семьях наблюдаются общность грамматических морфем и лексического содержания.

По мнению Н.С.Трубецкого, языки, входящие в современное семейство индоевропейских языков, изначально не происходили от одного и того же источника, и поэтому различные группы индоевропейских языков в начальные периоды имели заметные различия [6]. Однако в результате постоянного контакта эти различия стали уменьшаться, хотя не исчезли полностью. После стадии сближения наступила стадия дифференциации, и сформировались современные группы индоевропейских языков.

Образование языкового союза является примером конвергенции языковых систем. Тем не менее следует отметить, что наличие языкового союза не подразумевает генетического родства между его членами. Языки, входящие в союз, могут быть как генетически родственными, так и различными по происхождению. Иными словами, языки могут приобретать сходные черты в результате параллельного развития или происходить из одного источника. В грамматической и фонологической структуре языков, входящих в языковой союз, присутствуют общие элементы, сохраненные с древности. Однако эти структурные аспекты языков могут быть полностью выражены как в языках одного, так и разного происхождения.

Э.А.Балалыкина отмечает, что языки, не имеющие генетического родства, но соседствующие друг с другом, могут взаимно влиять друг на друга, что приводит к появлению общих черт в фонетических и грамматических системах. Количество таких общих черт зависит от реальных отношений соседних народов и периода использования этих языков в близкой географической близости [4].

Для образования языкового союза необходимы определенные условия, включая развитие языков, находящихся в контакте. Эти условия включают общие социальные и экономические факторы, а также общие культурные элементы среди носителей соответствующих языков.

Основными признаками языкового союза являются: соответствия в морфологической и синтаксической структуре, совместимость «культурной лексики», отсутствие системы

звуковых соответствий и непоследовательность в элементарной лексике. Важно отметить, что понятие языкового союза шире понятия языковой семьи.

В лингвистической литературе упоминаются различные языковые союзы, среди которых наиболее изученным является Балканский языковой союз. В него входят языки славянской и романской групп, такие как болгарский, македонский, сербский, хорватский, румынский, греческий и албанский. Также существует влияние турецкого языка. Особенности языкового союза проявляются в различных лингвистических аспектах и продолжают развиваться под воздействием длительного контакта и многоязычия.

Волжско-Камский языковой союз (иногда называемый «Средневожским языковым союзом», «Волжско-Камско-Уральским антропонимическим союзом», «Урало-Волжским историко-этнолингвистическим регионом») объединяет тюркские (татарский, чувашский и башкирский языки) и финно-угорские (марийский, мордва, удмуртские языки) языки. Этот лингвистический союз сформировался в результате длительного контакта и взаимного влияния языков в одном или соседнем географическом пространстве. Некоторые исследователи также включают в этот союз современный коми язык, великий пермский язык, а также венгерский и аланский языки, которые существовали в I тысячелетии нашей эры. Древнеболгарский и древнекипчакский языки играли важную роль в формировании этого союза.

В языках, входящих в Волжско-Камский языковой союз, выявляется общность на всех уровнях языковой системы. На фонологическом уровне присутствует редуцирование гласных, на морфологическом – типологическое сходство в построении временных форм глагола. Существует уникальный суффикс третьего лица единственного числа, заменяющий определенный артикль. Образование существенной формы глагола также общее. В синтаксисе наблюдается обработка глагольных связей, особенно с суффиксом -ганда, и глагольно-прилагательных соединений в широком диапазоне. Общность прослеживается в построении неопосредованной речи. На лексическом уровне выявляется общность заимствованной лексики с разнообразной историей. Присутствует проявление «культурной лексики», сформированной с использованием схожих методов словообразования и формантов, особенно в топонимах, антропонимах и мифонимах.

Среднеазиатский языковой союз (иногда называемый «Гималайским языковым союзом» или «Хиндигушским-Гималайским языковым союзом») включает широкий спектр языков. Этот союз объединяет шунганский, йидга, ваханский, пушту, ванечи и некоторые западноиранские языки и диалекты, языки Нуристана, кати, вайгали, ашкунские и трегами языки, дардские языки, сино-тибетские языки, подахский и балтийский языки, дравидийские языки и изолированный бурушаски. Среднеазиатский языковой союз сформировался в Индийском Гуше, Гималаях и горных хребтах Памира. Этот союз отличается высокой степенью совместимости в фонетических, морфологических, синтаксических, лексических и словообразовательных моделях, а также элементах языкового мышления. Элементы субстрата в языках этого союза принадлежат к активной типологии, что проявляется в различных языковых аспектах, таких как фонетика и система счисления.

В лингвистической литературе рассматривается ирано-арабийский языковой союз, также известный как Западноазиатский языковой союз. Этот союз охватывает Южный Кавказ, Восточную Анатолию, Северный Ирак и Северный Иран. Исследователи относят лаз из картвельских языков, курдский (с курманджинским и соранийским диалектами), греческий и армянский языки из индоевропейских языков, арамейский и арабский из семито-хамитских языков, тюркский и туркменский из тюркских языков к ирано-арабийскому языковому союзу. Считается, что туркменский диалект является его частью [1], или же входит в их состав [7, 398]. Предполагается, что этот языковой союз формировался в течение тысячи лет. Следует отметить, что азербайджанский язык также может быть рассмотрен как член этого союза. На севере Ирана и в Восточной Анатолии азербайджанцы проживают компактно, и несмотря на ограниченность материалов по азербайджанскому языку, необходимо обратить внимание на влияние их образа жизни на формирование данного союза.

Лингвистические союзы могут возникать не только между языками с большим числом носителей, но и между малыми народами. Например, в XVIII веке говорящие на языках билокси и офо, принадлежащих к группе языков североамериканских индейцев сиу, мигрировали в Мексику, где взаимодействовали с местными индейцами, что привело к образованию нового языкового союза [8, 39-63].



Помимо понятия языкового союза существует также понятие культурно-языкового союза. Под термином «культурно-лингвистический союз» понимаются языки народов, имеющих общее культурное прошлое, и группирующихся по совместимости в лексике, системе письма, стиле и грамматике. В таком союзе один или два языка могут иметь преимущество и выполнять роль международного языка в определенной области, что приводит к обогащению лексикона других языков. Один из примеров такого культурно-лингвистического союза — Европейский, который начал формироваться в первые века нашей эры и включает в себя европейские языки, где греческий и латинский сыграли важную роль в создании этого союза. Считается, что первые европейские международные слова были заимствованы из греческого на латынь.

Культурно-лингвистический союз Индии и Юго-Восточной Азии сформировался под сильным воздействием индийской культуры и санскрита, охватывая Индийский субконтинент, Тибет, Мьянму, Индокитайский полуостров и острова Малайского архипелага. Слова, заимствованные из санскрита и индоарийских языков, часто используются в языках, входящих в этот языковой союз, проникая в различные сферы общественно-политической жизни и быта. Формированию этого союза также способствовало внедрение письменности на основе древнеиндийского алфавита.

Ещё одним значимым культурно-лингвистическим союзом является союз Китая, Кореи, Японии и Вьетнама, где ключевую роль играют китайский язык и китайская идеографическая письменность. Интересно отметить, что японские и корейские заимствования из китайского языка до сих пор сохраняют старые правила правописания.

Отсюда становится ясно, что для возникновения языковых союзов недостаточно просто соприкосновения языков; ключевую роль играют культурные связи между носителями этих языков. Совместимость культурной лексики, как материальной, так и духовной, в языках, входящих в отдельные языковые союзы, укрепляет это рассуждение. Например, в Волжско-Камском языковом союзе существует выраженное сходство в лексике как материальной, так и духовной культуры, что Р.Г.Ахметьянов считает результатом языкового союза [2; 3]. Такое объединение культур и взаимное влияние друг на друга обогащают языки, участвующие в союзе, расширяют границы языкового ландшафта носителей языка и способствуют разнообразию культур.

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**BUSINESS COMMUNICATION AS A SCIENCE AND ACADEMIC DISCIPLINE****L.O. Vazirova***Doctor of Philological Sciences, Professor. Azerbaijan, Baku. Baku.  
Azerbaijan State Pedagogical University***ДЕЛОВОЕ ОБЩЕНИЕ КАК НАУКА И УЧЕБНАЯ ДИСЦИПЛИНА****Везирова Лейла***доктор филологических наук, профессор. Азербайджан, гор. Баку. Азербайджанский  
Государственный Педагогический Университет***Abstract**

*In his article devoted to business communication as a science and academic discipline. Here are quotes from famous writers and scientists about management and communication between people. The article also notes that only in the 20th century did communication become the subject of special scientific research, as a result of which the theory of communication was formed. It is further noted here that the topic of communication was used in Ancient Greece even in antiquity, it was the object of study of logic and rhetoric. The article also touches on the topic of semiotics, as a science that studies the formation, structure and functioning of various sign systems that store and transmit information.*

**Аннотация**

*Данная статья посвящена деловому общению как науке и учебной дисциплине. Здесь приводятся цитаты известных писателей и учёных по поводу управления и общения между людьми. В статье также отмечается, что только в XX веке общение стало предметом специальных научных исследований, в результате чего сформировалась теория общения. Далее здесь отмечается, что тема общения применялась в Древней Греции ещё в древности, она была объектом исследования логики и риторики. В статье также затрагивается тема семиотики, как науки, изучающей образование, строение и функционирование различных знаковых систем, хранящих и передающих информацию.*

**Keywords:** *science, research, logic, rhetoric, semiotics, speech, consciousness, communication, language, grammar.*

**Ключевые слова:** *наука, исследование, логика, риторика, семиотика, речь, сознание, общение, язык, грамматика.*

*«Для достижения успеха в жизни умение управлять людьми важнее наличия таланта». Такое мнение высказал английский натуралист и писатель Джон Леббок (1834-1913). Общение является важным условием формирования человеческого сознания. Следует отметить также, что среди живых существ устной речью обладает только человек, все остальные живые существа, включая животных, лишены речи. Общение является процессом становления человеческой личности, нормального развития каждого человека как члена общества, формирования психического и физического здоровья человека, признания других и самого себя. В то же время общение - это фактор и условие существования любого человеческого общества, которое формируется на основе общения между индивидами, группами и объединениями. Ни одна область человеческой деятельности невозможна без общения. В этом смысле потребность в общении является одной из основных потребностей человека. Удовлетворение этой потребности было неизбежной необходимостью с древних времен до наших дней.*

*Тема коммуникации рассматривалась в отдельных дисциплинах на протяжении веков. Лишь в XX веке общение стало предметом специальных научных исследований, в результате чего сформировалась теория общения.*

*Тема общения применялась в Древней Греции ещё в древности, она была объектом исследования логики (логос по-гречески – слово, понятие, мысль, разум) и риторики. Условия демократии, сложившиеся в классический период Древней Греции, выявили необходимость умения убеждать, спорить, искусства публичной речи.*

Когда завоевания Александра Македонского распространились на Ближний и Средний Восток, изучение языка стало важной задачей для выживания греческой культуры в чужой среде. Поэтому язык изучался учёными как предмет риторики, грамматики и диалектики. Однако такие науки как социология и психология не могли признать себя социально-коммуникативными науками. Но в XX веке ситуация коренным образом изменилась и в лингвистике произошла научная революция. В рамках лингвистической науки появилась семиотика (греч. *semeion* — знак).

Семиотика – наука, изучающая образование, строение и функционирование различных знаковых систем, хранящих и передающих информацию. Выдающийся советский литературовед, культуролог и семиотик Ю. Лотман определил семиотику как науку о системах коммуникации и знаках, используемых в процессе коммуникации.

Следует также отметить, что появление такой науки, как социальная психология, создало широкие возможности для того, чтобы проблема коммуникации заняла центральное место. В рамках социальной психологии общение стало изучаться как обмен информацией, интерактивное общение как организация совместной деятельности, взаимопонимание людей, перцептивное (исследовательское, творческое) общение.

Надо отметить, что социальная психология происходит от латинского слова *socialis* — социальный и от греческого слова психе-душа + логотипы-обучение.

В древности для установления связи отправляли гонца. Например, самым известным посланником Древней Греции был греческий солдат по имени Филиппид. В 490 году до нашей эры Филиппид установил рекорд по количеству передач сообщений, пробежав без остановок из города Марафон в Афины, чтобы объявить о победе греков.

Позже в сфере связи появилась почта. Постепенно стали развиваться все новые и новые средства передачи информации. Изобретение радио, телефона и телевидения не только ускорило передачу информации, но и сделало её массовой. Все это, особенно создание и использование компьютеров, привело к революционному изменению в сфере коммуникации и общественной жизни в целом. Разработка новых средств связи базировалась на таких науках, как кибернетика, информатика, семиотика и инженерия. Развитие средств коммуникации тесно связано с развитием крупного бизнеса и глобализацией. Следует отметить, что существование одного из них невозможно без другого.

Таким образом, радикальное изменение роли общения в обществе и появление новых технических средств общения привели к необходимости научных исследований всех сторон коммуникативного процесса.

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## DIALOGICAL DISCOURSE AS AN INSTRUMENT FOR FORMING COMMUNICATION CULTURE IN INTERCULTURAL INTERACTION

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## ДИАЛОГИЧЕСКИЙ ДИСКУРС КАК ИНСТРУМЕНТ ФОРМИРОВАНИЯ КУЛЬТУРЫ ОБЩЕНИЯ В МЕЖКУЛЬТУРНОМ ВЗАИМОДЕЙСТВИИ

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### **Abstract**

*In the constantly changing and globalized world, intercultural interaction becomes increasingly crucial in our daily lives. Effective communication among representatives of different cultures requires special attention to linguistic and cultural aspects. This article examines the role of dialogical discourse as a tool contributing to the formation of communication culture in an intercultural context. The study analyzes the phenomenon of dialogical perception of indirect speech, emphasizing its use for manipulative purposes and in creating collaboratively generated text. It underscores that indirect speech is a dynamic process of perception, interpretation, and reformulation considering the current communicative context and illocutionary needs of the interlocutors. The article also discusses the importance of dialogical discourse in intercultural interaction, highlighting its ability to promote understanding and respect for differences. Dialogue fosters openness in conversation, aiding in overcoming language barriers and laying the foundation for a communication culture based on mutual respect and tolerance. Furthermore, the article considers dialogical discourse as a means to contribute to cultural awareness. Participants can share their cultural features, contributing to a comprehensive understanding of cultural contexts and diversity. Dialogue also stimulates learning through interaction, creating an environment for mutual learning and enrichment of communication culture. In conclusion, dialogical discourse is an integral part of shaping communication culture in intercultural interaction. It creates an environment where respect, understanding, and learning occur through open and mutual conversation, fostering sustainable and harmonious coexistence in a diverse global society. The research emphasizes the role of dialogical discourse in forming communication culture in intercultural interaction. Practical recommendations derived from this study can be utilized for training professionals involved in intercultural exchanges, aiming to enhance communication quality and reduce cultural barriers. The author underscores the importance of dialogue in developing cultural awareness. Applying the research findings can contribute to the development of educational programs aimed at cultivating broader cultural understanding and respect for diversity. The study's results can inform the development of methods that encourage knowledge and experience exchange in a dialogical context, beneficial in creating educational and working environments emphasizing mutual learning and resource exchange. Practical insights and recommendations can be integrated into the design and implementation of intercultural programs and initiatives to enhance their effectiveness, considering the dynamics of dialogical interaction and the level of mutual understanding among participants.*

### **Аннотация**

*В условиях современного постоянно меняющегося и глобализованного мира межкультурное взаимодействие приобретает особую важность в повседневной жизни. Эффективное общение между представителями различных культур требует особого внимания к языковым и культурным аспектам. В данной статье рассматривается роль диалогического дискурса как инструмента, способствующего формированию культуры общения в межкультурном контексте. Статья анализирует явление диалогического восприятия косвенной речи, обращая внимание на его использование в манипулятивных целях и для создания совместно порождаемого текста. Подчеркивается, что косвенная*

речь является динамичным процессом восприятия, интерпретации и переформулирования высказанного с учетом текущего коммуникативного контекста и иллокутивных потребностей собеседников. Статья также обсуждает важность диалогического дискурса в межкультурном взаимодействии, подчеркивая его способность способствовать пониманию и уважению к различиям. Диалог обеспечивает открытость разговора, что помогает преодолеть языковые барьеры и создать основу для культуры общения, основанной на взаимном уважении и толерантности. Кроме того, статья рассматривает диалогический дискурс как средство содействия культурному осознанию. Участники могут делиться своими культурными особенностями, что способствует формированию обширного представления о культурных контекстах и разнообразии. Диалог также стимулирует обучение через взаимодействие, создавая среду взаимного обучения и обогащения культуры общения. В заключении подчеркивается, что диалогический дискурс является неотъемлемой частью формирования культуры общения в межкультурном взаимодействии. Он создает среду, где уважение, понимание и обучение осуществляются через открытый и взаимный разговор, способствуя устойчивому и гармоничному сосуществованию в разнообразном мировом обществе. Исследование подчеркивает роль диалогического дискурса в формировании культуры общения в межкультурном взаимодействии. Практические рекомендации, вытекающие из этого исследования, могут быть использованы для обучения и тренировки профессионалов, участвующих в межкультурных обменах, с целью улучшения качества коммуникации и снижения культурных барьеров. Автор акцентирует важность диалога в развитии культурного осознания. Применение результатов исследования может способствовать разработке образовательных программ, направленных на формирование участников общения более широкого культурного понимания и уважения к разнообразию. Результаты исследования могут быть использованы для разработки методов, поощряющих обмен знаниями и опытом в диалогическом контексте. Это может быть полезно при создании образовательных и рабочих сред, где акцент делается на взаимном обучении и обмене ресурсами. Практические выводы и рекомендации могут быть интегрированы в дизайн и реализацию межкультурных программ и инициатив, чтобы сделать их более эффективными, учитывая динамику диалогического взаимодействия и уровень взаимопонимания между участниками.

**Keywords:** *dialogue, discourse, intercultural programs, speech communication, linguistics.*

**Ключевые слова:** диалог, дискурс, межкультурные программы, речевая коммуникация, лингвистика.

В современном мире, находящемся в состоянии постоянных изменений и глобализации, межкультурное взаимодействие становится все более важным аспектом нашей повседневной жизни. Эффективное общение между представителями различных культур требует особого внимания к языковым и культурным аспектам. В этой статье мы рассмотрим, как диалогический дискурс может выступать в роли инструмента, способствующего формированию культуры общения в межкультурном контексте.

Анализируя подобную разновидность функционирования языка, лингвисты фокусируют исследовательское внимание в том числе на проблемах диалогического восприятия косвенной речи, использования ее в манипулятивных целях и для целостного разворачивания совместно порождаемого текста [2, с. 47]. В основе решения данных проблем лежит идея о том, что «актуализация чужой речи, сегментов дискурса лица, не принимающего участия в диалоге, - это не столько механический повтор того, что было высказано ранее, сколько динамический процесс восприятия, интерпретации и переформулирования высказанного в текущем коммуникативном контексте и с учетом актуальных иллокутивных потребностей собеседников» [5].

В этой связи косвенную речь можно трактовать как дискурс, конструируемый говорящим субъектом, в котором резонирует речь иного субъекта, адаптированная к контексту данного диалогического взаимодействия.



Диалогический дискурс, в отличие от монологического, подчеркивает важность взаимодействия и обмена информацией между участниками коммуникации. В межкультурном взаимодействии это особенно существенно, поскольку допускает разнообразие голосов и точек зрения, что способствует пониманию и уважению к различиям.

Диалогический дискурс предоставляет участникам возможность вступить в открытый разговор, что помогает преодолеть языковые барьеры [3]. Обмен идеями и опытом в диалоге способствует лучшему взаимопониманию, даже если участники говорят на разных языках. Это создает основу для развития культуры общения, основанной на взаимном уважении и толерантности.

Элементы косвенной речи в репликах коммуникантов трактуются в качестве специфических маркеров эвиденциальности, которые проливают свет на эпистемический статус говорящего лица в текущем диалоге [1]. Косвенная речь — это действенный стимул привлечения внимания собеседника к озвучиваемой информации.

«Диалогический дискурс также способствует развитию культурного осознания» [4]. Участники общения могут делиться своими культурными особенностями, представлениями и ценностями. Это позволяет создать более обширное представление о культурных контекстах, в которых функционируют участники, и способствует формированию культуры общения, учитывающей разнообразие.

Диалогический дискурс стимулирует обучение через взаимодействие. Участники общения могут обмениваться знаниями, навыками и опытом, что способствует созданию среды, где каждый вносит свой вклад. Этот обмен обогащает культуру общения и подчеркивает важность учебного процесса как взаимного процесса обучения и обучения.

### **Заключение**

Диалогический дискурс является неотъемлемой частью формирования культуры общения в межкультурном взаимодействии. Он обеспечивает среду, где уважение, понимание и обучение происходят через открытый и взаимный разговор. Использование диалога в межкультурных обменах может содействовать устойчивому и гармоничному сосуществованию в разнообразном мировом обществе.

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## *Physical sciences*

### **EFFECT OF A NUMBER OF INORGANIC SALTS ON THE PHASE DIAGRAM OF THE BIPHASIC PEG-DEXTRAN-WATER SYSTEM**

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Jala Teymurova**  
Baku State University

*The requirements for the purification and quality of pharmaceuticals, pharmacology, and the food industry's medicinal products are increasing day by day. That's why it is required to separate and investigate biological materials' mixtures individually. Here, the discussion involves the separation and individual investigation of blood and all biological substances, including vaccines, viruses, toxins, and bacteria.*

#### ***Non-uniform distribution method in two-phase water-polymer systems***

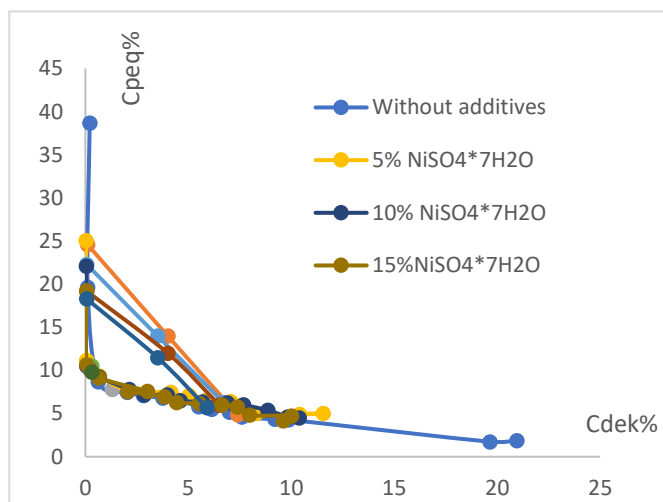
*There are numerous methods available for the separation and purification of chemical substances. However, these methods are not effective for biological active substances. Therefore, in recent times, very gentle specialized methods have been developed for separating biological materials. However, these methods are expensive and complex. In the second half of the last century, the Swedish scientist Albertson developed a new method that is not only economically efficient but also gentle, simple, and easily transferable to biotechnological and industrial processes in laboratory conditions [1]. This method allows for the separation and purification of biological materials without requiring large-scale equipment. This method is based on the non-equilibrium distribution of substances in a water-polymer two-phase system. The nature of the method involves the separation of two phases with concentrations of different specialized polymers exceeding certain values. One phase is enriched with one polymer, while the other is enriched with a second polymer. The solvent in the phases is water, constituting the basis of both phases. When biological objects (toxins, cells, viruses, etc.) are introduced into such a system, each type of them gathers in one of the phases of the system. This allows obtaining particles of biological substances with a labile structure while preserving their native properties.*

#### ***The influence of salts (NiSO<sub>4</sub>, CoSO<sub>4</sub>, MnSO<sub>4</sub>) on the formation of biphasic systems PEG-dextran-water***

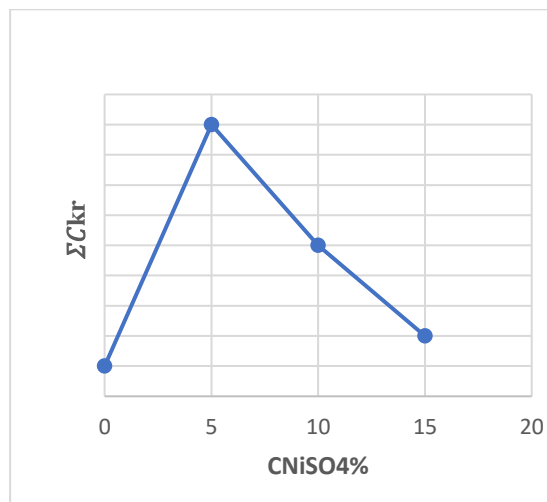
*The concentrations of components in aqueous solutions of two-phase systems, at which two different volumes are separated, are determined through binodal curves. Another characteristic parameter of two-phase systems is the tie line, which has a constant composition for a given state of the system and is equal to the ratio of the volumes of the phases at the taken point. The tie lines of a two-phase system are lines parallel to each other on the phase diagram, and the point of intersection of these lines with the binodal curve is called the critical point or the boiling point of the given two-phase system.*

*The effect of certain salts in the given two-phase system accelerates the phase separation process and occurs at lower concentrations of phase-incompatible polymers [2]. This means that the influence of the salt reduces the number of free water molecules in the environment, increases the number of bound water molecules, further structuring the water. As a result, the phase separation process becomes more complex, creating conditions for phase separation. Due to the influence of other salts, the structure of water molecules in the environment in the two-phase system is destroyed, the number of free water molecules in the environment increases, and the number of bound water molecules decreases. Thus, the dissolution process becomes easier, as a result of which phase formation becomes more difficult and larger concentrations of components are required to form a phase in the solution.*

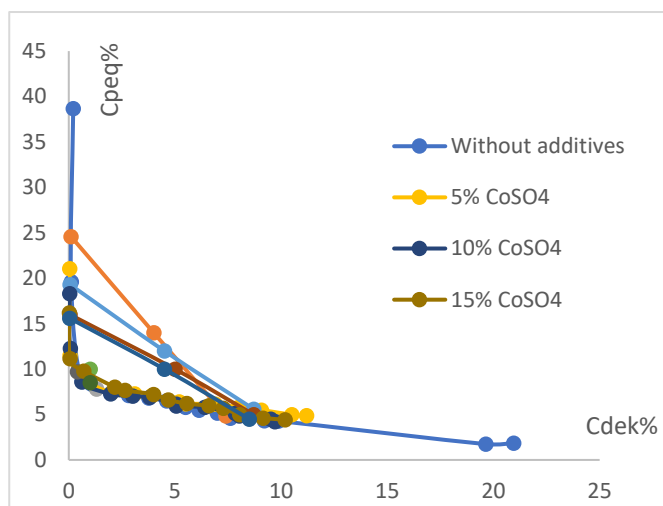
*The aqueous two-phase systems (water+polymer1+polymer2) based on PEG6000 and dextran40000 were prepared using the phase diagram. The impact of NiSO<sub>4</sub> salt in Figure 1, CoSO<sub>4</sub> salt in Figure 2, and MnSO<sub>4</sub> salt in Figure 3 on the phase diagram of the PEG-dextran-water two-phase system has been examined.*



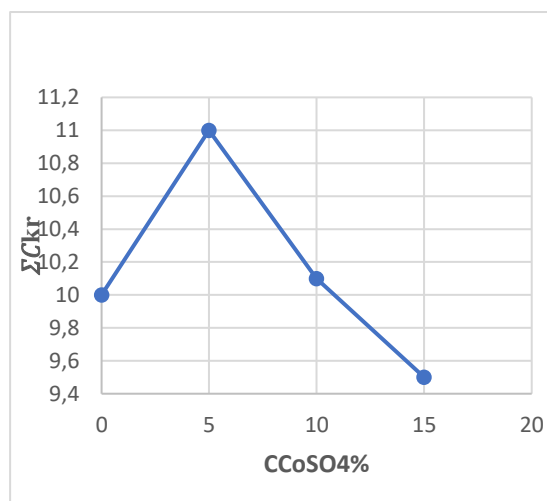
**Figure 1.** The influence of  $\text{NiSO}_4$  on the formation of biphasic systems PEG-dextran-water



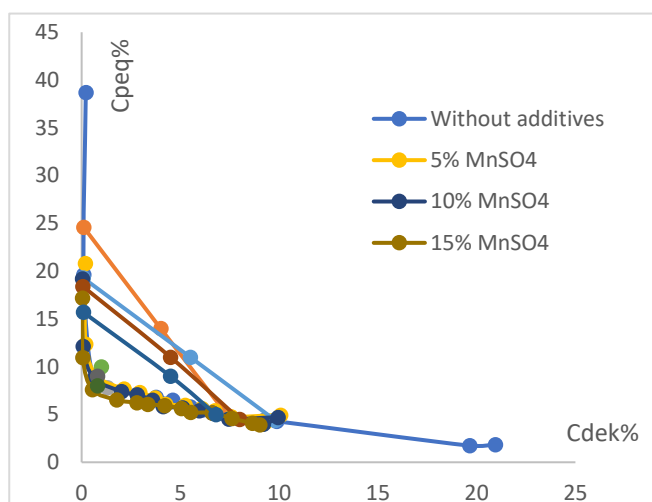
**Figure 2.** Dependence of the critical points of the system on the concentration  $\text{NiSO}_4$



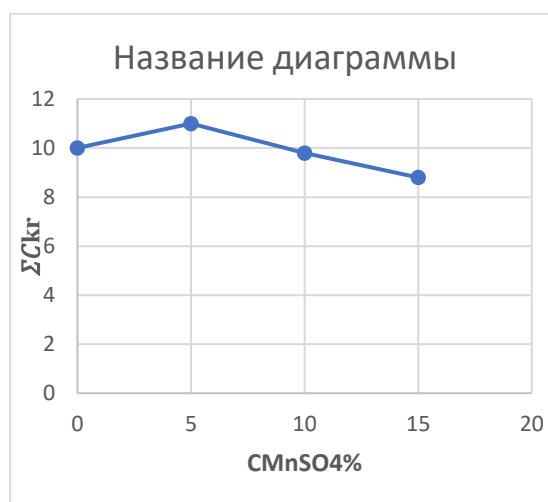
**Figure 3.** The influence of  $\text{CoSO}_4$  on the formation of biphasic systems PEG-dextran-water



**Figure 4.** Dependence of the critical points of the system on the concentration  $\text{CoSO}_4$



**Figure 5.** The influence of  $\text{MnSO}_4$  on the formation of biphasic systems PEG-dextran-water



**Figure 6.** Dependence of the critical points of the system on the concentration  $\text{MnSO}_4$

As seen from the figures and obtained results, it is evident that at lower concentrations of salts, the anion, namely  $\text{SO}_4$ , has a more pronounced effect, leading to a dispersing influence on the salt in the two-phase PEG-dextran-water system. However, as the concentrations of the mentioned non-ionic salts increase, the influence of cations becomes stronger, and the salts exhibit a structuring effect. The studied systems can create conditions that enable the separation and extraction of various biological objects, which promises potential application in biotechnology and pharmacology.

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## *Political sciences*

### **TBILISI STATE UNIVERSITY \_ NATIONAL SCHOOL DURING THE PERIOD OF THE FIRST REPUBLIC (1918-1921)**

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#### **Introduction**

*The issue of the University was of great importance together with the opening of schools. In this regard, several papers were focused on that problem. The goal of the presented work is to highlight the role of educational institutions in raising national self-awareness. Therefore, I will touch on the role of the university in this regard. From the beginning, I would like to emphasize the difficult situation in which the university was.*

#### **History of the University**

*From the very beginning, the University Council of Professors tried to lay the solid foundation for this great scientific institution. The council considered that an increase in personnel composition would promote the success of the university. The increase in the number of professors could be explained by the two-fold increase in the number of students, who currently reaches up to two thousand. They are headed by 27 professors ... Although the university was in a material crisis, it still tried to acquire the necessary books for the library. After the separation of Georgia from Russia, the Council of Professors tried not to allow books to cross our borders. Indeed, then the university saved and preserved many books. The university is provided with old editions, only new editions are missing, without which the university cannot exist. For the present-day, the amount spent on the book depository of the University equaled 18. 880. 994 rubles, and donation 20. 304. 6000 rubles. The value of the books that are kept in the University Library is about 42. 868. 430 rubles.<sup>1</sup>*

*From the address made by Ivane Javakhishvili at the meeting of the Constituent Assembly of Georgia on March 22, 1920, it was clarified that 2000 students were studying at the Tbilisi State University. They were led by 27 professors. 18. 880 994 rubles were spent for the university library, donation 20. 304 600 rubles. In total, books worth about 42,868,430 rubles were available in the university library. For example, 300,000 rubles were needed for the publication of Professor Ekvtime Takaishvili's work - "The Album of Georgian Art Monuments."<sup>2</sup>*

*The sum of 210,000 rubles was allotted for the arrangement of the cabinet for the Faculty of Philosophy. The different items were to be purchased timely for the cabinets of the Faculty of Natural Sciences on time, otherwise, the work activities would be stopped. The Department of Bacteriology was founded in 1919. This department took over the Sanitary Institute and was fully secured. It provides preparation of all sorts of serums, vaccines that used to come from abroad. This will provide Georgia with the first means of fighting the contagious disease: the university was optimistic that the bacteriological institute would be able to satisfy our neighbors as well.<sup>3</sup>*

*The Minister of Education of Georgia addressed the National Council regarding the University: "Only philological departments of philosophy have been opened this year; According to the curriculum presented by the university, Abkhazian, Ossetian, Lezgian, Hebrew-Aysor and Assyrian languages will be studied from the next semester (September 1918) at the university. In the first semester, in addition to other common subjects, the History of Georgian Law and Antiquity were also taught. The same curriculum corroborated that lectures on Georgian Epigraphy, Paleography, Economic History of Georgia,*

<sup>1</sup> CSAG 1833, census 1, Acts. # 970, sheet. 16

<sup>2</sup> CSAG 1833, census 1, Acts. # 970, sheet. 16

<sup>3</sup> CSAG 1833, census 1, Acts. # 970, sheet. 17

the current economic situation in Georgia and the Transcaucasia, and also Land Ownership are planned for the future; In addition to the usual subjects, it is also intended to study Georgian-Persian, Greek-Georgian, Armenian-Georgian, Turkish-Georgian Literature, and History. The Faculty of Law which is to be opened in the future will introduce the lectures on the history of Byzantine law, the history of Muslim law, and the customs of the Georgian and Caucasian highlanders, in addition to lectures on the dogma and history of Roman law.

The Department of Natural History pays special attention to the comprehensive study of the nature of Georgia and the Near East. In the same way, at the University, the faculty of Medicine will study health, illnesses, and diseases of inhabitants of Georgia, the Caucasus, and the Near East. Also, the diseases, characteristic of the southern and European countries will be the subject of scientific research".<sup>4</sup>

The faculty of Philosophy was established in January of the current year. Different faculties will be opened from the next semester, and together with the existing departments, their number will be fifteen: 1. Philosophy and Epistemology; 2. Psychology and Pedagogy; 3. Common and Comparative Indo-European Linguistics; 4. Georgian Linguistics; 5. History of Georgian ancient writing; 6. Georgian Archeology; 8. World History; 9. History of Georgia; 10. Ecclesiastical History of the World and Georgia; 11. Classical Philology; 12. Armenian-Persian-Arabic philology; 13. Judeo-Assyrian Philology; 14. Political Economy and 15. State Law. Besides, the newly opened Faculty of Mathematics and Natural Sciences will have the following 7 departments: 1. Higher Mathematics; 2. Astrology; 3. Physics and 4. Experimental Psychology. Thus, the university will have a total of 22 professors and 17 supervisors, assistants, and lecturers from September.<sup>5</sup>

Temporary Basic Provisions of Tbilisi State University: 6. Tbilisi University is a full-fledged university with the following faculties: 1. Philosophy, which includes the fields of philosophy, history, and social sciences of the West, East, and South-North countries and nations. 2. Mathematics and Natural Sciences 3. Faculty of Law i.e. Law and 4. Faculty of Medicine. 10. There is only one scientific degree of a Doctor at Tbilisi University. The Master's degree is at the Russian Universities, and the degree of a Doctor of Western Europe is equal to the master's scientific degree.<sup>6</sup>

The Department of Natural Sciences and Mathematics has appointed: in Chemistry - P. G. Melikishvili - Honored Professor and Ias. Moseshvili (University of Odesa) - Associate Professor; Mikh. Shalamberidze (Ph.D., University of Leipzig) and Moseshvili (Odesa Women's Higher Courses), as assistants; Professor Kurdiani in Botany (New Alex. Institute of Economics); in Anatomy - Associate Professor D. Natishvili (Kharkov University) and Kakhiani (University of Odesa); In Microscopic Anatomy, i.e. Histology - Shalva Krinitzky (University of Warsaw); Associate Professor of Physiology - Berdze-nishvili (University of Odesa) and Associate Professor Moseshvili (Kharkov University); in Mechanics - Muskhelishvili (Master of St. Petersburg University); in Astronomy and Geodesy - Professor Andr. Benashvili (The Technical Institute of St. Petersburg, and, Higher Artillery Academy). In addition, for medical faculties: in Pharmacology - Associate Professor Mosashvili and Professor Chkishvili (Kharkov University); in Pharmacy - Kutateladze (Odesa University, Institute of Sciences); in Bacteriology - Amirejibi (Kharkov University); In Pe-diatrics - Professor S. Gogidze (Odesa University; In Radiology and Radioscopy - Associate Professor Gabriel Gambarashvili (Moscow University) and others.<sup>7</sup>

"In 1919-1920 the university should acquire 20 professors: (3 at the Faculty of Philosophy, 10 at the Faculty of Mathematics and Natural Sciences, 7 at the Faculty of Medicine); 18 associate professors (3 at the Faculty of Philosophy, 15 at the Faculty of Mathematics and Natural Sciences; 10 at the Faculty of Economics); 19 Assistants (12, at the faculty of Mathematics and Natural Sciences, except for one, all at the Faculty of Agricultural faculty, and 7 for medicine); 14 residents; 15 laboratory assistants; 1 artist and 1 obstetrician for the Faculty of Medicine; 1 preparatory; 2 observers and 3 teachers for the Faculty of Mathematics and Natural Sciences (the last for agricultural faculty). ... In 1919-1920 the staff of the scientific-educational part of the university, together with the rest of coworkers will cost the university 18 136 899 rubles.<sup>8</sup>

The expenses were distributed to the personnel according to the faculties of the scientific-educational part: The Faculty of Philosophy - 2 33 844 rubles; Faculty of Mathematics and Natural Sciences - 6 762 081 rubles and 20 kopecks; Faculty of Medicine - 6 511 854 rubles; For Officials - 164 160 rubles; For those who maintained their positions at the university - 2 364 960 rubles; for 11 of them

<sup>4</sup> CSAG 1836, census 1, Acts. # 253, sheet. 7

<sup>5</sup> CSAG 1836, census 1, Acts. # 253, sheet. 10

<sup>6</sup> Ibid., Sheet. 11

<sup>7</sup> CSAG 1836, census 1, Acts. # 253, sheet. 21

<sup>8</sup> CSAG 1935, census 1, Acts. # 834, sheet. 34

who will be sent abroad - 1 716 000 rubles and for those staying here 648 960 rubles; The total sum of the personnel equals 18 136 899 rubles and 20 kopecks.<sup>9</sup>

On July 28, 1919, Ivane Javakhishvili, the Deputy Rector of the University, Dean of the Faculty of Philosophy, addressed the Minister of Education and asked him to invite the following professors from Russia: 1. Professor Grigol Philemon Tsereteli - University of St. Petersburg, address - Tsarskoye Selo. 2. Professor Ni-koloz Kakhiani - Ekaterinoslav University, has left Ekaterinoslav, but we do not know where he is. 3. Prof. Simon Amirejibi - Kharkov University. 4. Alexander Aladashvili - from Kharkov University. 5. Parmen Cheishvili - from Kharkov University. 6. Prof. Ivane Beritashvili - from Odessa University. 7. Associate Professor Didebulidze - from Odessa Polytechnical Institute. 8. Associate Professor Shalva Mich. Krinitsky - Darakhvelidze - from Rostov-On-Don University. 9. Associate Professor Alexander Tvalchrelidze - Novo-cherkassk Polytechnic Institute, now lives in Ekaterinograd. 10. Prof. Simon Avaliani, from the University of Odessa, is now in Istanbul. 11. Muskhelishvili - Master of Mechanical Engineering faculty, of St. Petersburg University. 12. Professor Gogitidze - from Odessa University. 14. Associate Professor Kipshidze. 15. Prof. Gabriel Ghambarashvili - Moscow University.<sup>10</sup>

Arsen Biktor Starkov, the professor of the Faculty of Medicine at Kiev University expressed his willingness to work in Georgia at the university or any other special institution. He also added that he would study the Georgian language which is not difficult for him at all ... He was lecturing on topographic anatomy and operative surgery at Moscow University. He is proficient in four languages: English, French, German, Italian. Professor of Obstetrics and Gynecology from Kiev University - Brown was also interested in learning the Georgian language and working in Georgia.<sup>11</sup> In addition to the professors, there are actors: Al. Dogonadze (baritone from Petrograd), 2. Sikharulidze (baritone from Moscow), 3. Iv. Pet. Palia-shvili (conductor from Kharkov), 4. Vakhtang Mchedlov (Producer), 5. Marjanov Konstantine (Moscow), 6. Sum-batashvili-Eugene (Moscow), 7. Chagian Nick. (Tenor from Petrograd). 8. Tarkhan-Mouravi (Tarkhnishvili's daughter) was in Italy.<sup>12</sup>

On June 4, 1919, the Minister of Education appealed to the Council of Ministers: "University professors, have no fees except for the award - 900 rubles a month, approved by the National Council, and are forced to be satisfied with a once-determined salary. This created the situation that university professors today receive much less than high school teachers ... By reporting the above-mentioned to the Council of Ministers, I solicit for approval of 4480 076 rubles from June 1<sup>st</sup> of the current year, to maintain Tbilisi State University and arrange new departments for 1919-1920; and from January 1<sup>st</sup> to June 1<sup>st</sup> of the current year to allot 172,635 rubles as an additional award for personnel of the University".<sup>13</sup>

In 1919, the Georgian government sent students abroad for education. Muslim population in Georgia was relatively backward in terms of the spread of education. "Georgian Muslims of Kobuleti gorge didn't have the candidates prepared for this great affair, but owing to the fact, that Georgian Christians are residing in Kobuleti gorge, our native brothers, whose children are born and raised in our country, and have worked shoulder to shoulder to support us, they are well aware of our customs and traditions. Therefore, we intended to file a petition before the Republic of Georgia to send Georgian Christian students from Kobuleti to a university abroad, who could return to our Kobuleti district again".<sup>14</sup>

University financial estimate was as follows: Professor salary - 900 rubles; Rector - 1350 rubles. Dean - 1200; faculty secretary - 1100; lecturers - 500; board secretary scribe - 600 rubles. One assistant, instead of two - 500; low-ranking employee - 250 rubles. Those maintained at the university - 300 rubles, and if sent abroad - 600 rubles.<sup>15</sup>

On January 25, 1918, the first staff of university teachers was published in the press: Rector - Professor Petre Melikishvili, Dean of the Faculty of Philosophy - Professor Ivane Javakhishvili, Secretary: Prof. Ioseb Kipshidze, Professors: Andria Benashvili, Korneli Kekelidze, Dimitri Uznadze, Filipe Gogichaishvili. Deputy Professors: Andria Razmadze, Svimon Avaliani, Shalva Nutsunidze, Giorgi Akhvediani, Akaki Shanidze. Scientific supervisors: Ekvtime Takaishvili, Justine Abuladze. Lecturers: Elisabeth Orbeliani (French), Arthur Leist and Ilia Kipshidze (German), Wanda Ghambashidze (English).<sup>16</sup>

<sup>9</sup> Ibid., Sheet. 34

<sup>10</sup> CSAG 1935, census 1, Acts. #719, sheet. 7

<sup>11</sup> CSAG 1935, census 1, Acts. # 719, sheet. 17

<sup>12</sup> Ibid., Sheet. 27

<sup>13</sup> CSAG 1935, census 1, Acts. # 455, sheet. 65

<sup>14</sup> CSAG 1935, census 1, Acts. # 4, sheet. 7

<sup>15</sup> CSAG 1836, census 1, Acts. #245, sheet. 12

<sup>16</sup> A. Songhulashvili, Georgian Culture and Intelligentsia, 1917-1937, Tbilisi, 2008, p. 14-15

*In the 1919-1920 academic year, there were 1,801 students and 79 free listeners. According to the faculty, this number of students was distributed as follows: there were 496 students and 63 free students at the Faculty of Philosophy; 578 students at the Faculty of Mathematics and Natural Sciences and 16 free students; (311 students at the Faculty of Agriculture) and 727 – at the faculty of Medicine.<sup>17</sup>*

*In the 1918-1919 academic year, 900 students and listeners studied at the university. Each tuition fee was 200 rubles per year, for a total of 180,000 rubles. According to the University plan of Scientific-Educational Publications, the scientific papers were printed in 600 copies, and the textbooks due to the needs of the faculty, but not more than 1200 copies. If the author wished, he could print more copies on the paper purchased at his own expense. In a work published by the university, if the survey was original the author received half of the royalties as income. In the case of translation or performing the same work at the expense of the university, the author received one-quarter of the royalties. The rest of the income was owned by the university.<sup>18</sup>*

### **Conclusion**

*The Historical and Ethnographic Society organized an exhibition of samples of ancient Georgian architecture. This exhibition had two meanings: "One cultural, as it witnessed how architecture developed in Georgia from the sixth to the seventeenth century and what a great beauty the Georgian style has achieved." The second was political significance at the moment. Because there were exhibited especially the wonderful samples of monuments of Muslim Georgia, Georgia, that is today in the hands of the Ottomans and Armenians, and which was the sanctuary of our culture. Our rights to these parts of Georgia is most eloquently asserted by these monuments".<sup>19</sup>*

*As for Tbilisi State University: the university has 1. 801 students and 79 free listeners. According to the faculties, this number is distributed as follows: 496 students and 63 free listeners are enrolled in the Faculty of Philosophy. There are 578 students enrolled in the Faculty of Mathematics and Natural Sciences, of which 311 students are enrolled in the Faculty of Agriculture and 727 students are enrolled in the Faculty of Medicine. Total real student: 1801 and 79 free listeners ... In the 1919-1920 academic year the Tbilisi State University will receive: as a donation - 75. 000 rubles and 525 000 rubles in the form of tuition money.<sup>20</sup>*

<sup>17</sup> Ibid., P. 21-22

<sup>18</sup> Ibid., P. 55

<sup>19</sup> CSAG 1935, census 1, Acts. #587, sheet. 45

<sup>20</sup> CSAG 1935, census 1, Acts. #54, sheet. 34



## THE PROBLEM OF THE MORALITY OF THE NATIONAL INTEREST IN THE THEORY AND PRACTICE OF INTERNATIONAL RELATIONS

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## ПРОБЛЕМА МОРАЛЬНОСТІ НАЦІОНАЛЬНОГО ІНТЕРЕСУ В ТЕОРІЇ ТА ПРАКТИЦІ МІЖНАРОДНИХ ВІДНОСИН

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**Актуальність.** Питання національного інтересу завжди було одним з ключових в теорії та практиці міжнародних відносин, бо через нього переломлюється важливий аспект природи зовнішньої політики будь-якої держави – проблема моральності/аморальності.

**Аналіз теоретичних підходів.** Класик політичного реалізму Х. Морґентау розглядав національний інтерес як універсальний закон зовнішньої політики держав, оскільки, на його думку, моральною може бути лише та політика, яка відповідає вимогам національного інтересу. До того ж представники цієї наукової школи вважають, що, враховуючи ментальні, культурні, релігійні та інші відмінності, моральні цінності і принципи у різних державах можуть не просто різнитися, але й бути діаметрально протилежними, тому єдиним реальним регулятором, на основі якого вибудовується система міжнародних відносин, є національні інтереси, котрі, до речі, всупереч всім законам логіки визнаються апріорі моральними. Одразу виникає асоціація з відомою сентенцією часів наукового комунізму «Вчення Маркса всесильне, тому що воно вірне».

Представник ідеалістичного підходу в теорії міжнародних відносин В. Вільсон, навпаки, вважав, що розгляд зовнішньої політики через національний інтерес є доволі небезпечним, бо при його формуванні та лобюванні на міжнародній арені, по суті, ігнорується громадська думка, адже інтереси держави ставляться вище за інтереси її громадян. Отже, виходить, що національний інтерес є апріорі аморальним в будь-якому випадку? Навряд чи можна дати однозначно позитивну відповідь на це питання.

Зрозуміло, що наявність радикальних наукових позицій завжди викликає появу компромісних варіантів. В нашому випадку йдеться про спробу Р. Нібура поєднати реалістичний та ідеалістичний підходи в наступний спосіб: якщо зовнішня політика держави є іманентно-аморальною, бо просування в міжнародних відносинах національного інтересу є значно важливішим для держави, ніж розуміння та визнання його сутності і призначення більшістю громадян, то необхідно створити певну противагу перетворенню міждержавних стосунків на перманентний конфлікт інтересів; цією противагою має стати система універсальних моральних принципів як регулятора найбільш значущих за своїми наслідками глобальних світових проблем – територіальних, екологічних, пов'язаних з голодом, світовими пандеміями, міжнародним тероризмом тощо.

**Можливості та результати практичного застосування наведених теорій.** З такою пропозицією можна було би цілком погодитися, якби не дві обставини. Перша – це занадто «обтічний» подальший коментар Р. Нібура: держави не можуть захищати свої інтереси без постійних заяв про те, що вони роблять це, підпорядковуючись певній загальній системі цінностей. При цьому не уточнюється, про яку систему цінностей йдеться – національних чи загальнолюдських, та які інтереси держави захищаються – реальні чи уявні, штучно сформовані в суспільній свідомості. Історії відомо багато прикладів підміни реальних національних інтересів уявними. Нагадаємо лише реалізацію ідеї, яка панувала в Німеччині за часів Третього Рейху щодо «обраності арійської раси», коли відбулося масове навіювання німцям, що народу, який належить

до цієї раси, дозволено нав'язувати решті «другосортних» народів власні цінності в будь-який спосіб; або сучасну ситуацію, коли уявний інтерес, на жаль, знайшов своє втілення в російській ідеї про особливе призначення росіян як останнього оплоту моралі у світі, котрий стоїть за крок від прірви, до якої його штовхає «духовно загниваючий Захід». І перший, і другий приклади призвели до жорсткої кризи міжнародних відносин – масштабних війн. Виникає питання: чи спрацювала система універсальних моральних цінностей як протипага національним інтересам? Питання риторичне. Також треба враховувати, що існує досить хитка межа між уявними інтересами і суб'єктивними. І якщо уявний інтерес ще можна пояснити певними несвідомими помилками, то суб'єктивний інтерес завжди є усвідомленим і являє собою «валізу з подвійним дном» – він не тільки приховує істинні мотиви дій тих, хто приймає політичні рішення, але й прикриває їхні реальні аморальні інтереси личиною моральності. Хрестоматійним прикладом тут знов є Росія, точніше, її «ігри» навколо власних національних інтересів: спочатку проведена нею у 2014 році анексія Криму начебто з метою встановлення історичної справедливості та захисту місцевого населення від «войовничого українського націоналізму», а по суті – задля вирішення проблем, пов'язаних з базуванням військового флоту, а потім і повномасштабне воєнне вторгнення в Україну у 2022 році, яке нібито мало за мету «звільнення братського українського народу від нацистського київського режиму», а реально було спрямоване на задоволення непомірних амбіцій диктатора Путіна як «збирача земель руських».

Другою обставиною, яка певним чином обмежує можливості практичної реалізації в міжнародних відносинах теоретичної ідеї Р. Нібура, є відсутність дієвих механізмів забезпечення ефективного функціонування заявленої системи універсальних моральних принципів в якості протипаги беззаперечному домінуванню національних інтересів в цих відносинах. Це відбувається через правову імпотентність міжнародних організацій, навіть таких вагомих, як ООН та її Рада безпеки, що ми можемо спостерігати з 2014 року, коли розпочалася російсько-українська гібридна війна. Багато в чому через це сучасний світ зараз стрімко рухається вбік формування світоустрою, який можна описати акронімом SASI-sвіт – хиткий (Shaky), анархічний (Anarchic), егоїстичний (Selfish), безвідповідальний (Irresponsible). При цьому хиткість через відсутність дієвого механізму стримування та протипаг в міжнародних взаємодіях здатна унеможливити прогнозування траєкторій розгортання світових подій і, відповідно, створення довготривалих міжнародних угод; анархічність спроможна призвести до відсутності світових центрів сили, завдяки яким відбувається координація та керування геополітичними процесами, результатом чого може стати виникнення постійної небезпеки міждержавних, в т.ч. і воєнних, конфліктів; егоїстичність сприятиме створенню ситуації, коли лобювання власних національно-державних інтересів зводиться в абсолют, а відоме гасло Г. Дж. Пальмерстона «У нас немає вічних союзників і у нас немає постійних ворогів: вічні і постійні лише наші інтереси. Наш обов'язок – захищати ці інтереси» набуде тенденційного значення; безвідповідальність стане, за суттю, наслідком дії всіх попередніх ознак, бо неможливість укладання легітимних угод, висока конфліктогенність міжнародних відносин та абсолютизація власних національно-державних інтересів створить неприйнятні умови навіть для прагматичного співіснування країн, не говорячи вже про соціальний прогрес людства.

**Висновки.** Аналіз теорії і практики міжнародних відносин свідчить, що національний інтерес – категорія об'єктивно-суб'єктивна, причому така, що не має однозначної оцінки в дихотомії «моральність-аморальність». З одного боку, захист національних інтересів будь-якої держави через власну зовнішню політику є цілком природним і не може вважатися виключно аморальним через об'єктивність потреб, що є вкрай важливими для існування та розвитку держави як актора міжнародних відносин. З іншого боку, національний інтерес має потужну суб'єктивну складову, бо визначається волею людей, але не більшості, а лише тих, хто приймає політичні рішення, тому, фактично, він характеризує саме їхню позицію, яка, в свою чергу, з високою часткою ймовірності може не бути моральною.

## *Psychological sciences*

### **GRIEF IN THE DIGITAL AGE: EXAMINING HOW THE DIGITAL ERA HAS TRANSFORMED THE WAY WE EXPERIENCE AND EXPRESS GRIEF**

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#### **Abstract**

*In the digital age, the landscape of grief has undergone a transformative shift, with individuals navigating loss through unprecedented digital mediums. This study focuses into the multidimensional aspects of grief in the digital era, exploring how technological advancements have reshaped the grieving process and its societal repercussions. Five key research questions guide the investigation, addressing the utilization of digital platforms for grief expression, the influence of the digital age on virtual memorials and support networks. The study underscores the diverse models and theories that contribute to understanding grief, emphasizing its psychological, emotional, and social dimensions. The digital era has facilitated unique avenues for grief expression, including social media platforms and virtual memorials, altering traditional mourning practices and support networks. The societal implications of this transition are examined, highlighting the emergence of new rituals and practices and the global connectivity engendered by digital platforms. Recognizing the evolving nature of grief in the digital realm, the study advocates for accessible support and resources, addressing ethical considerations, embracing diverse perspectives, and implementing evidence-based interventions. The conclusion outlines potential avenues for future research, including the long-term effects of online grieving, the effectiveness of digital interventions, dynamics within online grief communities, cultural perspectives, and the development of ethical guidelines for online grief support. Ultimately, the study aims to contribute valuable insights into the complex interaction between technology and one of the most profound human experiences – grief in the digital age.*

**Keywords:** *Grief, Online Grieving, Digital Age, Social Media, Online Support.*

#### **1. Introduction**

*In the digital age, the realm of human experience has been significantly transformed, touching upon every aspect of life, including the deeply personal and complex emotions associated with grief (Boerner, Wortman, & Bonanno, 2005). With the expansion of digital technologies, individuals are navigating the grieving process in unprecedented ways. Social media platforms, online memorialization, digital legacies, and virtual support communities have emerged as integral components of contemporary grief experiences (Walter, Hourizi, Moncur, & Pitsillides, 2018). Studying grief in the digital age is crucial due to its profound implications on how individuals cope, memorialize, and find solace in the face of loss (Doka, 2019). The shift from traditional, offline grieving processes to digital mediums has not only altered the dynamics of personal mourning but has also reshaped societal attitudes toward death and bereavement (Walter et al., 2018). Understanding these changes is essential for several reasons. Firstly, the digital realm offers new avenues for memorialization and expression of grief, influencing the cultural and individual practices surrounding loss (Boerner et al., 2005). Secondly, the instantaneous and widespread nature of digital communication can both facilitate and complicate the grieving process (Walter et al., 2018). Thirdly, the impact on social support mechanisms, as individuals increasingly turn to online communities for understanding and empathy, warrants exploration (Doka, 2019).*

#### **Research Objective and Research Questions:**

*Research Objective: This study aims to comprehensively examine the multidimensions of grief in the digital age, investigating how technological advancements have reshaped the grieving process and its societal implications.*

#### *Research Questions:*

- 1. How do individuals utilize digital platforms, such as social media, for expressing and sharing their grief experiences?*
- 2. In what ways has the digital age influenced the creation and maintenance of virtual memorials and legacies?*



3. How does the digital landscape impact the support networks available to individuals experiencing grief?

4. What are the societal implications of the shift from traditional to digital modes of grieving?

5. Are there generational differences in the utilization of digital tools for coping with grief?

By addressing these questions, this study seeks to provide valuable insights into the evolving nature of grief in the digital age, contributing to a nuanced understanding of the intersection between technology and one of the most profound human experiences.

## **2. Understanding Grief**

Grief can be defined as a multidimensional and complex emotional response to loss. It involves a range of thoughts, feelings, and behaviors that individuals experience when they are confronted with the death of a loved one or other significant losses (Worden, 2009). It is a natural and universal process that comprises both the emotional and physical aspects of mourning. According to Worden (2009), grief is a natural response to loss that involves various psychological, emotional, and social components. It is a process of adapting to and coping with the reality of the loss. Grief is not a linear journey with a fixed timeline but rather an individualized experience that can vary greatly from person to person. The conceptualization of grief has evolved over time, with different models and theories offering insights into its nature and dynamics. Kübler-Ross (1969) proposed a widely known model that outlines five stages of grief: denial, anger, bargaining, depression, and acceptance. This model suggests that individuals may go through these stages in response to their impending death or the death of a loved one. However, it is important to note that not all individuals experience these stages in a sequential manner, and some may not experience all of them. Another influential model is the Dual Process Model proposed by Stroebe and Schut (1999). This model emphasizes the oscillation between loss-oriented and restoration-oriented processes. Loss-oriented processes involve confronting and experiencing the pain of the loss, while restoration-oriented processes involve engaging in activities that help individuals adapt to the new reality. This model recognizes that grieving individuals need to balance between the pain of the loss and the need to move forward in their lives. The Continuing Bonds Theory, proposed by Klass, Silverman, and Nickman (1996), challenges the notion that individuals need to detach from the deceased in order to heal. This theory suggests that maintaining a continuing bond with the deceased can be a healthy and adaptive way of grieving. It recognizes that individuals may find comfort and support in maintaining a connection with their loved one through memories, rituals, or other symbolic activities. Attachment theory, originally proposed by Bowlby (1969), has also been applied to understanding grief. This theory highlights the importance of attachment bonds in human development and suggests that the loss of a loved one can trigger intense grief reactions. It emphasizes the need for individuals to mourn and seek support in order to adapt to the loss and form new attachments. The Meaning Reconstruction Model, proposed by Neimeyer (2001), focuses on the process of meaning-making in grief. It suggests that individuals engage in a process of reconstructing their understanding of the world and their place in it following a loss. This model emphasizes the importance of finding new meanings and purposes in life as a way of coping with grief.

Psychological, emotional, and social aspects play significant roles in the experience of grief. Understanding these dimensions can provide insights into the challenges and needs of individuals who are grieving. Psychological aspects of grief can lead to a range of psychological responses, including sadness, anger, guilt, confusion, and yearning (Worden, 2009). Intrusive thoughts or memories related to the loss may occur, and individuals may struggle with concentration and decision-making (Worden, 2009). Grief can trigger symptoms of anxiety and depression, as well as feelings of guilt or self-blame (Worden, 2009). Emotional aspects of grief are characterized by a variety of emotional responses, such as intense sadness, anger, disbelief, fear, and loneliness (Worden, 2009). Emotional intensity may fluctuate over time and can be influenced by factors such as the nature of the loss and the individual's coping mechanisms (Worden, 2009). Validating and expressing these emotions is essential for individuals to process and navigate their grief (Worden, 2009). Social aspects of grief have social dimensions that can impact an individual's support network and relationships (Neimeyer, 2006). The loss of a loved one or a significant life change can disrupt social connections, leading to feelings of isolation or detachment (Neimeyer, 2006). Social support plays a crucial role in the grieving process, providing comfort, understanding, and a sense of belonging (Neimeyer, 2006).

## **3. The Digital Era and its Impact on Communication and Social Interaction**

The digital age, characterized by the rapid advancement of technology and the widespread use of digital devices and platforms, has revolutionized various aspects of human life. It has significantly influenced human behavior, shaping the way we communicate, work, learn, and interact with the world



around us. The digital age has transformed the way we communicate and connect with others. Social media platforms, messaging apps, and video conferencing tools have expanded our reach and facilitated instant communication across distances. This has led to increased connectivity and the ability to maintain relationships regardless of geographical boundaries (Subrahmanyam et al., 2008). However, it has also raised concerns about the quality of these interactions, such as the potential for shallow connections and the impact of excessive screen time on face-to-face interactions. The internet has revolutionized access to information and knowledge. With a few clicks, we can retrieve vast amounts of data, research papers, and educational resources. This has democratized learning and provided opportunities for self-directed education and skill development (Boulos et al., 2011). However, the abundance of information also poses challenges in terms of information overload, credibility assessment, and the potential for misinformation and fake news. The digital age has transformed the way we work, providing flexibility, remote work options, and increased efficiency through digital tools and automation. It has also facilitated collaboration and communication across teams and organizations (Dabbagh & Kitsantas, 2012). However, it has also blurred the boundaries between work and personal life, leading to increased expectations for constant availability and potential burnout. The digital age has influenced cognitive processes and psychological well-being. Continuous exposure to digital devices and platforms has been associated with changes in attention span, multitasking abilities, and cognitive load (Rosen et al., 2013). It has also raised concerns about the impact of social media on mental health, including issues such as social comparison, cyberbullying, and addictive behaviors (Kuss & Griffiths, 2017).

The digital era has brought about significant transformations in the way people communicate and interact with one another. The advent of digital technologies and platforms has revolutionized the speed, reach, and modes of communication, leading to both positive and negative impacts on social interactions. Digital technologies, such as social media platforms, messaging apps, and video conferencing tools, have facilitated instant and global communication (Subrahmanyam et al., 2008). Individuals can connect with friends, family, and colleagues across distances, transcending geographical boundaries. This increased connectivity has expanded social networks and allowed for the maintenance of relationships regardless of physical proximity. The digital era has introduced a variety of communication modes beyond traditional face-to-face interactions. Text-based communication, such as email and instant messaging, has become prevalent, enabling asynchronous communication and the exchange of information at any time (Subrahmanyam et al., 2008). Additionally, audio and video communication tools have made real-time interactions possible, bridging the gap between physical distances. Digital platforms have provided individuals with opportunities to shape their online identities and self-presentation. Social media platforms, in particular, allow users to curate their profiles, share personal updates, and present themselves to others (boyd, 2008). This has led to the emergence of new social norms and practices related to self-disclosure, impression management, and online persona construction.

While digital communication offers convenience and efficiency, it also poses challenges to authenticity and intimacy in social interactions. The absence of non-verbal cues and contextual information in text-based communication can lead to misunderstandings and misinterpretations (Walther, 1996). Moreover, the public nature of many digital platforms can impact the depth and privacy of interpersonal exchanges. The digital era has reshaped the dynamics and nature of social relationships. Online social networks have enabled individuals to connect with like-minded individuals and form communities based on shared interests or identities (Boyd, 2008).

The digital era has had significant implications for grief experiences and expressions, providing new avenues for individuals to navigate the grieving process and connect with others who share similar experiences. Digital platforms have facilitated the creation of online support groups and communities where individuals experiencing grief can connect, share their stories, and find comfort and understanding (Kaplan & Saccente, 2017). These online spaces provide a sense of belonging and can be particularly helpful for those who may not have access to in-person support or who prefer the anonymity and flexibility of online interactions. The digital era has made it easier for individuals to access information and resources related to grief and loss. Online resources, such as articles, blogs, and videos, provide educational material and guidance on coping strategies, helping individuals navigate the grieving process (Lobb et al., 2010). Online platforms also offer access to professional grief counselors and therapists who provide virtual counseling services.

Digital platforms provide individuals with various ways to express their grief and honor the memory of their loved ones. Social media allows for the sharing of memories, photos, and tributes, creating virtual memorials (Kaplan & Saccente, 2017). Online memorial websites and forums provide spaces for individuals to create personalized memorials, share stories, and connect with others who are grieving

similar losses. The digital era has brought forth the concept of “digital remains,” referring to the digital footprints and online presence of individuals who have passed away. Managing and navigating these digital remains can pose challenges for grieving individuals and their families, as they may encounter reminders of their loss through social media notifications, emails, or digital accounts (Kaplan & Saccente, 2017). This highlights the need for individuals to consider their digital legacy and plan for the management of their online presence after death.

The digital era raises ethical and privacy concerns regarding the sharing of personal grief experiences online. While online support and sharing can be beneficial, individuals need to be mindful of their privacy and the potential consequences of sharing sensitive information in public digital spaces (Lobb et al., 2010). Respect for confidentiality and informed consent should be upheld in online grief support communities and virtual counseling services.

#### **4. Grief in the Digital Age: Transformations and Innovations**

Social media platforms play a significant role in the grieving process, providing individuals with new avenues for expressing their grief, connecting with others, and memorializing their loved ones. They allow individuals to express their grief openly and share their emotions with their network of friends and followers. They provide a space for individuals to post about their loss, share memories, and express their feelings of sadness, anger, or longing (Kaplan & Saccente, 2017). The public nature of social media platforms can provide a sense of validation and support from others who may offer condolences, empathy, or shared experiences.

Social media platforms enable individuals to connect with others who have experienced similar losses or are going through their own grief journeys. Online support groups, memorial pages, or hashtags related to grief and loss offer opportunities for individuals to find and connect with a community that understands their experiences (Kaplan & Saccente, 2017). These connections can provide comfort, validation, and a sense of belonging during the grieving process. They offer individuals the ability to create virtual memorials and preserve the memory of their loved ones. Through posts, photos, videos, and dedicated memorial pages, individuals can share and celebrate the life of the deceased (Kaplan & Saccente, 2017). These digital memorials serve as a lasting

In the digital age, social media platforms have become a common means of sharing news of loss and offering condolences. Individuals often turn to platforms like Facebook, Twitter, or Instagram to inform their network about the passing of a loved one and to receive support and condolences from friends and acquaintances. This online sharing allows for the efficient dissemination of information, reaching a wide audience quickly (Kaplan & Saccente, 2017). It also provides an opportunity for individuals to express their condolences, share memories, and offer support to the bereaved. Social media platforms have transformed the way mourning and memorialization are experienced and expressed. Virtual mourning refers to the act of grieving and expressing grief online, while virtual memorialization involves creating digital spaces to honor and remember the deceased (Brubaker & Hayes, 2011). Platforms like Facebook offer features such as memorialized profiles, where friends and family can continue to post messages, share photos, and commemorate special occasions in memory of the deceased (Brubaker et al., 2016).

Virtual mourning and memorialization provide individuals with ongoing opportunities to express their grief, share memories, and maintain a connection with the deceased. These digital spaces offer a sense of permanence and allow for collective mourning, as friends and family can contribute to the memorialization process (Gibbs et al., 2014). They also provide a platform for individuals who may not have physical access to a gravesite or traditional memorial location to engage in mourning practices.

Another interesting part of virtual grief are online support groups that play a significant role in providing support and comfort to grieving individuals. Online support groups offer individuals the opportunity to connect with others who have experienced similar losses and are going through the grieving process. These groups provide a sense of community, understanding, and validation, as members can share their stories, emotions, and challenges related to grief (Kaplan & Saccente, 2017). The accessibility of online support groups allows individuals to connect with others regardless of geographical location, providing a wider network of support. Online support groups often offer the option of anonymity, allowing individuals to share their experiences and emotions without revealing their identities. This anonymity can create a safe space for individuals to express themselves openly and honestly, without the fear of judgment or stigma (Kaplan & Saccente, 2017).

Some of the advantages of online support groups are accessibility and convenience. Online support groups provide individuals with the flexibility to access support at their own convenience, regardless of

*geographical location or time constraints (Kaplan & Saccente, 2017). This accessibility allows individuals to connect with others and seek support whenever they need it.*

*Also anonymity and privacy are very important features of online grieving. Online support groups often offer the option of anonymity, allowing individuals to share their experiences and emotions without revealing their identities (Kaplan & Saccente, 2017). This can create a safe space for individuals to express themselves openly and honestly, without the fear of judgment or stigma.*

*Online support groups bring together individuals from different backgrounds and experiences, providing a diverse range of perspectives and support (Kaplan & Saccente, 2017). This diversity can offer a broader understanding of grief and provide individuals with various coping strategies and insights. But there are also some disadvantages of online support groups like the lack the face-to-face interaction that can provide non-verbal cues, emotional connection, and a sense of physical presence (Kaplan & Saccente, 2017). This can limit the depth of interpersonal connections and emotional support. Also online support groups may contain misinformation or inaccurate advice, as the expertise and credibility of group members cannot always be verified (Kaplan & Saccente, 2017). It is important for individuals to critically evaluate information and consult professional sources when necessary. They may not provide the same level of personalized or tailored support as in-person support groups or individual therapy sessions (Kaplan & Saccente, 2017). The group format may not address specific individual needs or circumstances.*

*Anonymity is another concept in virtual grief support which refers to the ability for individuals to participate in online support groups or forums without revealing their identities. This anonymity can offer a sense of safety and privacy, allowing individuals to share their experiences and emotions more openly (Kaplan & Saccente, 2017). It can also reduce the fear of judgment or stigma that may be associated with discussing grief in a public or face-to-face setting. Virtual grief support provides a platform for individuals to connect with others who have experienced similar losses. These connections can offer a sense of belonging, validation, and understanding (Kaplan & Saccente, 2017). Through shared experiences and mutual support, individuals can feel less isolated in their grief and find comfort in knowing that they are not alone. The combination of anonymity and connection in virtual grief support can have several benefits. Anonymity allows individuals to share their stories and emotions honestly, without the fear of judgment or repercussions (Kaplan & Saccente, 2017). This can promote a sense of psychological safety and encourage individuals to express themselves more freely. Additionally, the connections formed in virtual grief support groups can provide emotional support, empathy, and validation, as individuals find solace in connecting with others who have gone through similar experiences (Kaplan & Saccente, 2017).:*

*Virtual memorials are also a very important part of online grieving which allows individuals to create lasting tributes to their loved ones in the digital realm. These memorials can include photos, videos, written messages, and stories that celebrate the life and legacy of the deceased (Brubaker et al., 2016). By curating and sharing these memories, individuals can keep the memory of their loved ones alive and create a space for ongoing remembrance. Virtual memorials provide a platform for friends, family, and acquaintances to come together and commemorate the life of the deceased. These digital spaces allow for collective grieving and sharing of condolences, memories, and support (Brubaker et al., 2016). They offer a sense of community and connection, even when physical gatherings may not be possible or practical. Virtual memorials are accessible to individuals regardless of their location or time constraints. They provide a permanent online presence that can be revisited and shared with future generations (Brubaker et al., 2016). This accessibility and permanence offer a sense of comfort and continuity, allowing individuals to revisit the memorial and continue their connection with the deceased over time. Virtual memorials can play a role in the healing process by providing a space for individuals to express their grief, share their emotions, and find solace in the support of others (Brubaker et al., 2016). Engaging with the memorial and connecting with others who are also grieving can offer a sense of validation, understanding, and comfort during the grieving process. Some types of virtual memorials and their functions social media platforms, such as Facebook, Instagram, and Twitter, offer features and options for creating virtual memorials. These memorials can include dedicated memorial pages, tribute posts, and the ability to share memories, photos, and stories (Brubaker et al., 2016). The function of social media memorials is to provide a space for friends, family, and acquaintances to come together, share their condolences, and commemorate the life of the deceased. There are also dedicated online memorial websites that allow individuals to create personalized virtual memorials. These websites often provide templates and tools for designing memorial pages, uploading photos, sharing stories, and lighting virtual candles or leaving virtual flowers (Brubaker et al., 2016). The function of online memorial websites is to offer a dedicated space for individuals to create a lasting tribute to their loved ones and invite others to engage in remembrance and commemoration. Virtual memorial gardens are digital spaces that replicate*



the concept of physical memorial gardens. These online environments allow individuals to create personalized memorials in a serene and peaceful setting. They often include features such as virtual flowers, trees, and benches, where visitors can leave messages or tributes (Brubaker et al., 2016). The function of virtual memorial gardens is to provide a tranquil space for reflection, remembrance, and connection with the deceased. Online obituary platforms and legacy websites offer individuals the ability to create digital obituaries and memorial pages. These platforms provide a place to share the life story, accomplishments, and memories of the deceased. They often allow for the posting of condolences, photos, and videos, as well as the option to light virtual candles or make donations in memory (Brubaker et al., 2016). The function of online obituaries and legacy websites is to provide a comprehensive tribute to the deceased and offer a space for friends, family, and the wider community to pay their respects and share their memories. The impact of virtual memorials on bereaved individuals and their grieving process is very important because virtual memorials provide emotional comfort and healing to bereaved individuals. They offer a space for expressing grief, sharing memories, and connecting with others who are also mourning the loss (Brubaker et al., 2016). Engaging with virtual memorials can provide a sense of solace, validation, and support during the grieving process. They offer a way to maintain a connection with the deceased over time. These digital spaces provide a permanent presence where individuals can revisit, add new memories, and engage with the memorial whenever they need to (Brubaker et al., 2016). This continuity of connection helps bereaved individuals feel a sense of ongoing relationship and closeness with their loved ones. Virtual memorials create a sense of community and support for bereaved individuals. Friends, family, and acquaintances can come together in these digital spaces to share condolences, memories, and messages of support (Brubaker et al., 2016). This collective grieving and support can provide a sense of belonging, understanding, and comfort during the grieving process. Virtual memorials play a role in preserving the legacy of the deceased. By sharing stories, photos, and videos, individuals can ensure that the memory of their loved ones lives on and is passed down to future generations (Brubaker et al., 2016). This preservation of legacy can bring a sense of pride and fulfillment to bereaved individuals. Engaging with virtual memorials can aid in the coping process for bereaved individuals. It provides an outlet for expressing emotions, reflecting on memories, and finding meaning in the loss (Brubaker et al., 2016). Virtual memorials offer a space for bereaved individuals to navigate their grief, process their emotions, and gradually adjust to their new reality.

#### **6. Psychological and Emotional Effects of Grief in the Digital Age**

In the digital age, individuals grieving the loss of a loved one face unique emotional experiences and challenges. The advancements in technology and the prevalence of online platforms have both positive and negative impacts on the grieving process. While online platforms provide a sense of connection, individuals may feel a lack of physical support from friends and family. The absence of physical presence during mourning rituals or the inability to receive comforting hugs can intensify feelings of isolation and loneliness. The digital age has made it difficult to escape reminders of the deceased. Social media platforms often display memories and photos of the person who has passed away, which can trigger intense emotions and prolong the grieving process.

Online platforms allow individuals to share their grief experiences openly, but this can lead to comparison and self-doubt. Seeing others seemingly coping better or moving on faster may intensify feelings of guilt or inadequacy in the grieving individual. Dealing with the deceased person's online presence can be emotionally challenging. Deciding whether to keep or delete their social media accounts, managing digital legacies, and receiving notifications or friend requests can be distressing reminders of the loss. Grieving individuals may face cyberbullying or negative interactions online. Insensitive comments, trolling, or harassment can exacerbate their emotional distress and hinder the healing process. The digital age blurs the boundaries between public and private grief. Sharing personal emotions and experiences online can lead to a loss of privacy and potential judgment from others, impacting the grieving individual's emotional well-being.

On the positive side, the digital age provides access to online support groups, forums, and resources for grieving individuals. These platforms offer a sense of community and understanding, allowing individuals to connect with others who have experienced similar losses. It is important to note that the experiences and challenges faced by individuals grieving in the digital age can vary greatly depending on personal circumstances and cultural factors. Seeking professional help from grief counselors or therapists can be beneficial for navigating these challenges and finding healthy ways to cope with grief.

If we make a comparison of grief experiences in offline and online contexts we see that offline contexts provide the opportunity for physical presence and support from friends, family, and the community. Hugs, comforting gestures, and face-to-face interactions can provide immediate comfort and



*a sense of connection. Offline grieving often involves traditional rituals and ceremonies, such as funerals or memorial services, which can help individuals process their grief and find closure. These rituals provide a structured and tangible way to honor the deceased. Offline grieving is typically confined to the immediate social circle and local community. While this can provide a sense of intimacy and support, it may limit exposure to diverse perspectives and resource.*

*The online context allows individuals to connect with a global community of support. Online platforms provide access to support groups, forums, and resources that offer understanding and empathy from individuals who have experienced similar losses. Online platforms offer a level of anonymity, allowing individuals to share their grief experiences openly without fear of judgment or stigma. This can create a safe space for expression and connection. Online platforms enable the creation of digital legacies and virtual memorials, such as memorial pages or dedicated websites. These platforms allow for ongoing remembrance and sharing of memories, providing a sense of continuity and connection. In the online context, individuals may encounter digital reminders of the deceased, such as social media memories or posts. These reminders can trigger intense emotions and potentially prolong the grieving process. It is important to note that offline and online grief experiences are not mutually exclusive, and individuals may engage in both contexts simultaneously. The choice between offline and online grieving may depend on personal preferences, cultural factors, and individual circumstances.*

#### **6. Coping Mechanisms and Support Systems in the Digital Age**

*In this part of the article we will explore some of the coping mechanisms utilized by individuals grieving in the digital age. Grieving individuals in the digital age often turn to online support groups and forums to connect with others who have experienced similar losses. These platforms provide a sense of community, understanding, and validation, allowing individuals to share their stories, emotions, and coping strategies. Creating digital stories or memorializing the deceased through online platforms can be a coping mechanism for grieving individuals. Sharing memories, photos, and videos can help them process their grief, maintain a connection with the deceased, and find comfort in preserving their legacy. The digital age offers various online counseling and therapy options that can be accessed from the comfort of one's home. Grieving individuals may seek professional help through virtual therapy sessions or online grief counseling to receive guidance, support, and coping strategies. Grieving individuals may utilize mindfulness and meditation apps to help manage their emotions and reduce stress. These apps offer guided meditations, breathing exercises, and relaxation techniques that can promote emotional well-being and provide a sense of calm during the grieving process. Writing about their grief experiences in online journals or blogs can be a therapeutic outlet for grieving individuals. Expressing their thoughts, emotions, and reflections in a digital format allows them to process their grief, gain insights, and receive support from readers. Some individuals may find it helpful to limit their exposure to social media platforms or adjust their settings to minimize digital reminders of the deceased. This coping mechanism allows them to create boundaries and reduce potential triggers that could intensify their grief. Online memorial events, such as virtual memorial services or candlelight vigils, provide grieving individuals with an opportunity to come together virtually to honor their loved ones. These events offer a sense of connection, support, and collective grieving.*

*The role of online communities and peer support in the grieving process is also significant, providing individuals with a virtual space to connect, share experiences, and receive support from others who have gone through similar losses. Online communities and peer support groups offer a sense of belonging for grieving individuals. They provide a safe space where individuals can share their stories, emotions, and challenges without fear of judgment. This validation and understanding from others who have experienced similar losses can be comforting and help individuals feel less alone in their grief journey. Online communities allow individuals to connect with others who have gone through similar losses. This shared experience fosters empathy and understanding, as members can relate to one another's emotions, struggles, and coping strategies. This mutual support can provide a sense of comfort and validation. Online communities and peer support groups are accessible 24/7, allowing individuals to seek support and connect with others at any time. This availability is particularly beneficial for those who may have limited offline support or face geographical barriers that prevent physical attendance at support groups. Online platforms often offer the option of anonymity, allowing individuals to share their grief experiences without revealing their identities. This anonymity can reduce the stigma associated with grief and create a safe space for individuals to express their emotions openly. Online communities provide access to a diverse range of perspectives, experiences, and coping strategies. Members can exchange information about helpful resources, books, therapy techniques, or self-care practices, offering a wealth of knowledge and support. Online communities can foster long-term connections and friendships among grieving*

individuals. These connections can extend beyond the immediate grieving period, providing ongoing support and a sense of community even after the initial stages of grief.

Digital interventions and resources for grief support in the digital age have become increasingly prevalent and valuable. These interventions aim to provide accessible and convenient support for individuals navigating the grieving process. Online platforms, such as websites, mobile applications, and virtual support groups, offer a range of resources and tools. These may include guided grief therapy sessions, virtual counseling, mindfulness and meditation apps, grief-specific websites, online forums, and educational materials. For example, smartphone apps like "Talkspace" and "BetterHelp" provide virtual therapy sessions, while apps like "Calm" and "Headspace" offer guided meditations and relaxation techniques. Online grief support communities like "What's Your Grief" and "GriefShare" provide forums for individuals to connect with others and access information and resources. These digital interventions and resources can be beneficial in providing support, information, and coping strategies to individuals grieving in the digital age.

### **7. Ethical Considerations and Potential Negative Consequences**

Ethical considerations in the digital realm of grief are crucial to ensure the well-being and privacy of individuals navigating the grieving process. Some key ethical considerations include respecting individuals' privacy and obtaining informed consent are essential when engaging in online grief support. It is important for platforms and communities to clearly communicate their privacy policies, ensure confidentiality, and obtain consent for sharing personal information or stories. Online communities and support groups must foster a culture of sensitivity and empathy. Moderators and participants should be mindful of their language, tone, and responses to ensure they do not cause further harm or distress to grieving individuals. Platforms hosting online grief support communities should have responsible content moderation practices in place. This includes monitoring and addressing inappropriate or harmful content, preventing cyberbullying, and ensuring a safe and supportive environment for all participants. Online grief support communities should strive for authenticity and verification of members' identities and experiences. This helps maintain trust and credibility within the community, preventing potential misuse or exploitation. Recognizing and respecting cultural differences and diverse perspectives is crucial in the digital realm of grief. Online platforms should promote inclusivity and avoid cultural appropriation or insensitivity in their content and interactions. Online platforms and resources for grief support should handle personal data responsibly and securely. They should have clear policies on data protection, ensuring that individuals' personal information is not misused or shared without consent. By addressing these ethical considerations, the digital realm of grief can provide a supportive and safe environment for individuals to navigate their grief journey.

Grieving in the digital age can have potential negative consequences that individuals should be aware of. Engaging in online grief support communities or sharing personal experiences on social media platforms can expose individuals to the risk of online harassment or trolling. Negative comments, insensitive responses, or cyberbullying can exacerbate grief and emotional distress. The digital realm can be a breeding ground for false information and misinformation, including myths and misconceptions about grief. Individuals may come across inaccurate advice or misleading content that can hinder their healing process and lead to confusion or frustration. Social media platforms often present curated versions of people's lives, leading to the "highlight reel" effect. When grieving individuals compare their own experiences to seemingly idealized portrayals of others' lives, it can intensify feelings of inadequacy, isolation, and a sense that their grief is not "normal". Over-reliance on online grief support can potentially lead to a disconnection from offline support networks. While online communities can be beneficial, it is important to maintain a balance and ensure that individuals continue to seek support from their immediate social circle and engage in offline coping mechanisms. The digital age can present individuals with unexpected digital reminders of their loss, such as social media memories, tagged photos, or messages from the deceased. These reminders can be emotionally triggering and potentially prolong the grieving process.

Balancing privacy, authenticity, and public expression in online grieving is a complex and individualized process. While some individuals may find solace in openly expressing their grief online, others may prioritize privacy and authenticity. Online grieving involves navigating the tension between sharing personal experiences and maintaining privacy. It is important for individuals to carefully consider the level of personal information they disclose and be mindful of potential risks associated with sharing sensitive details in the public domain. Authenticity is highly valued in online grieving, as it fosters genuine connections and support. Sharing one's raw emotions and vulnerabilities can create a sense of authenticity, but individuals should also be cautious about oversharing and consider the potential impact

on their emotional well-being. Balancing public expression and privacy often involves selective sharing. Individuals may choose to share certain aspects of their grief journey while setting boundaries on what they want to keep private. This allows for a sense of control over personal narratives and protects sensitive information. Online grieving can leave a lasting digital legacy, as shared content may remain accessible indefinitely. Individuals should consider the long-term implications of their public expressions of grief.

## 8. Conclusions

The digital age has undeniably transformed human behavior in various domains, presenting both opportunities and challenges. It has revolutionized communication, expanded access to information, transformed work practices, and influenced cognitive and psychological processes. Understanding these influences is crucial for individuals and society to navigate the digital landscape mindfully and harness its potential for positive outcomes. Individuals utilize digital platforms, particularly social media, in various ways to express and share their grief experiences

1. Sharing memories and tributes, seeking emotional support, connecting with others who have experienced similar losses, raising awareness and advocacy and finding resources and information.

The digital age has significantly influenced the creation and maintenance of virtual memorials and legacies. Digital platforms provide dedicated spaces for creating and maintaining virtual memorials. Websites and applications specifically designed for this purpose allow individuals to create personalized memorial pages, upload photos and videos, share stories and memories, and invite others to contribute and pay tribute to the deceased. Social media platforms have become popular spaces for creating and maintaining virtual memorials. Friends and family members often create memorialized profiles or dedicated pages to share memories, photos, and messages related to the deceased. These platforms enable ongoing interactions and engagement, allowing individuals to revisit and contribute to the memorial over time. The digital age has facilitated the creation of multimedia-rich and interactive memorial content. Through videos, slideshows, audio recordings, and written narratives, individuals can create dynamic and engaging digital stories that capture and preserve the essence of the deceased's life and legacy. Virtual memorials and legacies created in the digital realm are accessible globally. Friends, family members, and acquaintances from different parts of the world can engage with and contribute to these digital memorials, fostering a sense of connection and community across geographical boundaries. Digital platforms offer the advantage of preserving virtual memorials indefinitely. Unlike physical memorials that may deteriorate over time, digital memorials can be accessed and maintained for generations to come, ensuring the longevity of the deceased's memory and legacy. The digital age has revolutionized the creation and maintenance of virtual memorials and legacies, providing new opportunities for personalization, interactivity, and global connectivity in preserving the memory of loved ones.

The digital landscape has had a significant impact on the support networks available to individuals experiencing grief. The digital network has made grief support more accessible to individuals. Online platforms and resources provide convenient access to support networks, regardless of geographical location or time constraints. This allows individuals to connect with others, access information, and seek support at their own convenience. Digital platforms have expanded the reach of support networks, enabling individuals to connect with a wider range of people who have experienced similar losses or are trained in grief support. Online grief support communities, social media groups, and forums provide opportunities for individuals to connect, share experiences, and receive support from a diverse network of individuals. The digital landscape allows individuals to seek support anonymously or with reduced stigma. Online platforms provide a level of anonymity that can make it easier for individuals to open up about their grief experiences and seek support without fear of judgment or stigma. It offers a wide range of support resources for individuals experiencing grief. These resources include online counseling services, grief-specific websites, educational materials, virtual support groups, and smartphone applications. Individuals can access a variety of resources that cater to their specific needs, preferences, and cultural backgrounds.

Digital platforms enable real-time support and immediate responses to individuals in need.

However the shift from traditional to digital modes of grieving has several societal implications leading to the emergence of new rituals and practices surrounding grief. Online memorials, virtual candle-lighting ceremonies, and digital remembrance events are examples of how individuals are adapting their grieving practices to the digital realm. This shift can impact traditional funeral customs and alter societal expectations around mourning and commemoration and has also facilitated global connectivity and support networks for grieving individuals. Online platforms allow individuals to connect



with others from different parts of the world, fostering a sense of community and understanding. This global connectivity can provide diverse perspectives, cultural exchange, and a broader support network for those experiencing grief. The digital age has enabled the creation and preservation of digital legacies. Individuals can leave behind a digital footprint through social media profiles, blogs, and online memorials. This has implications for how individuals are remembered and how their legacies are preserved and accessed by future generations. Digital modes of grieving provide individuals with a public platform for expressing their grief. Social media allows for public sharing of personal experiences, emotions, and memories. While this can provide a sense of validation and support, it also raises questions about the boundaries between private and public grieving and the potential impact on individuals' emotional well-being. The shift to digital modes of grieving raises ethical considerations and the need for digital etiquette. Issues such as privacy, responsible content moderation, cyberbullying, and the appropriate use of digital legacies require careful consideration to ensure the well-being and dignity of grieving individuals in the digital realm.

Understanding and addressing grief in the digital age requires recognizing the unique implications and adapting support systems accordingly.

1. *Evolving grief experiences:* The digital age has transformed how individuals experience and express grief. It is important to acknowledge the evolving nature of grief in the digital realm and understand the impact of technology on mourning practices and coping mechanisms.

2. *Accessible support and resources:* The digital age offers opportunities for increased accessibility to grief support and resources. Online platforms, virtual counseling, and digital interventions can provide convenient and flexible options for individuals seeking support during their grieving process.

3. *Ethical considerations:* The digital realm of grief raises ethical considerations, such as privacy, responsible content moderation, and cultural sensitivity. It is crucial to address these ethical considerations to ensure the well-being and safety of individuals navigating grief in online spaces.

4. *Diverse perspectives and experiences:* Online platforms provide opportunities for individuals from diverse backgrounds and experiences to share their grief journeys. Understanding and embracing these diverse perspectives can enrich support systems and promote inclusivity in addressing grief in the digital age.

5. *Research and evidence-based interventions:* As the digital landscape continues to evolve, research is needed to explore the effectiveness and impact of digital interventions and resources for grief support. Evidence-based approaches can guide the development of innovative and tailored interventions to address grief in the digital age.

Future research and exploration in the area of grief in the digital age can further enhance our understanding and support for individuals navigating the grieving process. *Long-term effects of online grieving:* Investigate the long-term effects of engaging in online grieving, including the impact on bereavement outcomes, mental health, and overall well-being. Longitudinal studies can provide insights into the potential benefits and risks associated with prolonged online grieving.

- *Effectiveness of digital interventions:* Conduct rigorous research to evaluate the effectiveness of digital interventions and resources for grief support. Randomized controlled trials and comparative studies can assess the efficacy of various digital platforms, apps, and interventions in promoting coping strategies, reducing distress, and facilitating healing.

- *Online community dynamics:* Explore the dynamics and social support processes within online grief communities. Investigate the factors that contribute to the formation of supportive relationships, the role of moderators, and the impact of peer support on individuals' grief experiences and outcomes.

- *Cultural and cross-cultural perspectives:* Examine the cultural influences on online grieving practices and experiences. Investigate how cultural factors shape the expression of grief in the digital realm and explore cross-cultural differences in the use of online platforms for grief support.

- *Ethical considerations and guidelines:* Develop comprehensive ethical guidelines and best practices for online grief support. Research can inform the development of guidelines that address privacy concerns, responsible content moderation, cultural sensitivity, and informed consent in the digital realm of grief.

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**MINDFULNESS INTERVENTIONS: EVIDENCE & APPLICATIONS FOR STRESS & WELL-BEING****Erjona Molla**

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**Abstract**

*Mindfulness interventions seek to cultivate a receptive and non-judgmental awareness of one's thoughts and emotions, including a mindful observation of the mental and physical sensations that arise during periods of heightened anxiety or depression. This comprehensive review explores the effectiveness and applications of mindfulness-based interventions (MBIs) for stress reduction and emotional well-being across diverse populations and settings. Drawing from a systematic literature search encompassing academic databases, studies examining the efficacy of MBIs in clinical and non-clinical populations were analyzed. In clinical contexts, MBIs, including Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT), demonstrate promising outcomes in reducing symptoms of anxiety and depression, enhancing coping mechanisms, and preventing relapse. Mechanisms underlying the benefits of MBIs encompass neurobiological, cognitive, and physiological processes, promoting emotion regulation, attentional control, and physiological equilibrium. In non-clinical settings such as workplaces and educational institutions, MBIs offer strategies for fostering resilience, improving job satisfaction, and enhancing student well-being. Challenges in implementing MBIs include accessibility barriers and maintaining participant engagement, while future research directions include investigating long-term effects, cultural adaptations, and optimal dosage and duration of MBI programs. Recommendations for practitioners, policymakers, and researchers emphasize the integration of evidence-based mindfulness practices into clinical care, advocacy for accessibility, and rigorous evaluation of intervention protocols. Overall, this review underscores the transformative potential of MBIs in promoting holistic well-being and resilience amidst contemporary challenges. In conclusion, the evidence presented in this review underscores the transformative potential of MBIs in promoting stress reduction and emotional well-being.*

**Keywords:** Mindfulness, interventions, anxiety and depression, well-being

**1. Introduction**

*Mindfulness-based interventions (MBIs) have gained increasing recognition and popularity in recent years as effective approaches for addressing stress and promoting emotional well-being. These interventions draw from the principles of mindfulness, which involve cultivating present-moment awareness, acceptance, and non-judgmental attention to one's thoughts, feelings, and sensations (Allen, Romate & Rajkumar, 2021). Mindfulness, rooted in Buddhist philosophy, has been adapted into secular practices and therapeutic techniques. It emphasizes the cultivation of a mindful attitude characterized by awareness, acceptance, and openness to the present moment. Mindfulness practices often include meditation, body scans, and mindful movement, which aim to foster greater self-awareness and emotional regulation.*

*The scientific interest in mindfulness and its well-being-related outcomes keeps expanding. However, little attention has been directed to the relationship between mindfulness and symptoms of cognitive and somatic anxiety specifically. Cognitive symptoms of anxiety include feelings of tension, rumination, and negative thoughts, while somatic symptoms include sweating, hyperventilation, elevated heart rate, and blood pressure (Gelenberg, 2000; Ooms et al., 2012). It is common for patients to experience anxiety without any signs of elevated autonomic arousal, and vice-versa, which is why it is important to assess both dimensions.*

*Regarding cognitive anxiety, researchers agree that mindfulness promotes positive mental health through emotion regulation processes. Parmentier et al (2019) found that mindfulness decreases symptoms of anxiety and depression in the general population by reducing rumination and worry, and by increasing cognitive reappraisal. Mindfulness may also significantly affect somatic symptoms of anxiety. Weilgosz et al (2016) found that long-term mindfulness is related to a slower respiration rate, a finding also supported by EEG spectral data (Ahani et al., 2014). Other physiological changes associated with mindfulness are decreased heart rate and blood pressure (Ditto et al., 2006; Voss et al., 2020).*

*Mindfulness has also been associated with positive self-esteem. (e.g., Brown & Ryan, 2003; Hinterman et al., 2012; ul Ayesha et al., 2020).*

*The primary aim of this paper is to conduct a comprehensive review of the existing literature on the effectiveness and applications of mindfulness-based interventions (MBIs) for stress reduction and the enhancement of emotional well-being. This paper seeks to provide insights into the potential benefits and limitations of MBIs in various contexts, including clinical settings, workplaces, educational institutions, and community programs.*

## **2. Review of Literature**

### **2.1. Effectiveness of MBIs in clinical populations**

*Mindfulness-based interventions (MBIs) have garnered considerable attention as promising adjunctive treatments for individuals diagnosed with anxiety disorders and depression. Studies investigating the effectiveness of MBIs in clinical populations have shown promising results, suggesting that mindfulness-based approaches may offer significant benefits in ameliorating symptoms and improving overall well-being.*

*In the realm of anxiety disorders, research has demonstrated that MBIs, such as Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT), hold the potential as effective interventions for reducing anxiety symptoms and enhancing coping mechanisms. For instance, a meta-analysis by Hofmann et al. (2010) revealed moderate to large effect sizes for the efficacy of MBIs in reducing symptoms of anxiety across various clinical populations. Moreover, a randomized controlled trial conducted by Hoge et al. (2013) found that individuals with generalized anxiety disorder who participated in an MBSR program exhibited significant reductions in anxiety symptoms and improvements in overall functioning compared to the control group.*

*Similarly, in the context of depression, MBIs have emerged as promising interventions for alleviating depressive symptoms and preventing relapse. Meta-analytic evidence, such as the work by Khoury et al. (2013), suggests that MBIs are associated with moderate to large effect sizes in reducing depressive symptoms among individuals diagnosed with major depressive disorder. Moreover, a landmark study by Segal et al. (2010) demonstrated that MBCT was effective in preventing relapse among individuals with recurrent depression, with participants in the MBCT group exhibiting a significantly lower risk of relapse compared to those in the control group.*

*The mechanisms underlying the effectiveness of MBIs in clinical populations are multifaceted and encompass various psychological and neurobiological processes. Mindfulness practices promote enhanced self-awareness, acceptance of present-moment experiences, and cognitive flexibility, which may help individuals disengage from maladaptive patterns of rumination and emotional reactivity characteristic of anxiety and depression (Hölzel et al., 2011; Gotink et al., 2016). Neuroimaging studies have also highlighted structural and functional changes in brain regions implicated in emotion regulation and stress response following mindfulness training (Tang et al., 2015). Despite the growing body of evidence supporting the efficacy of MBIs in clinical populations, several challenges and limitations persist. These include variability in intervention protocols, heterogeneity in participant characteristics, and the need for further research to elucidate optimal dosage and delivery formats of mindfulness-based programs.*

### **2.2. Effectiveness of MBIs in non-clinical populations**

*In recent years, there has been a burgeoning interest in the effectiveness of Mindfulness-Based Interventions (MBIs) not only in clinical populations but also in non-clinical settings such as workplace and educational environments. This expanding body of research suggests that MBIs hold promise as valuable tools for promoting well-being, reducing stress, and enhancing performance among individuals in various non-clinical contexts.*

*In workplace settings, where demands and stressors are often prevalent, MBIs have emerged as viable strategies for fostering employee resilience, improving job satisfaction, and enhancing overall organizational functioning. Studies investigating the impact of MBIs in workplace settings have demonstrated several noteworthy findings. For instance, a meta-analysis by Shonin et al. (2014) found that participation in mindfulness programs was associated with reduced levels of perceived stress and psychological distress among employees. Furthermore, research conducted by Hülshager et al. (2013) indicated that employees who underwent mindfulness training reported higher levels of job satisfaction and engagement compared to control groups.*

*The effectiveness of MBIs in workplace settings can be attributed to their capacity to cultivate greater self-awareness, emotional regulation, and interpersonal skills among employees (Glomb et al., 2011). By promoting mindfulness practices such as meditation and mindful breathing, individuals*



develop a heightened ability to manage workplace stressors and navigate challenging interpersonal dynamics.

In educational settings, MBIs have gained traction as innovative approaches to promoting student well-being, enhancing academic performance, and fostering positive learning environments. Research examining the impact of MBIs in educational contexts has yielded promising results. For example, a meta-analysis by Zenner et al. (2014) revealed that students who participated in mindfulness programs exhibited improvements in attention, self-regulation, and social-emotional skills compared to control groups. Similarly, a study by Schonert-Reichl et al. (2015) found that elementary school students who engaged in mindfulness-based activities demonstrated reductions in stress and improvements in emotional regulation and prosocial behavior. The benefits of MBIs in educational settings extend beyond student well-being to encompass teacher satisfaction, classroom climate, and academic achievement (Roeser et al., 2013). By integrating mindfulness practices into curricular and extracurricular activities, educational institutions have the potential to cultivate a culture of mindfulness that supports the holistic development of students and educators alike.

The effectiveness of MBIs in non-clinical populations can be attributed to various mechanisms of action that underlie their impact on well-being and performance. Mindfulness practices promote greater attentional control, cognitive flexibility, and emotion regulation, which are essential skills for navigating the complexities of modern life (Chiesa et al., 2013). Neuroscientific research has elucidated the neural mechanisms underlying the effects of mindfulness training, highlighting changes in brain regions implicated in attention, emotion processing, and self-awareness (Tang et al., 2015). By modulating neural circuits associated with stress reactivity and cognitive functioning, mindfulness practices facilitate adaptive responses to challenging situations and promote resilience in non-clinical populations.

The burgeoning literature on the effectiveness of MBIs in non-clinical populations underscores their potential as transformative tools for enhancing well-being and performance across diverse settings. Whether in workplace environments or educational institutions, MBIs offer a holistic approach to cultivating mindfulness, resilience, and interpersonal skills that are essential for thriving in today's fast-paced world. By integrating evidence-based mindfulness programs into organizational and educational practices, stakeholders can foster environments that support the flourishing of individuals and communities. Continued research efforts aimed at elucidating the mechanisms of action and optimizing the delivery of MBIs hold promise for advancing our understanding of their transformative potential in non-clinical settings.

### **2.3. Mechanisms of action underlying the benefits of MBIs**

Mindfulness-Based Interventions (MBIs) have gained increasing recognition for their effectiveness in promoting well-being and reducing psychological distress across diverse populations. The mechanisms underlying the benefits of MBIs are multifaceted and encompass various psychological, neural, and physiological processes. This comprehensive understanding of the mechanisms of action sheds light on how MBIs exert their therapeutic effects and informs the development of targeted interventions tailored to individual needs.

Neuroscientific research has provided compelling evidence for the neuroplasticity of the brain in response to mindfulness training. Functional magnetic resonance imaging (fMRI) studies have consistently demonstrated changes in brain regions implicated in attention, emotion regulation, and self-awareness following mindfulness-based interventions (Hölzel et al., 2011). For instance, increases in gray matter density have been observed in the prefrontal cortex, which plays a crucial role in executive functioning and cognitive control (Tang et al., 2015). Additionally, mindfulness practices have been associated with decreased activity in the amygdala, a key hub for processing emotional stimuli, suggesting enhanced emotion regulation and reduced reactivity to stressors (Tang et al., 2015).

One of the central mechanisms underlying the benefits of MBIs is the cultivation of emotion regulation skills. Mindfulness practices promote a non-judgmental awareness of present-moment experiences, allowing individuals to observe thoughts and emotions with greater clarity and equanimity (Hölzel et al., 2011). Through techniques such as mindful breathing and body scans, individuals learn to disengage from automatic patterns of reactivity and respond to emotional triggers with greater flexibility and compassion (Goldin & Gross, 2010). This enhanced capacity for emotion regulation has profound implications for mental health and well-being, facilitating adaptive coping strategies and reducing vulnerability to mood disorders (Hölzel et al., 2011).

Mindfulness training also influences various cognitive processes implicated in attentional control, cognitive flexibility, and working memory. By directing attention to present-moment experiences, individuals develop a heightened awareness of internal and external stimuli, allowing for more discerning

and intentional decision-making (Chiesa et al., 2013). Neurocognitive studies have shown that mindfulness practitioners exhibit improvements in sustained attention and inhibitory control, suggesting enhanced cognitive functioning and resilience in the face of distractions (Chiesa et al., 2013). Moreover, mindfulness practices foster a curious and non-reactive stance towards cognitive content, reducing rumination and enhancing metacognitive awareness (Hölzel et al., 2011). These cognitive shifts facilitate adaptive problem-solving and reduce cognitive biases associated with psychopathology (Chiesa et al., 2013).

Beyond changes in brain structure and function, MBIs exert profound effects on the autonomic nervous system and physiological stress response. Mindfulness practices have been associated with reductions in sympathetic arousal and cortisol levels, indicating a downregulation of the body's stress response system (Tang et al., 2015). By promoting parasympathetic dominance and enhancing vagal tone, mindfulness training induces a state of relaxation and physiological equilibrium conducive to health and well-being (Tang et al., 2015). Furthermore, research has shown that mindfulness-based interventions can modulate inflammatory pathways and immune function, highlighting the interconnectedness between mental and physical health (Creswell et al., 2016).

#### **2.4. Comparison of different types of MBIs**

Comparing various types of Mindfulness-Based Interventions (MBIs), such as Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT), offers insights into their unique approaches and effectiveness in addressing diverse psychological conditions.

MBSR, developed by Kabat-Zinn (1982), focuses on cultivating non-judgmental awareness of present-moment experiences through mindfulness meditation, body scans, and yoga practices. It aims to reduce stress and enhance well-being by fostering acceptance and equanimity in the face of challenging circumstances (Kabat-Zinn, 1990). MBCT, originally designed to prevent depressive relapse (Segal et al., 2002), integrates elements of cognitive therapy with mindfulness practices to target cognitive reactivity and negative thought patterns characteristic of depression. By enhancing metacognitive awareness and promoting decentering from depressive rumination, MBCT aims to reduce relapse rates and improve emotional regulation (Segal et al., 2018). Comparative studies have explored the differential effects of MBSR and MBCT on various outcomes. For instance, a meta-analysis by Goldberg et al. (2018) found that both MBSR and MBCT were effective in reducing symptoms of depression and anxiety, with MBCT showing greater efficacy in preventing depressive relapse. Moreover, a systematic review by Piet et al. (2011) highlighted the versatility of MBSR in addressing a wide range of psychological and physical health conditions, whereas MBCT demonstrated specificity in targeting depression and related mood disorders.

Overall, while MBSR and MBCT share common roots in mindfulness practice, they diverge in their theoretical frameworks and therapeutic targets. MBSR emphasizes acceptance and non-reactivity to stressors, whereas MBCT integrates cognitive restructuring techniques to address cognitive biases and maladaptive thought patterns. Understanding the nuanced differences between MBSR and MBCT can inform clinical decision-making and optimize treatment outcomes for individuals with diverse mental health needs.

### **3. Method**

In conducting the literature review on mindfulness-based interventions (MBIs) for stress reduction and emotional well-being, a systematic approach was adopted to identify relevant studies and synthesize their findings. The methodological framework encompassed several key components to ensure transparency and rigor in the review process. Firstly, a comprehensive search strategy was devised to identify pertinent literature across various academic databases. Databases such as PubMed, PsycINFO, and Google Scholar were systematically searched using a combination of relevant keywords and search terms related to mindfulness, stress reduction, and emotional well-being. Inclusion criteria were established to guide the selection of studies for review. These criteria encompassed factors such as the publication date range, language of publication, study design (including randomized controlled trials, and qualitative studies), and target populations (including clinical and non-clinical samples). Upon identifying potential studies, data extraction procedures were employed to retrieve pertinent information from each selected study. Data extraction encompassed key details such as study design, sample characteristics, intervention specifications, outcome measures, and significant findings related to the effectiveness of MBIs in stress reduction and emotional well-being enhancement. Quality assessment protocols were implemented to evaluate the rigor and trustworthiness of the included studies. For quantitative studies, risk bias-assessment tools were utilized to ascertain the methodological quality and internal validity of

the research. Similarly, criteria for evaluating the trustworthiness of qualitative research were applied to qualitative studies included in the review.

Following data extraction and quality assessment, a systematic approach to data synthesis was undertaken. Depending on the nature of the literature, data synthesis methods included thematic analysis, meta-analysis, or narrative synthesis to integrate findings across studies and identify overarching themes and patterns related to the effectiveness and applications of MBIs. Finally, limitations inherent in the review process were acknowledged and discussed. These limitations encompassed factors such as potential publication bias, language restrictions, and challenges associated with synthesizing heterogeneous study designs. In summary, the method section provided a structured and transparent overview of the procedures and methodologies employed in conducting the literature review on MBIs for stress reduction and emotional well-being. By adhering to systematic methodologies, the review aimed to enhance the reliability and validity of the findings presented in the paper.

#### **4. Challenges and Future Directions**

Implementing and disseminating Mindfulness-Based Interventions (MBIs) face several challenges and offer avenues for future research.

Access to MBIs remains limited due to various factors such as cost, geographic location, and cultural barriers. Many individuals, especially those in underserved communities, may lack access to MBI programs, hindering their ability to benefit from mindfulness practices. Additionally, there is a need to address issues related to stigma and misconceptions surrounding mindfulness, which may deter individuals from seeking or engaging in MBI programs.

Furthermore, maintaining participant engagement and adherence to mindfulness practices poses a significant challenge. High attrition rates and difficulties in sustaining practice outside of formal sessions reduce the effectiveness of MBI programs. Standardization of intervention protocols and teacher qualifications is also crucial to ensure quality and consistency across different programs and settings.

#### **5. Conclusion**

In summary, the literature review highlights the effectiveness of Mindfulness-Based Interventions (MBIs) in promoting stress reduction and enhancing emotional well-being across diverse populations and settings. Research consistently demonstrates that MBIs, such as Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT), are associated with reductions in symptoms of anxiety, depression, and psychological distress, as well as improvements in overall well-being and quality of life.

The evidence underscores the potential of MBIs as valuable tools for addressing the growing burden of stress-related disorders and promoting mental health in both clinical and non-clinical populations. By cultivating mindfulness skills such as present-moment awareness, acceptance, and compassion, MBIs offer individuals practical strategies for managing stress, regulating emotions, and fostering resilience in the face of adversity.

For practitioners, policymakers, and researchers interested in implementing or studying MBIs, several recommendations emerge from the literature. Practitioners are encouraged to integrate evidence-based mindfulness programs into clinical practice and wellness initiatives, tailoring interventions to meet the specific needs and preferences of diverse populations. Policymakers play a crucial role in promoting the accessibility and affordability of MBIs by advocating for reimbursement policies, funding initiatives, and workforce training programs. Researchers are encouraged to pursue rigorous evaluation studies to further elucidate the mechanisms of action, optimize intervention protocols, and expand the evidence base supporting the efficacy and effectiveness of MBIs across different contexts and populations.

In conclusion, the evidence presented in this review underscores the transformative potential of MBIs in promoting stress reduction and emotional well-being. By embracing mindfulness as a core component of holistic health promotion, practitioners, policymakers, and researchers can contribute to the cultivation of thriving individuals and communities in an increasingly complex and demanding world.

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## Technical sciences

### **MATHEMATICAL ANALYSIS AND PRACTICAL APPLICATION OF VELOCITY AND ACCELERATION SENSORS IN STRUCTURAL DIAGNOSTICS**

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### **МАТЕМАТИЧНИЙ АНАЛІЗ ТА ПРАКТИЧНЕ ЗАСТОСУВАННЯ ДАТЧИКІВ ШВИДКОСТІ ТА ПРИСКОРЕННЯ У ДІАГНОСТИЦІ КОНСТРУКЦІЙ**

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#### **Abstract**

The paper discusses the use of speed and acceleration sensors for measuring and analyzing the dynamic characteristics of structures. Particular attention is paid to the mathematical description of the operation of these sensors and methods of processing the collected data, particularly the use of the Fast Fourier Transform method for analyzing the vibration spectrum. The paper also considers potential limitations in measurements and data processing that can affect the accuracy of determining the dynamic characteristics of structures. The work emphasizes the importance of precise measurement and analysis for ensuring the safety and reliability of structures.

#### **Анотація**

У роботі розглядається використання датчиків швидкості та прискорення для вимірювання та аналізу динамічних характеристик конструкцій. Особлива увага приділяється математичному опису роботи цих датчиків та методам обробки зібраних даних, зокрема, використанню методу швидкого перетворення Фур'є для аналізу спектра коливань. Розглядаються також потенційні обмеження у вимірюваннях і обробці даних, які можуть вплинути на точність визначення динамічних характеристик конструкцій. Робота акцентує важливість точного вимірювання та аналізу для забезпечення безпеки та надійності конструкцій.

Для підвищення достовірності визначення параметрів вимушених і власних коливань мостових конструкцій проводиться розділення методів та засобів, що застосовуються при їх статичних та динамічних випробуваннях. Це стосується не лише методів навантаження конструкцій, але й методів реєстрації інформації, включаючи і первинні перетворювачі, а також методів обробки інформації. В якості первинних перетворювачів для реєстрації коливань використовуються датчики прискорення [1-2] п'єзокерамічного типу та датчики швидкості [3-5] індукційного типу. Вони відрізняються між собою частотним діапазоном і чутливістю (коефіцієнтом перетворення). Їх вибір обумовлений тим, що вони володіють високою чутливістю за прискоренням і швидкістю (одиниці В/м/с<sup>2</sup> і десятки В/м/с), а також широким частотним діапазоном (до 1000 Гц). При цьому датчики мають малі габарити і вагу, і легко встановлюються в будь-якій потрібній точці конструкції. Дані переваги, включаючи габарити і вагу, забезпечили їх широке використання при технічній діагностиці конструкцій порівняно з датчиками переміщення (використовуються тільки в сейсмічних дослідженнях), незважаючи на те, що вони не дозволяють проводити безпосереднє визначення переміщень. В той же час, до недоліків датчиків даного типу слід також віднести обмежений частотний діапазон знизу, що

не дозволяє проводити їх використання при умові, коли частоти коливань конструкцій нижчі, ніж нижня гранична частота датчиків. Іншими недоліками датчиків, особливо датчиків прискорення, є використання додаткового живлення, що необхідно для забезпечення високої чутливості (наявність вбудованих підсилювачів у корпусі датчиків).

При використанні датчиків даного типу, як і в разі безпосереднього вимірювання переміщень, здійснюється реєстрація як динамічних, так і одночасно статичних і динамічних переміщень [6], накладених один на одного (рис. 1, а). Останній режим забезпечується завдяки конструктивним особливостям виготовлення застосовуваних датчиків. Обробка такого типу сигналу здійснюється з попередньою його фільтрацією для виділення лише динамічної складової (рис. 1, б), яка використовується далі для побудови спектра з визначенням основної резонансної частоти коливань конструкції та інших складових гармонік. Проте, як і в випадку вимірювання напружень та деформацій, вибір параметрів фільтрації результуючого сигналу не визначений через невизначеність, як резонансної частоти розвиваючихся коливань, так і нелінійності зміни "статичних переміщень", що залежать від швидкості переміщення навантаження, і впливають на результуючий сигнал. Це призводить до помилок визначення параметрів вимушених і власних коливань конструкцій, і, як наслідок, до помилок визначення їх механічних характеристик, що було зазначено вище.

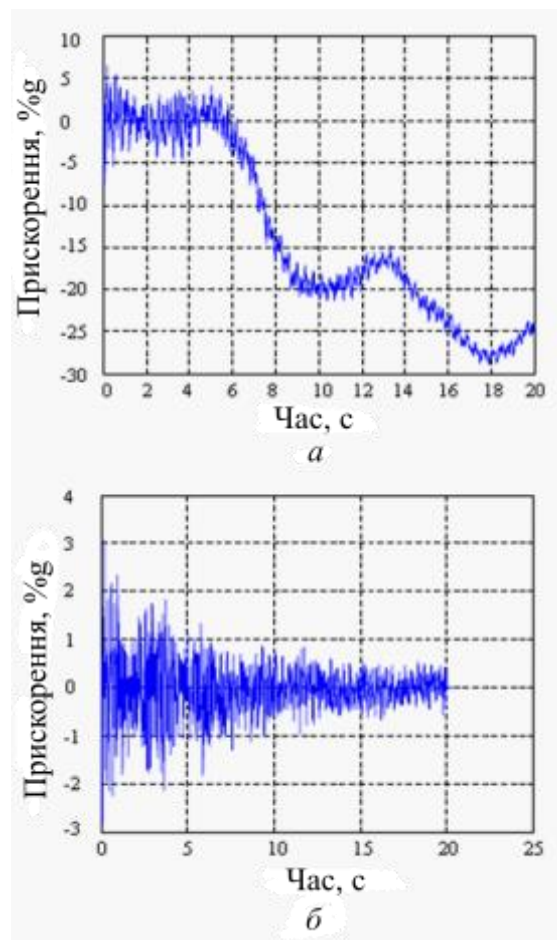


Рисунок 1. Результати реєстрації та обробки сигналу на виході датчика прискорення [6]: а – зміна сигналу в часі на виході акселерометра; б – зміна сигналу в часі після фільтрації.

Швидкість руху вантажівки 96 км/год.

І все ж, для отримання динамічного відклику конструкції, як при переміщуваних, так і ударних динамічних впливах, найбільше застосування мають звичайні датчики прискорення та швидкості. Сигнали на виході датчиків даного типу, у випадку переміщуваних динамічних навантажень, подібні до сигналу, показаного на рис. 1, б. При ударних навантаженнях, як правило, сигнали на виході датчиків представляють собою періодичні згасаючі сигнали. В обох випадках їх обробка спрямована на визначення максимальної динамічної відповіді (максимальної швидкості чи прискорення), а також на отримання спектральних характеристик реєстрованих сигналів. При побудові спектрів реєстрованих сигналів коливань застосовується стандартна процедура

перетворення сигналу з часової в частотну область з використанням швидкого перетворення Фур'є (ШПФ).

Якщо нам відома часова функція  $x(t)$ , то її переведення в частотну область здійснюється за допомогою інтегрального співвідношення [7]

$$y(f) = \int_{-\infty}^{\infty} x(t) e^{j2\pi ft} dt. \quad (1)$$

У випадку, якщо функція  $x(t)$  представляє собою послідовність дискретних величин  $x(i)$ , відповідних моментам часу  $i\Delta t$ , де  $i$ ,  $\Delta t$  - відповідно, номер елемента дискретної вибірки і інтервал дискретизації вхідного сигналу, то (1) запишеться у вигляді

$$y(f) = \Delta t \sum_{i=-\infty}^{\infty} x(i) e^{j2\pi fi\Delta t}. \quad (2)$$

Оскільки при проведенні вимірювань вхідного сигналу вибірка визначена на скінченному інтервалі дискретних значень часу, то (2) прийме вигляд

$$y(k) = \Delta t \sum_{i=0}^{N-1} x(i) e^{j2\pi ik / N}, \quad (3)$$

де  $k=0, 1, \dots, N-1$  – номер дискретної частоти.

Зазвичай, для обробки сигналів із проведенням даного перетворення та побудови спектрів використовуються стандартні пакети прикладних програм, наприклад MathCad. Отримані результати дозволяють визначати частоти виникаючих коливань та декремент затухання. Однак обмеження на обсяг дискретної вибірки вхідного сигналу (1024, 2048 або 4096 точок), з урахуванням інтервалу дискретизації, призводить до обмеження роздільної здатності (чутливості) за частотою, і, як наслідок, до помилок визначення частот коливань і декрементів затухання. У багатьох випадках обробка сигналів здійснюється без зміщення і з наявністю статичної складової, що призводить до такого представлення спектру, коли, крім частот, практично неможливо визначити інші характеристики коливань, наприклад, декремент затухання. Тому при обробці сигналів коливань із використанням датчиків прискорення та швидкості отримують обмежений набір параметрів. За початковими реєстрованими сигналами визначають коефіцієнт затухання, а за спектрами – частоти виникаючих коливань.

В роботі представлено, що важливим є точне вимірювання та аналіз параметрів вимушених та власних коливань мостових конструкцій. Для цього використовуються датчики прискорення та швидкості, кожен з яких має свої переваги та обмеження. Важливим аспектом є також обробка отриманих даних, зокрема, використання методу швидкого перетворення Фур'є для аналізу спектра коливань. Також показано обмеження, пов'язані з вимірюваннями та обробкою даних, такі як обмежені частотні діапазони датчиків та обмеження в роздільній здатності при аналізі сигналів. Ці обмеження можуть впливати на точність визначення механічних характеристик конструкцій, що є критично важливим для гарантування їх безпеки та надійності.

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## ASSESSMENT OF THE IMPACT OF CLIMATE CHANGES ON AZERBAIJANI FORESTS BASED ON GIS PROCESSING OF REMOTE SENSING DATA AND SATELLITE GEODETIC MEASUREMENT RESULTS

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### **Abstract**

Azerbaijan, like other countries of the world, takes a number of measures against global climate change. Against the background of global climate warming, regional changes also occur in its territory, data using 100-year observations of 16 meteorological stations in this territory of Azerbaijan are used to determine. The results of the analysis show that the increase in air temperature in the country was 0.5-0.6 °C during the 100-year period. In 1961-1990, the increase in the amount of heat was 0.3-0.6 °C.

Aware of the reality of this danger, about 150 countries of the world signed the United Nations Framework Convention on Climate Change in 1992 and the Kyoto Protocol to this Convention in 1997. The main goal of the convention is to stabilize the concentration of greenhouse gases in the atmosphere at a level that prevents dangerous anthropogenic effects on the climate system.

**Keywords:** climate change, forestry activity, vegetation cover, carbon stocks, remote sensing data

*The Republic of Azerbaijan approved the Framework Convention on January 10, 1995 [3].*

*For this project, work was carried out in the following main directions:*

- *Compilation of the national cadastre of anthropogenic impacts and greenhouse gas pollution;*
- *Evaluation of measures to limit anthropogenic emissions in various areas of economic activity and to prepare recommendations for the implementation of national policies in this area;*
- *Studies on assessing the impact and vulnerability of critical sectors of the ecosystem and economy and developing potential climate change adaptation measures.*

*In general, warming occurred in all natural zones of the country. The maximum warming is observed in the Greater Caucasus, the Kura-Araz plain (0.5-0.65°C), and the minimum - in the mountains of the Lesser Caucasus and the coastal regions of the Caspian Sea (0.14-0.2°C) (Fig. 1).*

*Using Azerbaijan's forest cover to increase carbon sequestration is a very important problem. From an organizational point of view, this requires an increase in the level of forestry, a detailed account of the many benefits provided by forests. To solve these tasks, it is necessary to significantly increase the value of forest production and find additional sources of its financing.*

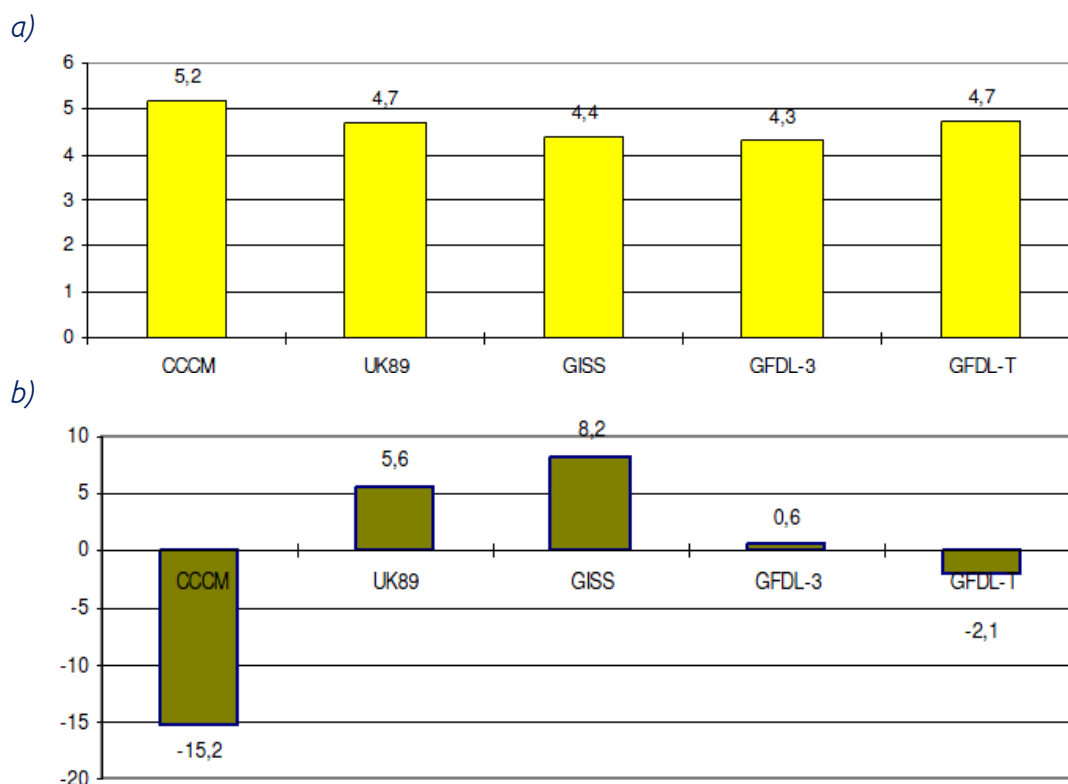


Figure 3.1. a) Graph of changes in temperature caused by the increase of carbon dioxide in the territory of Azerbaijan, b) Graph of changes in precipitation caused by the increase of carbon dioxide in the territory of Azerbaijan

Studies show that the carbon reserves in the forests of Azerbaijan are 60 million tons, and the annual deposit rate is 670 thousand tons. The results of the analysis show a serious deterioration in the state of Azerbaijan's forest fund in the last 10 years. In some cases, forests damaged by illegal activities have lost their ability to heal. The restoration of these forests requires significant costs and requires a series of forestry measures that ensure the efficient use of their resources and ecological potential. First, it requires the implementation of measures for forest protection, forest regeneration and reconstruction of low-density and low-value trees, improvement of the forest use system. The implementation of this complex of measures will optimize the age structure of forests, increase their productivity, and therefore create preconditions for increasing carbon dioxide. These measures will lead to an additional flow increase of 6,670 thousand tons by 2025.

The following table shows forestry activities until 2025 [5,9] (table 1).

Table 1.

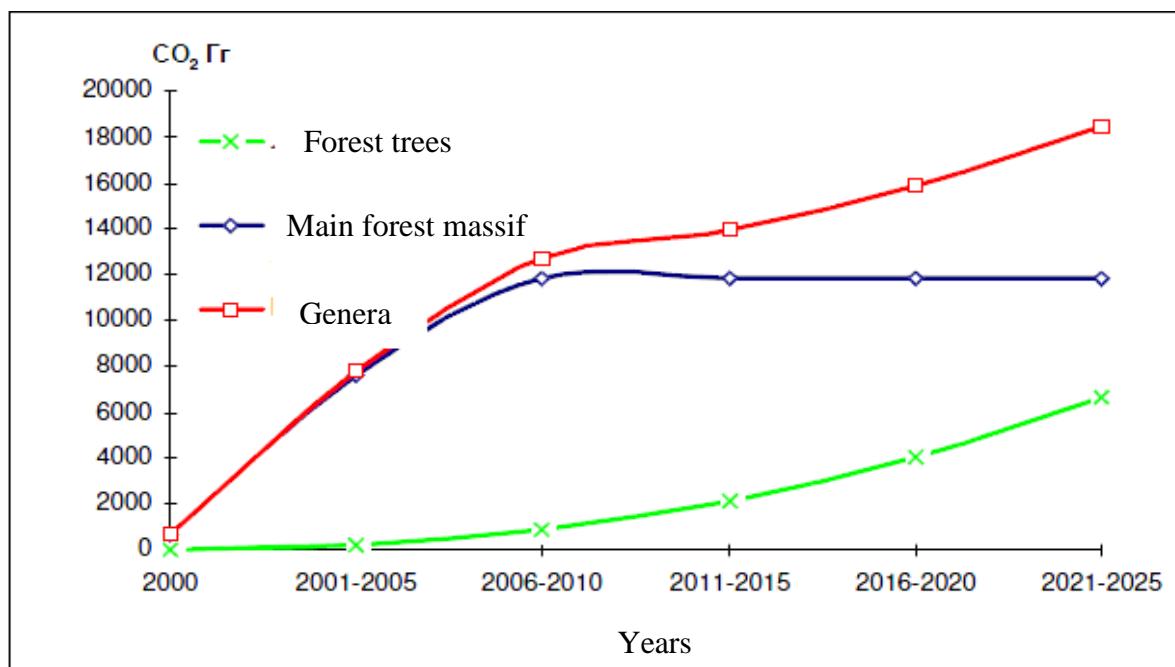
Forestry activities in Azerbaijan until 2025

Indicators	Years					
	2000	2001-2005	2006-2010	2011-2015	2016-2020	2021-2025
Forest trees (thousand hectares)	2.09	29.66	81.07	150.36	216.34	260.17
CO <sub>2</sub> absorption volume (thousand tons)	7.0	174	875	2080	4027	6670
Total costs (\$ million)	0.93	18.18	56.13	115.69	180.12	248.91
Cost of CO <sub>2</sub> absorption (\$ / t CO <sub>2</sub> )	133	104	64	56	45	37

The analysis shows that the most important and feasible measures for carbon dioxide sequestration are the increase of arable land and the planting of new forests. According to calculations, the implementation of measures designed to restore and increase biological productivity of forests, as well as to reduce illegal logging, will lead to an increase in CO<sub>2</sub> emissions by about 1.5 times in 2025. In 2025, the cost per ton of CO<sub>2</sub> has decreased by about 30% compared to 2000. Reforestation of low-level and low-value trees will significantly increase the structure and composition of forests and result in the

planting of new forests to achieve the country's optimal forest cover. Figure 2 shows the projected carbon dioxide emissions of existing forests and the proposed new trees.

As can be seen from the graph, according to expert calculations, the possible potential of forest restoration in Azerbaijan will reach approximately 740 thousand hectares by 2025. When all the works are completed, the total water flow from the forests for 25 years will be 7,056 thousand tons. Of these, 20% will be given to new farmland, and 80% to existing forests. Compared to the 1990 baseline, in 2025, total CO<sub>2</sub> in forests will increase by 2.1 times [1]. It should be noted that the potential of Azerbaijan's land resources creates an opportunity to increase the total volume of new farmland to 1,500 hectares.



**Figure 2. Projection of CO<sub>2</sub> flux due to forestry activities**

The low average growth and wood stock in the country's forests is associated with the low quality and low silt of forests, the presence of forestry, the spread of low-value species, suboptimal soil and climate conditions, and the presence of increasing negative anthropogenic impacts on forests. However, the climatic potential of the productivity of Azerbaijani forests is very high. Calculations show that with the implementation of all climate change scenarios, the climate index of the potential productivity of the republic's forests is 23-53%.

Vulnerability assessment is the self-regulation of the forest system under changing climate conditions. When assessing the vulnerability of forests to climate change, it can be determined that there will be significant changes in the climatic boundaries of forests, which may lead to further deterioration of zonal forests.

Great changes will occur with the reduction of the upper border of the forests in the Greater and Lesser Caucasus by 550-950 meters, and in Talish by 100-200 meters [6]. The lower border of forests, depending on the place of growth, can go up to 50-200 meters. At the same time, taking into account the modern anthropogenic load on the upper and lower forest boundaries, it can be assumed that the forest boundaries will not really change.

Thus, by changing the type of land on 13.5 thousand hectares and reducing the forest area by 7.6 thousand hectares, the total carbon reserves in the forest will decrease by 859.4 thousand tons compared to the base, the annual increase in carbon deposits will decrease by 10.3 thousand tons or about 2% [2,4,7]. The obtained results show that the future climate change will not significantly affect the existing limits, composition and productivity (table 2).



Table 2.

*Changes in carbon deposits*

<i>Gender</i>	<i>Occupying area, thousand ha</i>	<i>Carbon stock, thousand ha</i>	<i>Daily growth, thousand ha</i>
<i>Thick-leaved</i>	-17.3	-956.3	-11.2
<i>Coniferous</i>	-3.8	-111.7	-2.2
<i>Other breeds and shrubs</i>	13.5	208.6	3.1
<i>General</i>	-7.6	-859.4	-10.3

*Climate changes can lead to massive destruction of fir areas in forest areas. For this reason, sanitary and reforestation works are being carried out in those forests.*

*In the images below, the sources of deforestation caused by climate change have been determined using GIS technology using the above-mentioned space image processing methods (figure 3 and figure 4).*

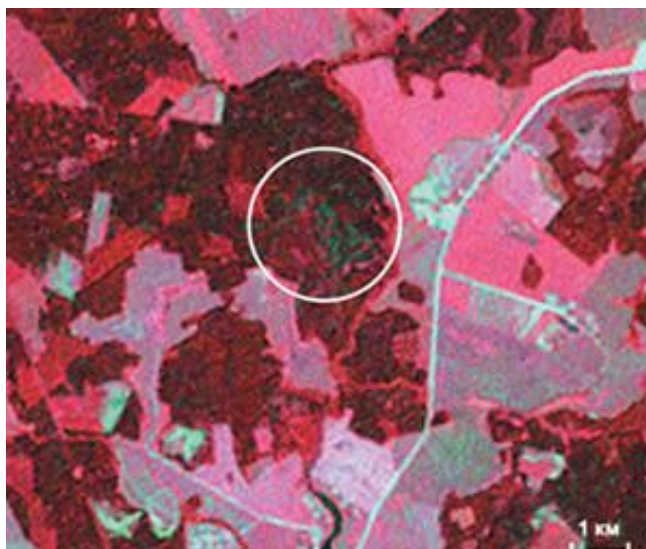


Figure 3. Sources of forest drying



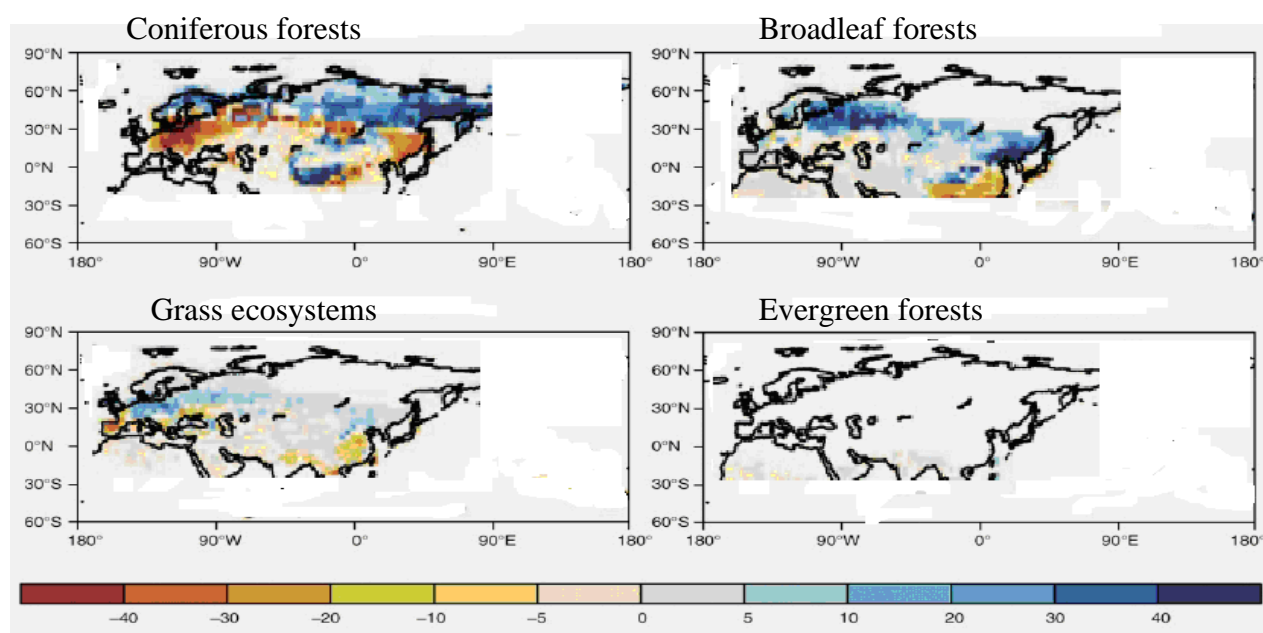
Figure 4. Deforested areas

*Every year, millions of cubic meters of forest areas are destroyed as a result of global climate changes, which are identified and revealed through modern techniques and radio communications. The hottest period in Azerbaijan dates back to 1976. Compared to 1961, the temperature was 2.1 degrees higher this year. In 1976-2012, the temperature was 0.043 °C/year higher. In the European part, the temperature increase was more.*

*The higher temperature fell in the central part of the country, about 0.030 °C / year. Practically, in the European part of the country in 1951-2012, the number of days with anomalous high temperature in winter (5-10 days) increased. In the north-western part of the country, the number of high temperature days in summer increased more. The number of days with low temperature is decreasing even more.*

The amount of annual precipitation increased more in the central parts of the country, while it decreased in the European part (up to 1.1 mm per month for 10 years). Precipitation in those regions increases only in spring and decreases in summer (up to -1.5 and 1.8 mm per month for 10 years). The information was processed using Arc GIS software and presented in the following figure. During such high temperatures, the reduction of precipitation in the summer has a negative effect on the moisture content of the forests, which creates conditions for the occurrence of forest fires.

One of the main indicators used based on the analysis of MZ data is the normalized vegetation index (NDVI), which is characterized by the photosynthetic activity of plants, area and biomass of leaves. In Azerbaijan, in 1981-1999, the length of the vegetation period increased by 14-22 days, which was related to the period of storage of leaves in trees [9]. Spatial correlations were determined between these changes and changes in spring, spring and the entire growing season temperature. However, when considering the response of individual regions and individual breeds, the effect of the growing season and its increasing temperature is not negligible.



**Figure 5. Change dynamics of vegetation types predicted until 2010 based on the RGB Climate model**

During 1976-2000, the annual average temperature trends in the region have been clearly expressed, the duration of leaf fall in grasslands and some plant species has increased [8]. In the south of the country, the high temperature increase in the autumn months, and the significant temperature change in the winter and spring months had a negative effect on the growth of coniferous trees in the forests. Such trends inevitably cause changes in the successional regime, resulting in a change in tree species composition.

Forecasting changes in forest boundaries. One of the predictive analyzes is the review of changes in the distribution boundaries of different types of vegetation, including forest cover [10]. In this case, bio-climatic models describing the distribution of biomass (vegetation) according to bio-classical parameters or global vegetation dynamics models can be used. This includes assessment of vegetation functional parameters such as primary production or carbon balance.

The boundaries of coniferous and broad-leaved forest trees and grasses are determined on the basis of space images and GIS technology and are shown in the following figure (Figure 5).

**The result.** In the eastern parts of Azerbaijan, the area of coniferous forests will decrease and desert ecosystems will expand. Other broad-leaved trees, such as oaks and lindens, will replace conifers. Areas covered by vegetation in the areas adjacent to the Caspian Sea will decrease, desertification processes will be accelerated.

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**ENVIRONMENTAL CHARACTERISTICS OF OIL-CONTAMINATED SOILS IN ABSHERON REGION****Jabiyeva Telli Elshad***Azerbaijan Architecture and Construction University, Department of Geomatics  
Baku city, A. Sultanova 11***Abstract**

*In the Republic of Azerbaijan, soil pollution with oil and oil waste occurs mainly on the Absheron Peninsula. As a result of the discharge of oil products and a large amount of oil drilling water to the surface, it also causes the rise of the groundwater level and repeated salinization of the soil. During 10 years of proper exploitation of oil fields in Absheron, oil extraction, discharge of oil, gas, chemical substances, strongly mineralized and radioactive dirty water to the surface of the earth without observing elementary requirements for environmental protection caused pollution and disturbance of separate landscape areas of Absheron peninsula.*

**Keywords:** *oil pollution, heavy metal pollution, man-made disturbed lands*

*Soils in Absheron region are grouped according to the degree of oil pollution as follows: lightly polluted, moderately polluted, heavily polluted lands. The amount of oil in the upper layer of the researched soils is 208-132 g/kg. Areas heavily polluted with oil in the region are heavy granular and sandy soils due to their mechanical composition. In these soils, the reaction of the environment (pH) is 7.5-8.8, humus is 1.14-0.9%, total nitrogen is 0.1-0.05%, phosphorus is 0.11-0.10%, the total amount of absorbed bases is 14 It is 5-16.0 mg.eq/100 grams.*

*Some indicators of the biological activity of oil-contaminated gray-brown soils of the Absheron Peninsula were studied, so that while the amount of microorganisms was 2870-2800 thousand/g in the uncontaminated soil, it was 500-350 thousand/g in the oil-contaminated soil, and the carbon dioxide (CO<sub>2</sub>) released from the soil air was 0.45-0.20%, 0.12-0.06% in polluted soil. This is due to poor aeration process in oil-contaminated soil.*

*The study of radioactive elements dangerous to human life in oil-contaminated soils is very interesting from the point of view of environmental protection. Soil radioactivity is characterized by the amount of radioactive elements in the soil.*

*Table 1 shows the amount of radioactive elements in the samples taken from the cuttings in Binagadi, Sabunchu, Surakhani and Azizbayov regions. In oil-polluted lands of Binagadi region, the amount of radium in 0-25 cm layer is  $1.1 \times 10^{-4}\%$ , in lower layers  $2.59 \times 10^{-4}\%$ , while thorium in 0-25 CM soil layer is undefined, in lower layers  $0.026 \times 10^{-4}\%$ ,  $2.05 \times 10^{-4}\%$ , hesitates within its limits. Natural radioactive elements are not equally distributed in different depths of oil-contaminated and uncontaminated gray-brown soils of the Absheron Peninsula.*

*Contamination of soil with heavy metals in the territory of Absheron region can occur for various reasons. As a result of heavy metal pollution, a large amount of toxic substances enter the soil. Since heavy metals accumulate in the soil in very different amounts, it is impossible to regulate the amount of these metals. Therefore, all factors occurring in the natural environment should be taken into account. Factors affecting the amount of heavy metals in soils are as follows: agrochemical properties of the soil, i.e. reaction of the environment, amount of humus, granulometric composition, etc. Depending on these indicators, the amount of heavy metals in the soil may increase or decrease.*

*Titanium - 100.0 mg/kg, chromium - 230 mg/kg, manganese - 600 mg/kg, nickel - 5.6 mg/kg, copper - 1.8 mg/kg in the top layer of the soil in the areas not polluted by oil of the Absheron Peninsula. In oil-polluted areas, the amount of titanium is 660-480 mg/kg, chromium 420-300 mg/kg, and manganese 1400-1100 mg/kg, depending on the pollution. Strontium reaches 200.0 mg/kg in oil-contaminated soils, while it is 100.0 mg/kg in the top layer of uncontaminated soil*



Table 1.

*Amount of radioactive elements in oil-contaminated gray-brown soils of Absheron*

Cut	Depth, cm	Uranium		Radium		Thorium		Potassium-40		Specific activity, Bk/kg
		10 <sup>-4</sup> %	Bk/kg	10 <sup>-4</sup> %	Bk/kg	10 <sup>-4</sup> %	Bk/kg	10 <sup>-4</sup> %	Bk/kg	
Binagadi district										
1	0-25	2,16	25,0	1,10	12,40	-	-	1,05	315,0	36,00
	25-60	2,00	20,00	-	-	0,026	0,105	0,45	0	16,00
	60-90	2,60	32,00	2,59	27,00	2,05	8,35	0,60	140,0	19,81
									0	
									206,0	
									6	
Sabunchu district										
2	0-27	1,32	16,0	0,85	11,0	0,65	2,75	0,90	269,0	35,00
	27-60	-	-	-	-	0,60	2,50	1,00	0	27,00
	60-93	1,10	21,0	1,24	15,30	0,60	-	0,65	300,0	30,00
	93-125	1,2	16,0	0,70	58,00	0,40	1,70	0,70	0	170,5
									195,2	
									5	
									205,8	
									0	
Surakhani district										
3	0-28	1,30	16,0	0,55	8,00	-	-	-	-	-
	28-60	-	-	0,90	12,4	3,00	3,02	0,30	87,00	14,00
	60-95	-	-	0,65	0,80	2,60	2,20	0,28	86,20	18,00
	95-127	-	-	0,35	4,10	4,00	4,10	0,50	180,9	45,70
	127-164	1,40	20,0	1,25	15,60	8,50	8,55	0,46	5	45,00
									165,4	
									0	
Azizbeyov district										
4	0-23	1,30	16,0	-	-	3,30	15,89	0,40	120,0	9,00
	23-53	-	-	-	-	1,25	5,05	0,40	120,0	8,85
	53-88	-	-	-	-	-	-	1,55	455,0	70,75

Respiratory diseases are the most common among children in and near areas of heavy oil pollution. In Binagadi region, the number of children infected with this disease was 6149, which is 40% of respiratory tract diseases registered in the region. It has been determined that there is a positive correlation between the amount of oil that causes pollution and the number of people infected with infectious, respiratory, digestive organs and blood circulation diseases in Binagadi, Sabunchu, Surakhani and Azizbayov regions whose lands are polluted with oil. (table 2).

Table 2.

*The relationship between the number of people infected with various diseases and the degree of pollution in oil-contaminated areas of the Absheron Peninsula*

Diseases (y)	Objects(x)	r	m <sub>r</sub>	The regression equation
Infectious diseases	Binagadi Soapmaker Surakhani Azizbeyov	+0,90	±0,09	y=0,15x-0,45
Respiratory diseases		+0,76	±0,21	y=0,28x-0,04
Diseases of digestive organs		+0,93	±0,07	y=0,18x-0,62
Blood circulation diseases		+0,89	±0,11	y=0,12x-1,19

**Note:** r-correlation coefficient; m<sub>r</sub>- the error of the correlation coefficient.

Considering the uncontrollability of oil-contaminated soils, the factors that shape fertility are grouped into the following blocks and sub-blocks.

1. Ecology block (relief, climate sub-blocks);
2. Soil composition block;
3. Block of land properties;
4. Block of sanitary and hygienic indicators;
5. Block of recultivation measures;
6. Land evaluation block.

Three models were developed for the polluted soils of the Absheron Peninsula, depending on the degree of oil pollution:

1. Fertility model of soils heavily polluted with oil (26.0-20.0%);
2. Fertility model of soils moderately polluted with oil (16.4-12.0%);
3. Fertility model of soils lightly polluted with oil (13.0-10.6%).

#### **Fertility Model of Oil Contaminated Soils:**

##### **I. Ecology block: relief -**

- 1) altitude of the area above sea level - 0-100 cm;
- 2) relief conditions - lowland; climate-total total radiation 130-133 kcal/cm<sup>2</sup>; average annual temperature 13.5-14.5°C;
- 3) precipitation – 129-311mm;
- 4) evaporation 922-1348mm.

##### **II. Soil composition block.**

##### **II.1. Soils heavily contaminated with oil:**

- 1) amount of oil - 26.0-20.0%;
- 2) humus (0-20cm) – 0.64-1.00%;
- 3) C;N-6,1-8,0;
- 4) nitrogen (0-20 cm) – 0.04-0.06 %;
- 5) UAC 14.5-16.0 mg-equiv/100g 6) pH 8.0-8.2.

##### **II.2. Soils moderately contaminated with oil:**

- 1) the amount of oil is 16.4-12.0%;
- 2) humus (0-20 cm) -1.14-1.00%;
- 3) C;N-7,7-7,5;
- 4) nitrogen (0-20cm) – 0.06-0.08%;
- 5) UAC-15.9-19.4 mg-eq/100 g;
- 6) pH 8.0-7.8.

##### **II.3. Soils lightly contaminated with oil:**

- 1) the amount of oil - 13.0-10.6%;
- 2) humus (0-20cm) 1.44-1.14%;
- 3) C;N – 6.2-6.0.

**III. Sanitary - hygienic indicators block.** Among the population living in and near heavily polluted areas with oil: 1) the number of respiratory diseases - 7.3%, in moderately polluted areas - 4.7%; in poorly polluted areas - 4.5%; 2) infected with infectious diseases: in heavily polluted areas with oil - 3.1%; in moderately polluted areas - 2.3%; in poorly polluted areas - 1.9%; 3) diseases of the digestive system: - 3.5% in areas heavily polluted with oil; -2.8% in moderately polluted areas; in poorly polluted areas - 1.8%; 4) circulatory diseases: -4.0% in heavily polluted areas with oil; -3.4% in moderately polluted areas; increased by 2.8% in poorly polluted areas.

##### **IV. Block of reclamation measures:**

- 1) physical recultivation - cleaning of the top layer of the soil from fuel oil using hydropumps;
  - 2) chemical reclamation - soil washing with high-quality absorbents, mineral and organic fertilizers;
  - 3) biological recultivation - planting of perennial herbaceous plants.
- Man-made disturbed lands.

Table 3

*Physical and agrochemical composition of man-made disturbed soils*

Types of impairment	Cut №	Depth, cm	Physical clay, mm< 0.01	Silt mm< 0.001	Humus, %	Total nitrogen, %	Absorbed nutrients, mg/kg		CO <sub>2</sub> , %	CaCO <sub>3</sub> , %
							P <sub>2</sub> O <sub>5</sub> reciprocal	K <sub>2</sub> O autonomous		
Land disturbed by the construction industry	11	0-40	72,32	32,24	1,19	0,17	11,4	196,3	4,60	10,5
		40-75	68,24	26,38	0,73	0,04	6,2	121,6	10,98	24,9
		75-100	73,30	8	0,14	0,02	3,6	82,4	15,35	34,9
				30,46						
Bituminous soils	12	0-10	71,44	44,32	0,98	0,07	5,8	92,0	4,26	9,63
		10-28	55,29	30,82	1,12	0,10	8,2	108,2	5,75	12,93
		28-60	56,83	34,13	0,30	0,02	6,7	145,2	10,18	22,10

As a result of the long-term use of stone quarries, oil and gas mines on the Absheron peninsula, the natural landscape and soil cover have been damaged, and a number of areas have become completely unusable. According to the conducted studies, such soils are observed more often in the surroundings of Baku Bay, around Bina, Zira, Mardakan, Bilgah, Surakhani, Azizbayov and Garadagh regions. 33,000 hectares (15.8%) of the territory of the peninsula were disturbed by oil and gas processing, and 5,200 hectares (2.5%) by exploitation of stone and sand quarries. The restoration of such lands requires a larger financial investment, and the restoration work should take a longer period of time. From our studies, it was found that in such soils, physical clay fluctuated between 68.24-73.32%, humus in the upper layers 1.19%, in the lower layers 0.14%, total nitrogen 0.17-0.02%, total absorbed bases 1.22-0.17% carbonation 15.35-4.60%. In areas covered with bitumen, these indicators fluctuated between 55.29-71.44% in physical clay, humus 0.30-1.12%, total nitrogen 0.02-0.07% carbonation 10.18-4.26%, total absorbed bases 1.17-0.41%.

**The result.** From the observations, it became known that the water contaminated with oily wastes was discharged to the fields on the Absheron Peninsula for a long time and caused the soil pollution of the peninsula. In some areas, as a result of the wear and tear of underground and surface communication lines, the lands here have been subjected to various degrees of man-made disturbances. In the surrounding areas of large cities such as Baku and Sumgait, it is used to build a large number of settlements on fertile land, build industrial complexes, build roads, under various communications, construction facilities, and water bodies. As a result, it causes the destruction of fertile lands. In recent years, as a result of the privatization of fertile lands by people, the construction of private houses and other social facilities has caused soil pollution to varying degrees.

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*UDC 625.12.033.38*



**TECHNOLOGY FOR LAND RECLAMATION DURING RAILROAD CONSTRUCTION****Kakharov Zaytzhon Vasidovich**Associate Professor of the Department of Railway Engineering  
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УДК 625.12.033.38

**ТЕХНОЛОГИЯ РЕКУЛЬТИВАЦИЯ ЗЕМЕЛЬ ПРИ СТРОИТЕЛЬСТВЕ ЖЕЛЕЗНЫХ ДОРОГ****Кахаров Зайтжан Васидович**доцент кафедры «Инженерия железных дорог»  
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Казахстан г. Туркестан**Abstract**

This article discusses the technology of land reclamation and adjacent territory during the construction of railways. The requirements and conditions for land allocation for the construction of railways, the area of land plots in accordance with the design and technical documentation are given.

**Аннотация**

В данной статье рассматривается технология рекультивации земель и прилегающей территории при строительстве железных дорог. Приведены требования и условия отвода земель для строительства железных дорог, площади земельных участков в соответствии с проектной и технической документацией.

**Keywords:** land acquisition, land plots, reclamation, biological stage of reclamation.**Ключевые слова:** отвод земли, земельные участки, рекультивация, биологического этапа рекультивации.

Рекультивация земель - это комплекс работ, направленных на восстановление продуктивности и народнохозяйственной ценности нарушенных и загрязненных земель, а также на улучшение условий окружающей среды [1].

Рекультивации подлежат нарушенные земли всех категорий, а также прилегающие земельные участки, полностью или частично утратившие продуктивность в результате отрицательного воздействия нарушенных земель.

Рекультивация земель является составной частью технологических процессов, связанных с нарушением земель и должна проводиться с учетом местных почвенно-климатических условий, степени повреждения и загрязнения, ландшафтно-геохимической характеристики нарушенных земель, конкретного участка, требований инструкции.

Рекультивируемые земли и прилегающая к ним территория после завершения всего комплекса работ должны представлять собой оптимально организованный и экологически сбалансированный устойчивый ландшафт [1].

При проведении биологического этапа рекультивации должны быть учтены требования к рекультивации земель по направлениям их использования.

Земельные участки в период осуществления биологической рекультивации в сельскохозяйственных и лесохозяйственных целях должны проходить стадию мелиоративной

подготовки, т.е. биологический этап должен осуществляться после полного завершения технического этапа.

Для успешного проведения биологической рекультивации важное значение имеют исследования флористического состава формирующихся сообществ, процессов восстановления фиторазнообразия на нарушенных промышленностью землях, когда катастрофически уничтожены почвенный и растительный покровы.

При строительстве железных дорог на стадии проектирования приходится решать сложный вопрос перераспределения земель между прежними и новыми землепользователями.

Строительством железных дорог, кроме изъятия земель, нарушаются внутрихозяйственное землеустройство и севообороты, создаются помехи в работе техники.

К землям транспорта принято относить земли, предоставленные предприятиям, учреждениям и организациям транспорта для осуществления возложенных на них специальных задач по эксплуатации, содержанию, строительству, реконструкции, ремонту, усовершенствованию и развитию сооружений, устройств и других объектов транспорта.

Размеры земельных участков, предоставляемых для указанных целей, определяются «Нормами отвода земель для железных дорог» (СН468-77) и проектно-технической документацией.

При строительстве железных дорог осуществляется отвод земли под постоянные и временные сооружения и коммуникации. Земля, отводимая под постоянные сооружения, изымается навечно, что приводит к сокращению этого компонента ландшафта со всеми вытекающими отсюда последствиями.

Железные и автомобильные дороги, каналы относят к линейным сооружениям. Строительство и эксплуатация линейных сооружений оказывают значительное воздействие на окружающую среду. В качестве примеров могут служить расчленение лесных массивов, нарушение режимов движения грунтовых вод, разрушение мест обитания и отсечение путей миграции животных, ухудшение микроклимата. Нарушение земель происходит, главным образом за счет устройства выемок и насыпей (рис.1). Земли, нарушенные при строительстве, характеризуются по форме рельефа как резервы, канавы, кюветы, кавальеры или дамбы. Как показывает практика глубина устраиваемых резервов достигает 5-10 м с заложением откосов  $m = 1$ , канав и кюветов – до 5 м с заложением откосов  $m = 2$  и более. Кавальеры и дамбы устраивают высотой до 15 м с заложением откосов  $m = 1$  и более.

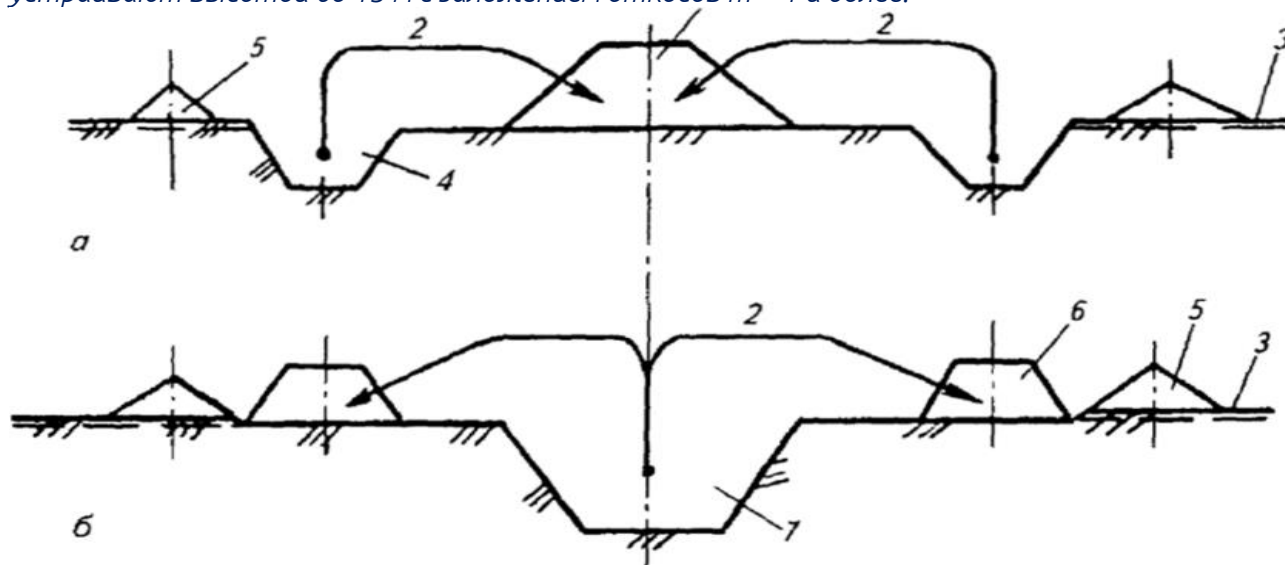


Рисунок 1. Элементы нарушенных земель по форме рельефа:

а – насыпи; б – выемки; 1 – насыпная часть линейного сооружения; 2 – направление перемещения грунта; 3 – слой почвенного грунта; 4 – резерв; 5 – кавальеры плодородного грунта; 6 – кавальеры минерального фунта; 7 – часть линейного сооружения, расположенная в выемке

Рекультивация земельных участков, занятых с/х или лесными угодьями должна обеспечивать восстановление плодородия земель. Поэтому набор работ по рекультивации будет зависеть от видов последующего использования нарушенных земель. Обводненные

резервы можно использовать под водоемы природоохранного назначения или для целей орошения и рыбоводства; сухие – под сенокосы и пастбища или лесонасаждения и задернованные участки природоохранного назначения; обводненные каналы и кюветы – под водоемы природоохранного назначения; сухие – под лесонасаждения и задернованные участки природоохранного назначения. Поверхности насыпных кавальеров и дамб можно использовать под лесонасаждения и задернованные участки природоохранного назначения. Перед началом строительства снимают плодородный слой почвы и перемещают его во временные отвалы, располагаемые вдоль строительной полосы.

После окончания строительных и планировочных работ почвенный грунт используют для рекультивации или землевания. На техническом этапе рекультивации земель проводят следующие работы: убирают строительный мусор, разбирают временные сооружения и устройства, удаляют отвалы за пределы строительной полосы; выполняют обратную засыпку траншей трубопроводов грунтом с образованием валика, обеспечивающего ровную поверхность после самоуплотнения грунта. Оставшийся избыточный грунт разравнивают равномерным слоем по рекультивируемой площади или вывозят в специально отведенные места; планируют откосы кавальеров, насыпей и выемок, для чего используют автогрейдеры, бульдозеры и экскаваторы, оборудованные ковшом-планировщиком; засыпают грунтом рытвины и ямы, а затем выполняют общую планировку территории; проводят мероприятия по предотвращению эрозионных процессов; наносят плодородный слой почвы. Примеры озеленения склонов показаны выемок (рис. 2) и насыпей (рис. 3).

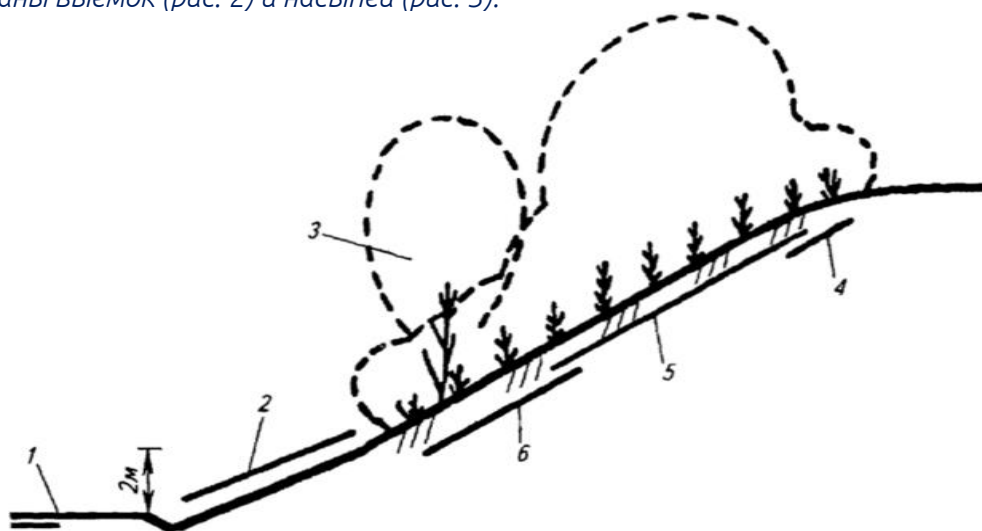


Рисунок 2. Озеленение протяженных склонов выемок:

1 – дорожное полотно; 2 – залужение нижней зоны склона посевом трав; 3 – посадка саженцев крупных растений (высокоствольные деревья, высаженные группами в целях защиты склона); 4 – верхний край посадки (1-2 ряда кустарника); 5 – средняя зона склона (посадка деревьев 1-й и 2-й величины и немного кустарника); 6 – нижний край посадки (3-5 рядов кустарника и немного деревьев 2-й величины)

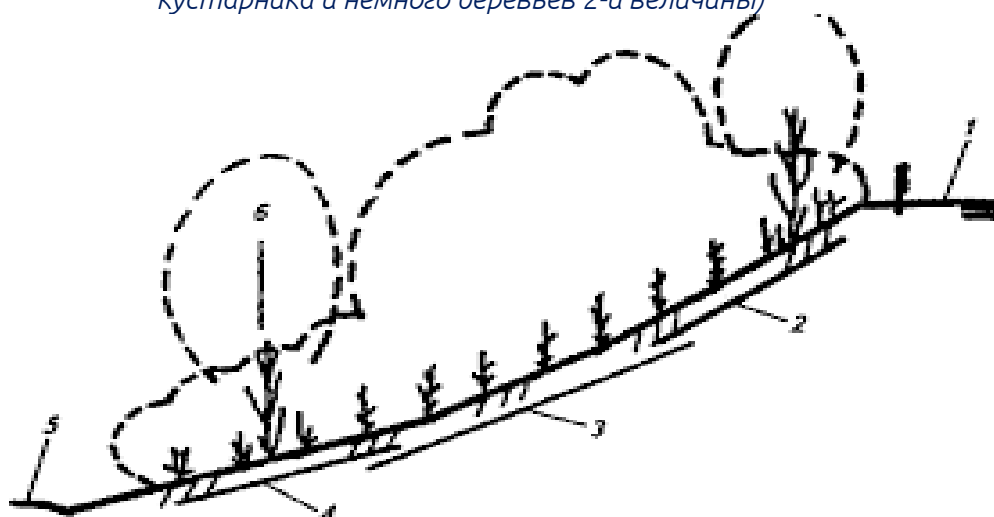


Рисунок 2. Озеленение протяженных склонов насыпей:

1 – дорожное полотно; 2 – верхняя зона посадки (3-5 рядов кустарника и немного деревьев 2-й величины); 3 – средняя зона склона (посадка саженцев деревьев 1-й и 2-й величины и немного кустарника); 4 – нижний край посадки (3-5 рядов кустарника и немного деревьев 2-й величины); 5 – пашня; 6 – посадка саженцев высокоствольных деревьев группами по опушке в целях защиты и расчленения склона.

При залужении откосов посевом трав после их высева желательно откосы укрывать тканым материалом, например мешковиной, чтобы исключить смыв почвы и семян дождевыми потоками или при поливах, до их прорастания и образования корневой системы.

Земля под временные сооружения, коммуникации, карьеры и т.п. отводится на определенный срок (на период строительства), после чего она должна быть восстановлена и передана прежнему землепользователю. Ущерб этому компоненту ландшафта носит временный характер [7].

Железнодорожные магистрали и предприятия железнодорожного транспорта занимают большие площади, в том числе земли удобные для сельскохозяйственных работ.

При том, что железнодорожный транспорт имеет существенные экологические преимущества перед автомобильным (исследования, проведенные специалистами Германии, свидетельствуют, что потребление земельной территории на 1 км новых автомагистралей, в среднем, в три раза больше общей земельной площади, используемой для 1 км вновь построенных участков железной дороги), общая площадь сельскохозяйственных угодий, отводимых под железнодорожный транспорт, довольно велика [17].

Площадь земель, отводимых в постоянное пользование, составляет ~ 78% от всей отводимой земли, а на земли, отводимые во временное пользование, приходится ~ 22%.

Поэтому рекультивация нарушенных земель – одно из основных направлений деятельности железнодорожного транспорта по ее охране и рациональному использованию.

Обводненные карьерные выемки после прекращения их эксплуатации используют под водоемы многоцелевого назначения, сухие – под площадки для строительства, пашни, пастбища, лесонасаждения и т. д. При сухой выемке грунта нижний горизонт не должен достигать уровня залегания грунтовых вод, а карьер не должен заполняться водой. Глубина нижнего горизонта выработки определяется намерениями по рекультивации и обустройству территорий. Достаточным расстоянием между максимальным уровнем грунтовых вод и нижним горизонтом разработки считают 1 м. Часто рекультивацию можно начинать, не дожидаясь завершения разработок.

Биологический этап рекультивации свалок и полигонов ТБО. Чтобы предотвратить смыв почвы, украсить внешний вид ландшафта и уменьшить просачивание воды в тело свалки или полигона, их поверхность озеленяют. Необходимо подбирать наиболее толерантные к конкретному загрязнению виды растений. После нанесения поверхностного слоя и проведения комплекса агротехнических работ сеют фитомелиоранты в основном в четыре этапа: первый – посадка растений-фитомелиорантов, способных выносить из почвы загрязняющие вещества. В качестве фитомелиорантов используют тимopheевку луговую, пырей бескорневищный, овсяницу красную, клевер белый и др.; второй – посадка дернообразующих трав. Травосмесь состоит из двух-трех компонентов и более. Подбор для травосмеси должен обеспечивать хорошее задержание рекультивируемой свалки или полигона; третий – подбор ассортимента трав, древесных и кустарниковых пород, способных расти на загрязненных почвах, и их посадка; четвертый – подбор ассортимента древесных и кустарниковых пород для парковых насаждений, устойчивых к загрязнению окружающей среды в условиях города.

Озеленение подобных территорий представляет собой длительный (2-5 лет) и трудоемкий процесс, требующий регулярного ухода за растительностью. Травы для рекультивации, должны быть апробированных сортов и местных популяций, иметь развитую корневую систему, обладать способностью к симбиозу с микроорганизмами.

Таким образом, технологическая схема (карта) работ по биологической рекультивации нарушенных и загрязненных земель включает:

- планировку поверхности;
- внесение химического мелиоранта, органических и минеральных удобрений, бактериального препарата;
- отвальную или безотвальную вспашку, плоскорезную обработку;
- лущение дисковой бороной или дисковым лущильником;



- кротование, щелевание с кротованием;
- лункование, прерывистое бороздование;
- снегозадержание и задержание талых вод;
- предпосевную подготовку почвы;
- буртование сильнозагрязненной почвы с устройством воздухоотводов;
- распределение почвы из бугров по поверхности участка;
- посев семян фитомелиоративных растений;
- уход за посевами;
- контроль за ходом рекультивации [18].

### **Выводы**

Таким образом, под рекультивацией земель понимается комплекс работ, направленных на восстановление биологической продуктивности и хозяйственной ценности нарушенных земель, а также на улучшение условий окружающей природной среды.

Земельные участки в период осуществления биологической рекультивации в сельскохозяйственных и лесохозяйственных целях должны проходить стадию мелиоративной подготовки, т.е. биологический этап должен осуществляться после полного завершения технического этапа.

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**TECHNOLOGY FOR PRODUCING LIGHT-PROOF TEXTILES**

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**ТЕХНОЛОГИЯ ПОЛУЧЕНИЯ СВЕТОНЕПРОНИЦАЕМОГО ТЕКСТИЛЯ**

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**Abstract**

*The work is devoted to the development of technology for obtaining opaque textile materials by duplicating materials. It is shown that when using effective polymer-adhesive filled compositions used for thermal bonding of two textile materials, it becomes possible to obtain a duplicated material, in which, with good bonding strength, opaque properties are reproduced and the color design of the pattern is preserved.*

**Аннотация**

*Работа посвящена разработке технологии получения светонепроницаемых текстильных материалов путем дублирования материалов. Показано, что при использовании эффективных полимерно-клеевых наполненных композиций, используемых для термосклеивания двух текстильных материалов, появляется возможность получения дублированного материала, в котором при хорошей прочности склеивания воспроизводятся светозащитные свойства и сохраняется колористический дизайн рисунка.*

**Keywords:** *textile materials, light-shielding properties, polymer-adhesive compositions, mineral fillers, pigment, kaolin.*

**Ключевые слова:** *текстильные материалы, светонепроницаемость, полимерно-клеевые композиции, минеральные наполнители, пигмент, каолин.*

*Современные технологии создания элитных светонепроницаемых штор и занавесей типа Blackout – трудоёмкий и дорогостоящий процесс: наружный слой представляет собой декоративную ткань с сатиновым переплетением нитей, а внутри пропущена черная полиэфирная нить, которая поглощает свет. Для получения максимальной светонепроницаемости на слои ткани наносится акриловая пена. Данный процесс является трудо- и энергозатратным и, соответственно, ткань становится дорогой [1].*

*В связи со сказанным нами принято решение использовать принцип создания дублированных волокнистых материалов на основе отечественных наполненных полимеров, разработанный в ранних работах кафедры, для разработки более дешевой технологии создания светонепроницаемых материалов, ничем не уступающей по качеству технологии создания штор Blackout.*

**Объекты исследования.** *В качестве объектов исследования для создания дублированных текстильных материалов со светонепроницаемыми свойствами выбраны материалы: изнаночная сторона (подложка) – облегченный полиэфир 100% с однотонным окрашиванием; лицевая сторона (внешняя) – льняная ткань с декоративным печатным рисунком. Такими материалами могут быть легкие трикотажные полотна, хлопчатобумажные и синтетические материалы с фактурной поверхностью.*

Оба текстильных материала по структуре являются прозрачными, и даже сдвоенный материал на фоне люминесцентной лампы хорошо пропускает свет, так как ткани сами по себе имеют небольшую поверхностную плотность (рисунок 1).



Рис. 1 – Вид материалов для дублирования.

Для заполнения межволоконного пространства принято решение использовать пигменты минеральной природы, которые классически используют в качестве грунтов: белый и черный пигмент для текстильной печати.

Основу печатной композиции составляли стирол-акриловый полимер и акриловый загуститель, которые одновременно выполняли роль полимерно-клеевой композиции (ПКК) для дублирования тканей [2].

В качестве минерального наполнителя в ПКК вводили каолин.

При необходимости затемнения ткани лучше применять черный пигмент, а для создания изделий декоративного назначения, с целью не ухудшения колористических свойств окрасок и рисунков, использовали белый пигмент.

**Проведение и результаты исследований.** Найдены оптимальные концентрации белого пигмента, вводимого в полимерно-клеевую композицию на основе акрилового полимера (связующего) и акрилового загустителя, а также оценена эффективность его применения в различных концентрациях.

Подбор концентраций белого пигмента проводили на одном из волокнистых компонентов – полиэфирной основе. Композицию наносили на ткань в один слой ракельным способом. Далее после сушки при 80°C оценивали как визуально, так и с помощью спектрофотометра YS 3010 светопрозрачность через модифицированный материал.

Косвенной оценкой этого показателя выбрана светлота  $L$  образцов. Для большей чувствительности метода, оценивающего минимальные по размеру светопрозрачные пространства в ткани (межниточные и межволоконные), образцы помещались последовательно на белую и затем на черную подложку. Разница между показателями светлоты должна быть минимальной или отсутствовать вообще.





Рис. 2 – Зависимость показателя светлоты  $L$  от концентрации пигмента в полимерно-клеевой композиции.

На рис. 2 отображена зависимость показателя светлоты  $L$  от концентрации пигмента. Как можно видеть, наилучшее заполнение межволоконного пространства достигается при концентрации пигмента 200 г/кг. Однако такая высокая концентрация приведет к удорожанию композиции и, в конечном итоге, самого материала.

Известно, что введение в полимерно-красочные системы минеральных наполнителей способствует более равномерному нанесению красок за счет лучшей укрывистости поверхности [3]. Поэтому на следующем этапе работы нами оценены свойства светопроницаемости ткани с применением в композиции наряду с белым пигментом минерального наполнителя.

Ранее было показано, что наиболее эффективным наполнителем явился каолин, так как он дает равномерную укрывистость поверхности текстильного материала. Применение в полимерной композиции только каолина хотя и дает положительный результат по заполнению межволоконных пространств, однако ткань все же остается светопроницаемой даже при увеличении количества нанесений от 1 до 3 слоев.

Совместное присутствие белого пигмента и каолина в ПКК положительно решает задачу получения эффекта светонепроницаемости текстильного материала. Эффект прозрачности (светопроницаемости) образца, оцененный по светлоте  $L$ , представлен в таблице 1.

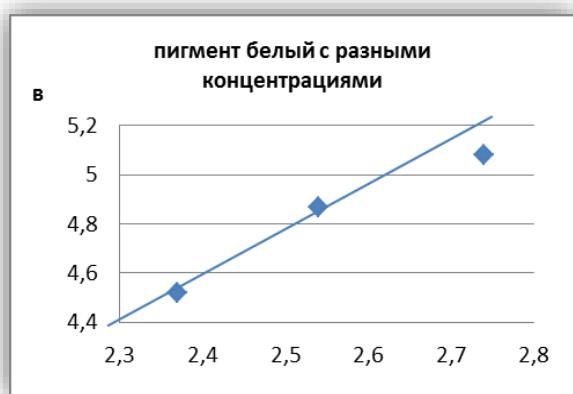
Таблица 1

Цветовые характеристики полиэфирного материала

Состав композиции	Кол-во слоев	$a$	$b$	$L_{\text{черн}}$	$L_{\text{бел}}$	$\Delta L$
Исходный образец без пигмента		2,6	4,72	59,0	65,7	
пигмент белый связующее загуститель	1	2,4	5,0	70,6	84,6	14
	2	2,44	5,17	76,4	88,6	12,2
	3	1,58	2,68	78,4	89,0	10,6
пигмент белый связующее загуститель каолин	1	2,6	5,1	72,5	78,8	6,3
	2	1,58	2,93	82,6	87,6	5,0
	3	1,49	3,68	86,7	87,9	1,2

Полученные результаты свидетельствуют, что образец, обработанный композицией с белым пигментом и каолином, дает наилучшие результаты, особенно при трехкратном нанесении ПКК на текстильный материал. Межволоконное пространство заполняется плотно, укрывистость равномерная.

Цветовые характеристики дублированных образцов, приведенные на рис. 3, изменяются при увеличении концентрации пигмента белого от 50 до 200 г/кг (рисунок 3,а) и количества нанесенных слоев композиции от 1 до 3 (рисунок 3,б).



а



б

Рис. 3 – Цветовые характеристики дублированных образцов: а – при концентрациях пигмента белого от 50 до 200 г/кг; б – при различном количестве нанесенных слоев композиции, включающей пигмент белый и каолин в соотношении 5:1.

Далее полиэфирную ткань с нанесенной на нее композицией посредством термопресса соединяли с льняной тканью. Условия термообработки были исследованы и выбраны в ранних работах ученых кафедры [4]. Качество склеивания текстильных материалов оценивали путем отрыва на разрывной машине. В результате получен дублированный светозащитный материал, в котором при хорошей прочности склеивания воспроизводятся светонепроницаемые свойства и сохраняется колористический дизайн рисунка. При этом гриф получаемого материала мягок, остается возможность легкой драпируемости.

Учитывая, что классически количество минеральных наполнителей в полимерной композиции не должно превышать 15 %, а также рассматривая фактор цена-качество, нами белый пигмент и каолин взяты в соотношении 5:1 и общее количество наполнителей не превышало 150 г/кг.

Технология проста, реализуется с помощью действующего оборудования и легкодоступных и недорогих отечественных реагентов и материалов.

**Вывод.** Показана возможность создания дублированных материалов со светонепроницаемыми свойствами, не уступающих по своим функциональным свойствам зарубежным аналогам. Разработаны композиции и технология дублирования текстильных материалов.

Работа выполнена с использованием ресурсов Центра коллективного пользования научным оборудованием Ивановского государственного химико-технологического университета, 153000, г.Иваново, Россия

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**FUNDAMENTALS OF ICT IN MODERN SCIENCE****Mahmudova Sabina Vakil gizi**

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**Abstract**

*Application of informatization, computer, telecommunication technologies, as well as modern information systems in scientific fields ensures the acquisition, generalization, generation, and simultaneous use of knowledge of a new quality. Failure to provide scientists and specialists with the necessary scientific information in time can lead to a decrease in the pace of development of science and industry. This can be prevented only by using the latest ICT, by electronicizing information funds.*

**Keywords:** Science, information, industry, development

*Experts believe that information resources should be electronicized, free access to modern information resources should be created for specialists, a network of digital libraries should be formed, and scientific information should be generalized. At the same time, effective communication between information centers and funds should be ensured. According to experts, the issue of determining the legal status of electronic discoveries should be taken as the main subject.*

*The application of ICT in the economy has become widespread in recent times. Over time, the processes of synthesis between ICT and the economy become more complex. First of all, ICT is applied in the economy and stimulates its development, and economic informatics is created [3].*

*In recent years, the implementation of purposeful work in the field of computer equipment production, education, pension, tax, customs, Internet development, etc. the launch of many large ICT projects in such fields as: regular holding of international level ICT exhibitions, forums, conferences in the country, adoption of important laws and decisions in the field of ICT application, progressive reforms in the field of ICT, participation of the country in all international events in the field of ICT, in general informatics and information technology science and its field are developing rapidly in the country.*

*The development of informatics in recent times has turned it from a technical subject about methods and means of data processing with the help of computing techniques into a fundamental science about information and information processes not only in technical systems, but also in nature and society. Informatics also performed its unifying function in the system of sciences and led to the emergence and development of a number of new scientific directions. Since economics is one of the widely applied fields of informatics and there is a special need to process more information related to economic fields, the study of the multifaceted interactions between informatics and economics is more exemplary than others. Therefore, the analysis of the application of informatics in the example of economics is considered here. The development of economic-mathematics, economic-mathematical methods and models related to the application of mathematics to the economy also paved the way for the application of informatics in the economy, and economic informatics was formed as a special section of informatics [2].*

*In addition, informatics science and modern information technologies have penetrated the economy so much that the economy itself has changed as a science and created new concepts. Thus, the modern level of application of information technologies has led to the creation of a new infrastructure, a new economic environment, at which time the economy itself has acquired a new form and content. This field has already begun to receive the name of electronic or digital economy according to the concepts of market economy. In addition to these, the economy itself affects informatics, studies it, looks at it as an economic object. The study of problems arising in this regard is the responsibility of the department of economics of informatics.*

*At the same time, the opposite process is also taking place. In other words, as informatics is applied to various fields and brings out new development features and problems of that field, those fields in turn create new problems specific to informatics. For example, the wide application of informatics in many*

areas of society, including law enforcement agencies, jurisprudence, legal processes, has created legal problems of information technology itself.

The new IT is based on the following principles: computer interactive (dialog) mode of operation, with other software products, joint action, data exchange and the flexibility of the process of setting the issue.

Information is the main resource of IT. This term is derived from the Latin word "information", meaning to explain, interpret, give information. It is a preliminary and undefined concept. It is possible to create, transmit, store and process information. Information is stored through signals, encoded and stored in bytes. There are 2 types of information: numerical and analog information. refers to the operation of a numerical computer. Information has external and internal properties. Its internal property refers to itself, and its external property is the mutual relationship of the object with other objects [1].

The modern level of development of society's informatization and information technologies is automated, which provides convenient access to available information resources in all areas of life, including economy, management, science and education, as well as provides opportunities for timely acquisition, processing, viewing, searching and selection of necessary information for use. seriously raises the issue of creating information systems and makes its solution possible.

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## NATURE AND CIVILIZATION IN A SMART CITY

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### **Abstract**

*The notion of the smart city provides an enticing platform for IT-enabled service innovation. It depicts a city in which service providers use information technology to engage people to build more effective urban organizations and systems that enhance residents' quality of life. The growing Internet of Things (IoT) concept is critical for smart city development. Value creation requires an integrated cloud-based architecture of networks, software, sensors, human interfaces, and data analytics.*

**Keywords:** Smart city, nature, human, problems of city, smart technologies.

*The term "Smart city" is a simple way of describing the complex forces affecting modern urban life. Although numerous academic efforts have been made to academically define a smart city, there is still no universally accepted definition and the word remains ambiguous because it means different things to different people and there is no unifying concept or uniform template for creating a smart city. Large settlements whose population works in the fields of service and management, science, trade, and industry are called cities. Cities are the basis of the largest cultural centers. Unlike the villages, a very small part of the urban population is engaged in agriculture. The most important characteristic of the city can be considered the population density and compactness of buildings. But this is not valid for all countries. In some countries, it is classified according to population density, and in some countries, according to different characteristics.*

*The city is a multi-plan settlement area with a modern infrastructure, distinguished by its socio-economic structure, characterized by complex geographical and economic conditions, constantly updated with engineering and construction works, and of special importance in the life of the society. Thus, each city's definition of a smart city is unique, depending on its stage of development, adaptability and willingness, available resources, and civic goals. The world has faced the most critical economic, ecological, social and technical problems in recent years. Given that cities are at the center of these significant challenges, the idea of a smart city has emerged to symbolize the opportunities and challenges cities face in adapting to these changes and the challenges posed by urban population expansion and rapid urbanization [1].*

*City management More than ever, technology businesses have partnered with and started to thrive in the smart city sector. According to the latest update of the Navigant Research study, which was first published in 2013, there are 250 smart city projects in more than 178 locations around the world, most of them focused on government and energy activities (fig. 1). As mentioned earlier, while building smart cities is an attractive goal for a city, it can be a challenging task for a variety of reasons. To begin with, the concept of smart city is still nebulous and it is associated with different disciplines. Second, implementation and management methods for Smart City projects differ from city to city, given that several elements such as human, technical, and scientific aspects make smart city efforts fail due to the complexity of cities.*

*Cities are getting denser. In order to prevent the underground layer of fast-growing megacities from disappearing under the weight of cities and to increase greenness, cities around the world must adopt an increasingly intelligent approach to the organization and planning of transportation, environmental, energy supply and administrative systems. The right technology is very important for the development of these "smart cities" and these aspects should be in the early stages of design, and considering these aspects as a whole is the beginning of a great success. By 2050, the world's population is expected to exceed 9.7 billion, with 68 percent of the population living in cities. There are many issues that must be addressed by those responsible for modern cities in order to ensure the future coexistence of people living in densely populated areas.*

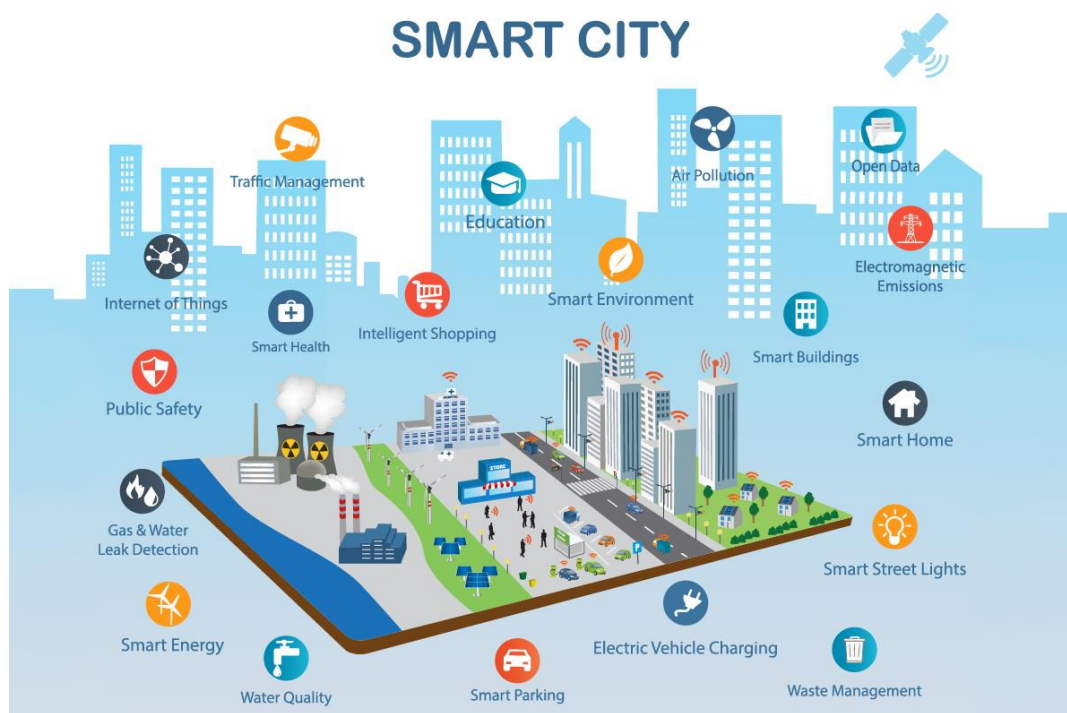


Figure 1. Smart city concept

How can we ensure clean air and reduce waste with increasing numbers of people living in more crowded conditions? How can we facilitate the movement of millions of people? Furthermore, how can we ensure that administrative mechanisms are in place and that universal health care is available? This approach is to use modern technology to completely "renew" today's cities. Engineers or architects who do not think about the benefits of smart cities are rare in recent years. According to experts, a smart city is the integration of information technologies and data into existing and new infrastructure systems in order to allow people living in megacities to live together in a sustainable, efficient and social framework, despite the increase in population density. Smart city initiatives face a variety of obstacles, both traditional design issues and inherent to the complexity and inventive nature of smart city projects. Smart city initiatives are largely based on technology. However, the implementation of digital infrastructure is difficult due to lack of knowledge about ICT systems and appropriate software, security and privacy issues related to the possibility of systems being hacked or infected by viruses, etc., and the high cost of installing, operating and maintaining IT [2].

All smart city technologies need a strong and stable internet network to work effectively. In today's age, high-speed broadband networks are as vital as roads, water, sanitation and electricity. News headlines often describe how new information technologies based on high-speed communications networks are transforming health, education, public safety, and government organizations. Individuals connect with their communities using social networking applications "High-speed internet and intra-city communications are required to provide a suitable base for a Smart City". A unique approach to green, healthy and innovative building design and the sustainable relationship between buildings and their environment explains the interaction between nature and technology in building design and their impact on the environment, health and behavior of occupants.

Describes innovative, smart technologies for buildings and cities and how they can become smarter by integrating nature Brings knowledge from the latest research on smart applications into engineering building systems and the whole urban fabric. The concept of biophilia, the direct connection of people with the natural environment and other living things, is based on this. Biophilia, on the other hand, refers to a person's reliance on the natural world for biological and physical survival, and extends downward from seemingly excessive tendencies. Biophilic design is viewed as an ethic and a process rather than a technology of holistically integrating the many features and functions of nature into our buildings, cities and lifestyles [3].

Compared to green design, which aims to maximize the building's energy efficiency, biophilic design aims to connect people and nature by creating spaces for access to achieve beneficial effects and maximize the use of nature as a reference point. to shape our communities and actions. Designing with

*nature allows us to restore and strengthen our biophilic tendencies, as well as stimulate environmental awareness towards broad behavioral changes towards the environment.*

**The result:** *The concept of a smart city is still vague and it encompasses many professions. Smart cities save on energy, transportation and other costs, while empowering residents. They also contribute to economic development, higher living standards and environmental sustainability. A city's transportation infrastructure can be integrated into a vast, interconnected ecosystem that includes AI-driven cars, trains, and even flying taxis.*

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## HOMOGENIZATION AND ITS IMPACT ON MILK QUALITY

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### Abstract

Today in the world, the production of high-quality dairy products, their processing and ensuring their safety is one of the pressing problems. In this scientific article, we explored the process of homogenization, through which milk can have the property of long shelf life, as well as a balanced level of fat due to which it has a smooth texture and a rich white color. We conducted an experiment on a valve-type homogenizing device. The object of the study was cow's milk, which contains a fat level of -3.5%. We experimented by applying pressure from 10 MPa to 20 MPa and a temperature of 60-65°C, the obtained result was analyzed, and a diagram was drawn up that clearly showed us the change in the numerical content and average diameter of fat globules.

**Keywords:** homogenization, fat globules, proteins, agglutination, fossils, consistency, immunoglobulin.

**INTRODUCTION.** Milk is a very popular and one of the most useful products for humans. It is rich in protein, vitamins A and D, and calcium. It is obtained by milking certain types of agricultural animals. The main types of milk consumed by humans are goat, cow, mare, camel, and sheep milk. The chemical composition of the milk of some animal species is presented in Table 1.

**Table 1**

*Chemical content of of the milk of some animal species (in %)*

<i>Kind of animal</i>	<i>Water</i>	<i>Proteins</i>	<i>Fats</i>	<i>Lactose</i>	<i>Ash</i>	<i>Dry matter</i>
<i>Cow</i>	88,0±1,2	3,2	3,5	4,9	0,8	12,7
<i>Goat</i>	86,9	3,8	4,1	4,4	0,8	13,7
<i>Sheep</i>	83,6	5,1	6,2	4,2	0,9	17,9
<i>Mare</i>	89,7	2,2	1,9	5,8	0,3	10,0
<i>Camel</i>	86,5	4,0	3,0	5,7	0,8	13,6

In Uzbekistan, cow's milk is most commonly consumed. Cow's milk is a valuable food product, containing more than 100 nutrients. Cow's milk and its products have a complex composition, they contain various proteins, enzymes, fats, lactose. Over time, the lighter milk fat floats, forming an upper layer of cream, proteins lose their properties, clumping together. This is a natural process, however, dairy products significantly lose their external attractiveness and taste qualities. To preserve the properties of milk, special processing is used - homogenization or by adding chemical ingredients. Additional ingredients also reduce the attractiveness of products for the buyer, most consumers prefer natural milk. Homogenization allows you to do without additives, this is purely physical processing.

Modern publications are usually dedicated to specific issues of theory, specific experiments, hypotheses, or constructions. Homogenization (literally, the word "homogenization" means increasing homogeneity) refers to the process of treating emulsions, which leads to the fragmentation of the dispersed phase. In the dairy industry, such an emulsion is, for example, milk cream with a dispersed phase - fat and a dispersed medium - milk plasma. Homogenization increases the stability of the fat emulsion, improves the consistency and taste of dairy products, and promotes the digestibility of milk fat by the human body. The homogenization process turned out to be quite complex for experimental study. The lack of experimental data led to the birth of many homogenization hypotheses. Therefore, there is no single view, a single point of view on the homogenization process. There is also no universally recognized single theory of the homogenization process, and the few experimental data that indirectly characterize



homogenization often contradict existing theories. This scientific article attempts to lift the veil of mystery over the homogenization process and delve deeper into it.

Homogenization is a type of processing of milk or other complex products to give homogeneity and preserve taste qualities. It promotes the uniform distribution of fat throughout the volume and prevents the stratification of liquid dairy products. Homogenization also slightly changes the properties of milk protein, it stops curdling when the drink is heated. In other words, processing breaks up balls of milk fat, large proteins, and evenly distributes the crushed particles. Mainly, homogenization leads to the splitting of fat globules into much smaller ones. As a result, the separation of cream is reduced and the tendency of globules to stick together or form large agglomerates may also be reduced. The physical state and concentration of the fat fraction during homogenization affect the sizes and dispersion of the resulting fat globules.

Homogenization of cold milk, in which fat is mainly present in a hardened state, is practically impossible. Processing at temperatures conducive to the hardening of milk fat (for example, below 40°C) leads to incomplete dispersion of the fat fraction.

Products with an increased mass fraction of fat are more difficult to homogenize and also tend to agglomerate fat, as the concentration of proteins in milk plasma is low relative to the fat content. Usually, creams with a fat content exceeding 20% cannot be homogenized at high pressure because fat clusters are formed due to a lack of membrane material (casein). Increasing the homogenization temperature lowers the viscosity of the milk and improves the transportability of the membrane material to the fat globules. As a rule, homogenization temperatures are applied in the range of 55–80 °C, and homogenization pressure – between 10 and 25 MPa (100–250 bar) depending on the product.

The most common method of homogenization is passing the product through a very narrow gap under high pressure. In this process, fat droplets are stretched into threads, protein shells are torn, and fat globules are broken down into smaller ones. The size of the particles obtained is up to 10 times smaller than the inclusions contained in untreated milk. These inclusions are distributed by volume and float much slower.

Two clean and dry fat meters (butyrometers) were added with a pipette by 10 cm<sup>3</sup> of sulfuric acid, and then 10.77 cm<sup>3</sup> of milk was poured down the wall. After that, 1 cm<sup>3</sup> of isoamyl alcohol was added from an automatic pipette. They made sure that the neck of the fat meter remained dry. The level of the mixture should be set 1-2 mm below the neck, so they added distilled water. The fat meter was closed with a cork and shaken until the contents were completely mixed. Then the fat meter was placed in a water bath at a temperature of 65°C for 5 minutes. After the water bath, the fat meters were placed in a centrifuge symmetrically opposite each other and left to centrifuge for 5 minutes. Then they were again placed in a water bath at the same temperature for 5 minutes. After that, the fat meters were taken out of the water bath and the fat reading was taken on the scale. Using a rubber stopper, they aligned the lower boundary of the fat column with a whole division of the fat meter scale. The upper boundary of the column is considered to be the lower edge of the concave meniscus. Each small division of the milk fat meter corresponds to 0.1%, and each large one - 1%. The laboratory analysis showed us that the fat content of our sample is -3.48%. The experiment was carried out using equipment designed for milk homogenization - the PG-1500-25 homogenizer. With a capacity of 1500 liters per hour, at a pressure of 250 kgf/cm<sup>2</sup>; with a power of 11 kW. The dimensions of the homogenizer are 1050x700x1100 mm; with a mass of 700 kg.

The properties of the product and its composition also affected the efficiency of homogenization: the content of dry matter and fat, acidity, density, viscosity. The more dry matter and fat there was, the less force the plunger exerted on the raw material. With an increase in milk acidity, which was measured through a quality analyzer, protein stability decreased. The fragmentation of globules was complicated due to the appearance of agglomerates. Also, the intensity of homogenization decreased with an increase in the density and viscosity of the raw material. Such rapid stretching of the fat droplet occurs due to the pressure difference between the homogenization pressure  $P_0$  and the pressure  $P_1$  acting on the fat globules at high speeds, where  $P_0$  is significantly greater than  $P_1$ . The fat globule is compressed, and then the liquid milk fat is squeezed out of it in the form of a droplet.

The research shows that the efficiency of homogenization primarily depends on the flow rate  $V_1$  when the liquid enters the valve gap. The higher the speed  $V_1$ , the more the fat droplet is stretched into a thread, the thinner this thread and, consequently, the smaller the resulting droplets. The flow rate  $V_1$  depends on the pressure difference ( $\Delta P = P_0 - P_1$ ). With an increase in pressure, the speed increases directly proportional to the square root of the pressure difference. Accordingly, with an increase in the efficiency of homogenization, we get higher quality milk, which we needed to prove in this experiment.

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