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DEVELOPMENT OF A TOOL FOR INTERPRETATION OF LABARATORY ANALYSIS RESULTS

Abstract: *This article is about the topic of the application of information technologies in the medical sphere, namely, the interpretation of laboratory analysis results using bots in Telegram and Facebook Messenger. The article describes using of medical standard for storing patient data like FHIR. The architecture of the entire service is also highlighted in the article, specifically, what external services are used and how.*

Key words: *Telegram, Facebook Messenger, FHIR, chat-bot, payments, analysis.*

Language: *Russian*

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РАЗРАБОТКА ИНСТУРМЕНТА ДЛЯ ИНТЕРПРЕТАЦИИ РЕЗУЛЬТАТОВ АНАЛИЗОВ ЛАБОРАТОРНЫХ ИССЛЕДОВАНИЙ

Аннотация: *Данная статья посвящена теме применения информационных технологий в медицинской сфере, а именно, интерпретация результатов анализов лабораторных исследований с помощью ботов в Telegram и Facebook Messenger. В статье рассказывается о таком медицинском стандарте хранения данных о пациентах, как FHIR. Также освящается архитектура всего сервиса, какие внешние сервисы используется и каким образом.*

Ключевые слова: *Telegram, Facebook Messenger, FHIR, чат-боты, оплата, анализы.*

Введение

Мы живем в 21 веке, и сейчас все больше и больше люди заинтересованы в развитии информационных технологий во всех сферах нашей жизни. Кроме этого, у населения растет заинтересованность в собственном здоровье, все чаще можно увидеть в социальных сетях призывы вести здоровый образ жизни. А что, если можно было бы совместить информационные технологии и внимание к своему здоровью и получить нечто, приложение, которое позволить следить за различными показателями человеческого организма и распознать критическое состояние.

Данная работа посвящена разработке помощника, бота, который позволит пользователю получить интерпретацию любого сданного им анализа и различные рекомендации, которые помогут не упустить время и вовремя сходить к тому или иному врачу и получить специализированную помощь.

Боты - новая ниша в разработке

Почему же выбран бот? Чатбот – это результат взаимодействия человека с искусственным

интеллектом: робот, который автоматически отвечает на сообщения, введенные пользователем в чате. Чатботы могут использоваться для множества целей: от выполнения повседневных задач до развлечений, а размещают их в мессенджерах и социальных сетях, – Facebook Messenger, Telegram, «Вконтакте», Slack и т.д., но чаще всего именно на первых двух платформах.

Чатботы делают жизнь людей намного проще, – заказать пиццу или такси, забронировать билеты или купить платье, можно теперь не выходя из мессенджера [1].

Их использование, с одной стороны, полезно для клиентов, так как они могут получить необходимую информацию или совершать какие-либо действия более простым и удобным способом, и, с другой стороны, это выгодно для компаний, которые с помощью чат-ботов могут продвинуть свой бизнес, собрать от целевой аудитории необходимые сведения и повысить ее лояльность.

Об эффективности использования чат-ботов рассказывал Марк Цукерберг на конференции F8 в 2016 году, – на его взгляд, они существенно сокращают время обслуживания клиентов и являются одним из самых актуальных трендов на сегодняшний день.

Кроме этого, согласно новым исследованиям [8], 67% американских миллениалов (поколение Y, людей, родившихся после 1981 года и до 1996) готовы покупать товары и услуги с помощью чат-ботов, причем 40% из них делают это ежедневно. 55% всех интернет-пользователей больше всего нравится то, что чат-боты мгновенно отвечают на простые вопросы, 64% интернет-пользователей считают, что лучшей функцией является его постоянная доступность.

Качественно разработанный чат-бот полезен и для владельца бизнеса, ведь он позволяет не только довести клиента до покупки, но и сократить расходы на поддержку. Такому виртуальному оператору не требуются перерывы на обед, сон или выходные, он отвечает мгновенно, что снижает вероятность того, что клиент уйдет, не дождавшись ответа. Хотя все равно остается небольшой процент таких псевдоботов, которыми на самом деле управляют люди.

В целом, чат-бот конечно же упрощает жизнь бизнесу, что особенно актуально в наше время, когда человечество активно передаёт всю рутинную работу в “руки” роботов.

Медицина

Как уже было замечено ранее, информационные технологии с каждым днем становятся все более обязательным современным атрибутом любой сферы жизни и деятельности. Под ИТ подразумеваются любые методы сбора информации, её обработки и передачи. Самые широко применяемые средства ИТ в наше время – это сотовая связь и интернет, мобильные телефоны и компьютеры. Тем не менее, каждая узкая отрасль науки и производства имеет своё специфическое оборудование, специально разработанное программное обеспечение, обеспечивающее работу устройств, и так далее.

Внедрение современных информационных технологий в медицине является не просто закономерным, это выводит здравоохранение на новый уровень, так как оперативный доступ к информации и обмен ею существенно сокращает временные затраты на поиск решений проблемы, а время часто является решающим фактором в спасении жизни человека.

Современные информационные разработки оказывают огромное положительное влияние на развитие новых способов организации медицинской помощи населению. Большое количество стран уже давно активно используют новые технологии в сфере здравоохранения. Проведение телеконсультаций пациентов и персонала, обмен информацией о больных между различными учреждениями, дистанционное фиксирование физиологических параметров, контроль за проведением операций в реальном времени — все эти возможности дает внедрение информационных технологий в медицину [2].

FHIR-стандарт

В технологическом стеке разработчиков приложений для медицины особое место занимает международный стандарт FHIR (Fast Healthcare Interoperability Resources), определяющий формат хранения, обмена, предоставления медицинской информации в электронном виде и включающий в себя спецификацию RESTful API клиент-серверного взаимодействия.

HL7 FHIR появился в 2011 году благодаря усилиям лидеров стандарта (Грэм Грив, Ллойд Маккензи, Эвут Краммер), которые участвовали в создании предыдущих версий стандартов HL7, хорошо понимают их “родовые травмы” и достоинства. HL7 FHIR соединяет в себе удачные решения из предыдущих версий и совершенно новую философию, архитектурную концепцию и открытый подход к разработке/развитию стандарта [3;7].

Главной сущностью стандарта являются ресурсы (FHIR Resources). Ресурс – это независимая структурированная единица информации, используемая при обмене медицинскими данными. Большинство ресурсов – это отображение реального мира в цифровых данных. Примерами могут служить такие ресурсы как пациент (Patient), визит (Encounter), результат исследования (DiagnosticReport).

В рамках спецификации описываются клинические, административные, финансовые и технические ресурсы.

Каждый ресурс описывается набором стандартизованных атрибутов (элементов), в

дополнение к этому в каждый ресурс встроен механизм расширения. Одним из основных принципов при разработке стандарта является следование правилу 80/20, поэтому в рамках ресурса описываются только общие атрибуты, независимые от специализированного контекста (страна, специализация и т.д.), для всего остального в ресурс встроен механизм расширений (extensions).

У каждого ресурса есть секция для представления структурированной информации, содержащейся в ресурсе, в человекочитаемом виде. Эта секция используется для гарантии интероперабельности на самом базовом уровне, т.е., получив такой ресурс, вы всегда можете отобразить его содержимое человеку на экране монитора, например в браузере, без какой-либо дополнительной обработки и раскладывания данных в свое хранилище в дискретном виде.

Ресурсы могут быть связаны между собой и таким образом отражать связи в реальном мире, например: пациент (Patient) пришел на обследование (Encounter) в определенную клинику (Organization), ему поставили диагноз (Condition) и назначили исследования (DiagnosticOrder).

Описание используемых ресурсов

Бот также оперирует определенными ресурсами. Они используются для общения в внешними сервисами и также внутри самого бота. Рассмотрим их более подробно.

Observation - наблюдение

Ресурс Observation - измерения и простые утверждения, сделанные о пациенте, устройстве или другом субъекте [4]. Наблюдения являются центральным элементом в здравоохранении, они используются для поддержки диагностики, мониторинга прогресса, определения базовых показателей и моделей и даже для сбора демографических характеристик. Большинство наблюдений являются простыми утверждениями типа «имя-значение» с некоторыми метаданными, но некоторые наблюдения логически объединяют другие наблюдения или даже являются многокомпонентными наблюдениями.

Пример:

```
{
 "resourceType": "Observation",
 "id": "f001",
 "text": {...},
 "identifier": [...],
 "status": "final",
 "code": {
  "coding": [
   {
    "system": "http://loinc.org",
    "code": "15074-8",
   "display": "Glucose [Moles/volume] in Blood"
   }
  ]
 },
 "subject": {
  "reference": "Patient/f001",
  "display": "P. van de Heuvel"
 },
 "effectivePeriod": {
  "start": "2013-04-02T09:30:10+01:00"
 },
 "issued": "2013-04-03T15:30:10+01:00",
 "performer": [
  {
   "reference": "Practitioner/f005",
   "display": "A. Langeveld"
  }
 ],
 "valueQuantity": {
  "value": 6.3,
  "unit": "mmol/l",
  "system": "http://unitsofmeasure.org",
  "code": "mmol/L"
 },
 "interpretation": [
  {
   "coding": [
    {
     "system":
"http://terminology.hl7.org/CodeSystem/v3-ObservationInterpretation",
     "code": "H",
     "display": "High"
    }
   ]
  }
 ],
 "referenceRange": [
  {
   "low": {
    "value": 3.1,
    "unit": "mmol/l",
    "system": "http://unitsofmeasure.org",
    "code": "mmol/L"
   },
   "high": {
    "value": 6.2,
    "unit": "mmol/l",
    "system": "http://unitsofmeasure.org",
    "code": "mmol/L"
   }
  }
 ]
}
```

ObservationDefinition - определение наблюдения

Ресурс ObservationDefinition - набор характеристик определения для вида наблюдения или измерения, производимых или потребляемых заказываемой медицинской службой [4].

Экземпляр ObservationDefinition представляет определяющие аспекты своего наблюдения. Этот

ресурс используется в каталоге товаров или услуг для здравоохранения. В нем дается определение наблюдений, которые используются в качестве исходных данных или производятся в качестве результата этих продуктов и услуг.

Рассмотрим на примере. Имеем ресурс ObservationDefinition для показателя глюкоза. В поле qualifiedInterval содержатся референсные интервалы по полу и возрасту. В данному случае для возраста от 0 до 1 года размах показателя глюкоза от 45 до 75 процентов.


```
{
 "resourceType": "ObservationDefinition",
 "id": "example",
 "text": {…},
 "code": {
  "coding": [
   {
    "system": "http://loinc.org",
    "code": "15074-8",
   "display": "Glucose [Moles/volume] in Blood"
   }
  ]
 },
 "quantitativeDetails": {
  "unit": {
   "text": "%"
  }
 },
 "qualifiedInterval": [
  {
   "category": "reference",
   "range": {
    "low": {
     "value": 45,
     "unit": "Процент",
     "system": "http://unitsofmeasure.org",
     "code": "%"
    },
    "high": {
     "value": 75,
     "unit": "Процент",
     "system": "http://unitsofmeasure.org",
     "code": "%"
    }
   },
   "age": {
    "low": {
     "value": 0,
     "unit": "YEAR",
     "system": "http://unitsofmeasure.org",
     "code": "a"
    },
    "high": {
     "value": 1,
     "unit": "YEAR",
     "system": "http://unitsofmeasure.org",
     "code": "a"
    }
   }
  }, {…}
 ]
}
```


Questionnaire - опросник

Ресурс Questionnaire - структурированный набор вопросов, предназначенных для сбора ответов от конечных пользователей [4]. Опросник обеспечивают подробный контроль над порядком, представлением, фразеологией и группировкой, чтобы обеспечить согласованный и последовательный сбор данных.

Вопросы могут быть простыми списками вопросов или могут быть иерархически организованы в группы и подгруппы, каждая из которых также содержит вопросы.

Опросник определяет вопросы, которые должны быть заданы, порядок и группирование вопросов, любой текст, связанный с вопросами (формулировки), и также определяет ограничения на разрешенные ответы.

Результаты опросника могут быть переданы с использованием ресурса QuestionnaireResponse.

Пример:


```
{
 "resourceType": "Questionnaire",
 "id": "3141",
 "text": {},
 "url": "http://hl7.org/fhir/Questionnaire/3141",
 "title": "Cancer Quality Forum Questionnaire 2012",
 "status": "draft",
 "subjectType": [
  "Patient"
 ],
 "date": "2012-01",
 "item": [
  {
   "linkId": "1",
   "code": [
    {
     "system": "http://example.org/system/code/sections",
     "code": "COMORBIDITY"
    }
   ],
   "type": "group",
   "item": [
    {
     "linkId": "1.1",
     "code": [
      {
       "system": "http://example.org/system/code/questions",
       "code": "COMORB"
      }
     ],
```

```
            "prefix": "1",
            "type": "choice",
            "answerValueSet":
"http://hl7.org/fhir/ValueSet/yesnodontknow",
            "item": [
             {
              "linkId": "1.1.1",
              "code": [
               {
                "system":
"http://example.org/system/code/sections",
                "code": "CARDIAL"
               }
              ],
              "type": "group",
              "enableWhen": [],
              "item": [
               {
                "linkId": "1.1.1.1",
                "code": [
                 {
                  "system":
"http://example.org/system/code/questions",
                  "code": "COMORBCAR"
                 }
                ],
                "prefix": "1.1",
                "type": "choice",
                "answerValueSet":
"http://hl7.org/fhir/ValueSet/yesnodontknow",
                "item": [...]
               }
              ]
             }
            ]
           }
          ]
         }
        ]
       }
```


Если отойти от JSON-формата, то выглядеть опросник может таким образом:

1. Comorbidity?
1. Cardinal Comorbidity?
1. 1.1.1.Angina?
2. 1.1.2.MI?
2. Vascular Comorbidity?
3. …

QuestionnaireResponse - ответ на вопрос

Ресурс QuestionnaireResponse - структурированный набор вопросов и ответов на них [4]. Ответы упорядочены и сгруппированы в логически последовательные подмножества, соответствующие структуре группировки лежащих в их основе вопросов.

Мы можем формировать QuestionnaireResponse по-разному: создавать один ресурс и по мере получения ответов на вопросы опросника, добавлять их в QuestionnaireResponse, либо каждый раз создавать новый ресурс с соответствующим ответом. Все зависит от возможностей сервиса, который принимает данный ресурс и создает по нему другой ресурс Observation.

Пример:


```
{
 "resourceType": "QuestionnaireResponse",
 "questionnaire": "url",
 "status": "completed",
 "subject": {},
 "author": {},
 "source": {},
 "item": [
  {
   "linkId": "1",
   "answer": [
    {
     "valueQuantity": {
      "value": 4,
      "unit": "*10^9/л",
      "system": "http://loinc.org",
      "code": "6690-2"
     }
    }
   ]
  },
  {
   "linkId": "2",
   "answer": [
    {
     "valueQuantity": {
      "value": 5,
      "unit": "*10^12/л",
      "system": "http://loinc.org",
      "code": "789-8"
     }
    }
   ]
  }, {…}
 ]
}
```


Patient - пациент

Ресурс Patient - демографическая и другая административная информация о человеке или животном, получающем медицинскую помощь или другие услуги, связанные со здоровьем [4].

Пример:


```
{
 "resourceType": "Patient",
 "id": "example",
 "text": {},
 "identifier": [],
 "active": true,
 "name": [
  {
   "use": "official",
   "family": "Chalmers",
```

```
    "given": [
     "Peter",
     "James"
    ]
   }
  ],
  "telecom": [
   {
    "system": "phone",
    "value": "(03) 5555 8834",
    "use": "old",
    "period": {
     "end": "2014"
    }
   }
  ],
  "gender": "male",
  "birthDate": "1974-12-25",
  "deceasedBoolean": false,
  "address": [
   {
    "use": "home",
    "type": "both",
    "text": "534 Erewhon St PeasantVille, Rainbow, Vic 3999",
    "line": [
     "534 Erewhon St"
    ],
    "city": "PleasantVille",
    "district": "Rainbow",
    "state": "Vic",
    "postalCode": "3999",
    "period": {
     "start": "1974-12-25"
    }
   }
  ]
 }
```


Архитектура приложения

Теперь несколько слов об архитектуре разрабатываемого приложения. Бот интерпретации зависим от многих сервисов (см. рис. 1), рассмотрим их подробнее.

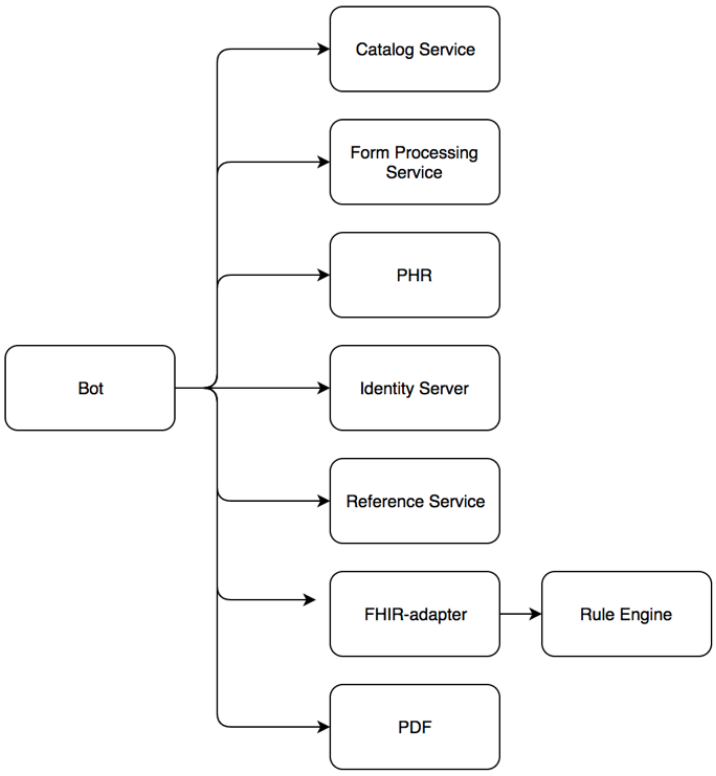


Рис. 1. Архитектура приложения

Catalog Service

Бот интерпретирует показатели различных анализов, поэтому такие показатели должны где-то храниться. По каждому анализу есть определенный список показателей, который почти не отличается, хотя конечно же бывают специфичные показатели для некоторых лабораторных служб. Жестко прописывать показатели было бы не очень продуктивно и красиво в плане реализации, поэтому, благодаря FHIR-стандарту, мы можем использовать такой ресурс, как Questionnaire, для того, чтобы сформировать список вопросов, который может использовать не только бот, но и другие сервисы. Вся работа по формированию опросников ложится на плечи медицинских

экспертов, а загрузка и распространение - на Catalog Service.

PHR

PHR (personal health record) сервис - персональная медицинская служба, которая хранит все клинические данные пациента в одном безопасном месте, предоставляет персонализированные рекомендации в отношении здоровья, помогает легко находить необходимые медицинские услуги, отслеживать основные параметры, проверять симптомы и общаться с поставщиками медицинских услуг. Данный сервис бот использует, чтобы хранить записи о пациентах - возраст и пол, больше никакой информации там не хранится, все показатели бот собирает во время опроса и сразу отправляет в сервис интерпретации, нигде не сохраняя. Каждое следующее заполнение - как с чистого листа.

IdentityServer

IdentityServer — это приложение Web API, которое отвечает за аутентификацию и умеет создавать токены. Два сервиса PHR и Reference Service, о котором будет написано ниже, имеют механизм аутентификации по специальному Bearer токену, который как раз таки и выдает Identity. Этот токен позволяет PHR и RS аутентифицировать клиента, то есть подтвердить “личность” бота, и авторизовать его - принять решение о том, какие действия бот может совершать в этом сервисе. Например, бот не может добавлять новые референсные значения, а только делать запрос на получение, потому что ему изначально не было дано таких прав.

Form Processing Service

Во время прохода по опроснику Questionnaire, мы получаем от пользователя ответы на вопросы из этого опросника, и чтобы как-то сохранить данный ответ, мы должны сформировать ресурс QuestionnaireResponse, который предоставляет полный или частичный список ответов на набор вопросов, заполненных при ответе на опросник. Но как было указано выше, сервис интерпретации работает с ресурсом Observation, а мы имеем только QuestionnaireResponse. Поэтому нам необходимо преобразовать наш большой сформированный QuestionnaireResponse по опроснику, в Observation’ы. Помогает нам в этом Form Processing Service.

Reference Service

Еще одна немаловажная вещь при заполнении показателей выполненного анализа - референсные значения этих показателей. Референсные значения - это медицинский термин, употребляемый при оценке результатов лабораторных исследований; определяется как среднее значение конкретного лабораторного показателя, которое было получено при массовом обследовании здорового населения. Изначально, пока не было какого-то вспомогательного сервиса, все референсные значения для каждого показателя были записаны в json файлах и “лежали” рядом с проектом, теперь же появился Reference Service, у которого мы запрашиваем ресурс ObservationDefinition – он представляет определительные аспекты своего Observation. Экземпляр ObservationDefinition представляет собой набор ограничений, применимых к значению для заполненного наблюдения.

Interpretation Service

Используемый нами сервис интерпретации имеет два подсервиса: FHIR-адаптер и непосредственно сервис, который интерпретирует показатели анализа RuleEngine.

FHIR-адаптер

FHIR-адаптер является некоторым маршрутизатором, который перенаправляет наши данные в сервис интерпретации и наборот, ответ от RuleEngine к нам.

Сервис интерпретации (или RuleEngine) - отвечает за анализ присланных показателей и их обработку по специально написанным правилам. На вход данный сервис принимает Bundle с Observation’ами - показатели анализа, по которым будет составляться интерпретация.

На выходе уже от FHIR-адаптера получаем ресурсы типа Cards - тип данных системы поддержки принятия решений (Clinical Desicion Support System), который регулируется в спецификации CDS Hooks.

Каждый сервис CDS может вернуть любое количество карточек в ответ на запрос. Карточки содержат некоторую комбинацию текста (информационное поле), альтернативных рекомендаций (рекомендационное поле) и ссылок на приложения или справочные материалы (поле с ссылками). Пользователю мы отображаем эти карточки в уже отформатированном виде по следующему принципу:

- информационное поле предоставляет текст в читаемом виде, это заголовок и описание;
- рекомендации - различные рекомендации, которые могут быть полезны для пациента. Если вы используете клиент, отличный от мессенджера, например, веб-сайт, то в такое поля можно заложить действие, например, нажать кнопку;
- поле с ссылками - предоставляет ссылки на различные приложения, где пациент может ввести любую необходимую информацию, посмотреть блок-схему и др. В нашем случае это поле пока не используется.

RuleEngine

Более интересным будет рассмотреть второй подсервис Interpretation Service, который непосредственно работает с показателями анализов, заполняемых пациентом. Хоть мы напрямую и не общаемся с RuleEngine, но это самый важный

сервис, который имеет прямое отношение к боту интерпретатору.

Как уже было сказано ранее, RuleEngine полностью отвечает за создание интерпретации по определенным данным, которые приходят ему на вход от бота.

Интерпретация создается по определённым правилам. Эти правила сначала составляются медицинскими экспертами на основе различных источников, данные в которых доказательно подтверждены. После этого такие правила могут редактироваться и обновляться уже непосредственно врачами также на основе статистических данных и других источников. Делается это все с помощью RuleEditor - сервиса, который позволяет создавать, редактировать и дополнять правила логического вывода. Каждое правило состоит из следующих связанных между собой определенным образом параметров (см. рис. 2):

- Definition - какое-либо наблюдение, значение показателя. Может принимать числовое, символьное или кодовое значения, в зависимости от того, что будет записано в конкретном Definition;
- Operation Rule - операционное правило, оно зависит от того, к какому Definition применяется. Например, если показатель числовой, то Operation Rule может принимать значения =, <=, >=, <> и др.;
- Aggregation Rule - агрегационное правило, используется если мы хотим каким-то образом объединить операционные правила, через операторы AND или OR;
- Function - различные операции над правилами, например, учитывать значение показателя только за определённый период;
- Artifacts - артефакты — это результирующие данные, которые будут использоваться в выводе, при условии, что сработало определенное правило логического вывода.

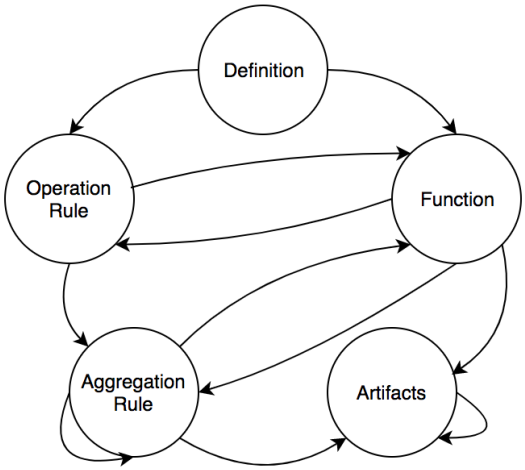


Рис. 2. Связи между элементами правила логического вывода

Процесс создания правила логического вывода можно увидеть на рис. 3.

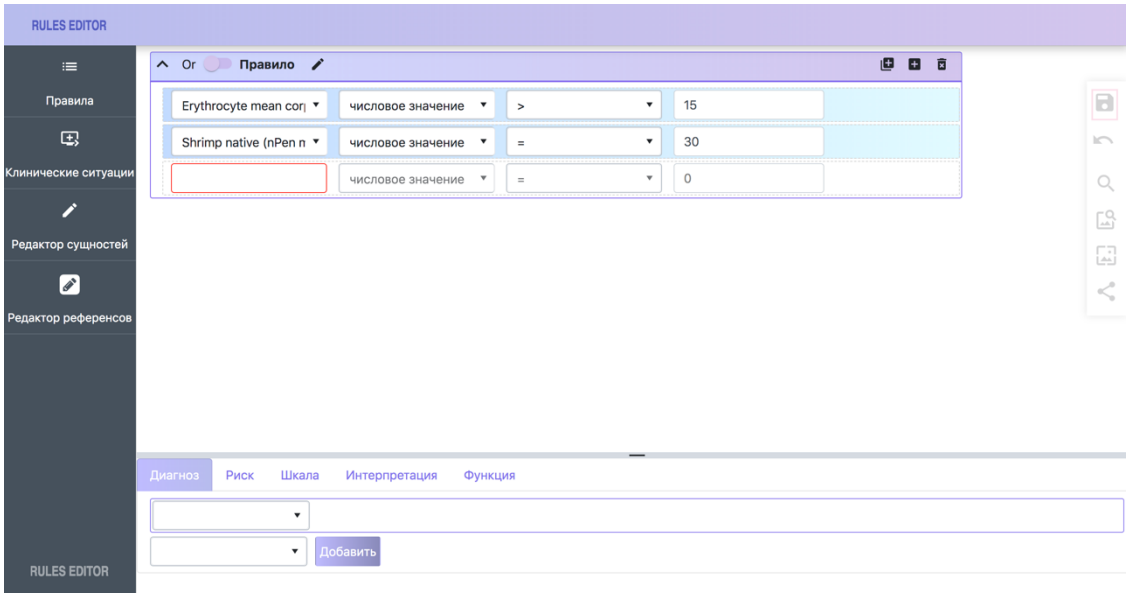


Рис. 3. Форма для создания правила логического вывода

Как вы уже поняли, чтобы вывести пользователю интерпретацию, мы должны получить артефакты. Рассмотрим, как происходит процесс их получения. На самом деле все достаточно просто. Для каждого анализа имеется свой граф с правилами (см. рис. 4). Когда от клиента (бота) на RuleEngine приходят показатели пациента, строится клиническая ситуация - создается json файл, в котором записаны все показатели пациента, референсные значения и другие дополнительные данные, которые могут внести свой вклад в итоговый вывод.

После этого, производится логический вывод по графу на основе клинической ситуации пациента, и мы получаем все соответствующие артефакты.

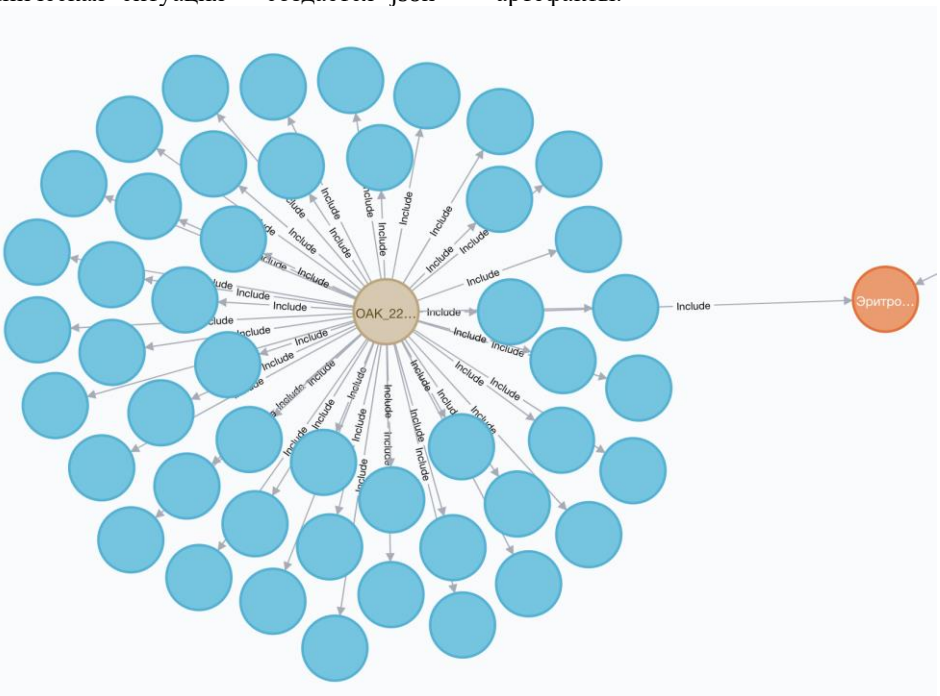


Рис. 4. Граф с правилами

PDF Service

PDF сервис - сервис, через который посредством отправки HTML строки, мы получаем байтовый массив, наш будущий PDF-файл.

Интерпретация анализов

Клинический анализ крови

Клинический анализ крови: общий анализ, лейкоцитарная формула, СОЭ (с микроскопией мазка крови при выявлении патологических изменений) – это один из наиболее часто

выполняемых анализов в медицинской практике. Сегодня это исследование автоматизировано и позволяет получить подробную информацию о количестве и качестве клеток крови: эритроцитов, лейкоцитов и тромбоцитов. С практической точки зрения врачу в первую очередь следует сосредоточить свое внимание на следующих показателях этого анализа:

- Hb (hemoglobin) – гемоглобин;
- MCV (mean corpuscular volume) – средний объем эритроцита;
- RDW (RBC distribution width) – распределение эритроцитов по объему;
- Общее количество эритроцитов;
- Общее количество тромбоцитов;
- Общее количество лейкоцитов;
- Лейкоцитарная формула – процентное соотношение разных лейкоцитов: нейтрофилов, лимфоцитов, моноцитов, эозинофилов и базофилов;
- Скорость оседания эритроцитов, СОЭ. Показатель СОЭ зависит от соотношения белковых фракций крови и количества эритроцитов.

Пример интерпретации

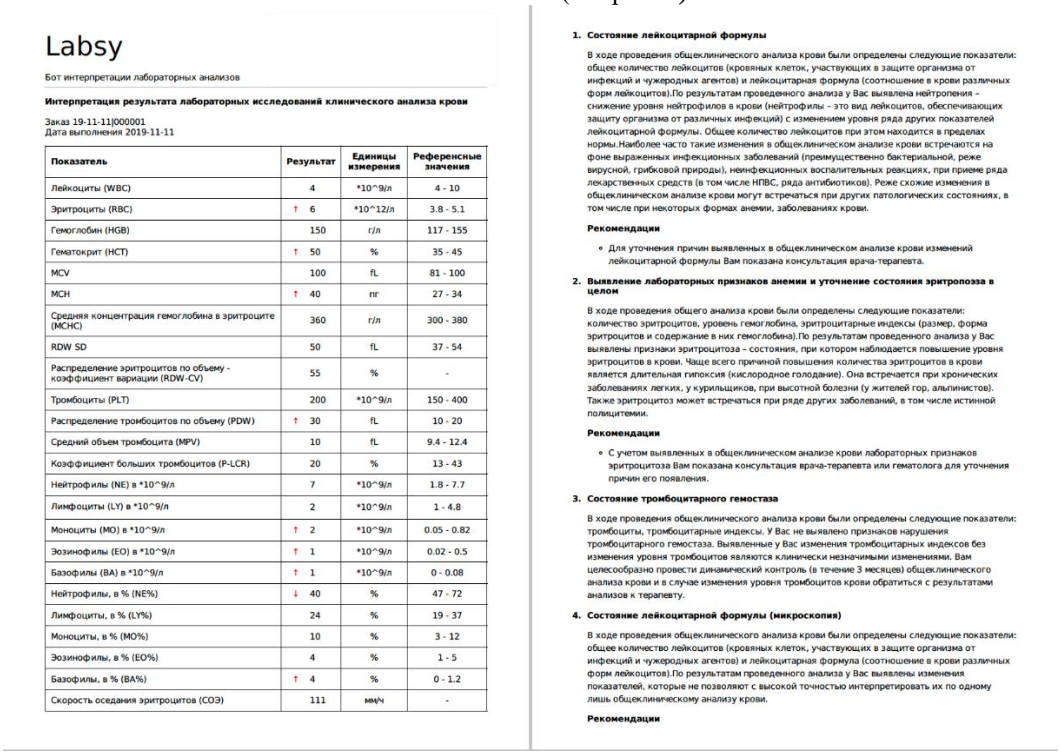
Бот предлагает пользователю ответить на вопросы о результатах своего анализа - ввести значения показателей из бланка, который выдает лабораторная служба после сдачи материала, в данном случае кровь.

Также, перед тем как перейти к заполнению показателей, мы должны узнать возраст и пол пациента. Дело в том, что мы не можем интерпретировать анализы пациентов до 16 лет, им предлагаем посетить врача-педиатра, который сможет пояснить результаты анализа с учетом возрастных особенностей.

После того, как пользователь заполнил все показатели, которые имеются в нашем опроснике и которые имеются у пользователя в бланке, мы отправляем полученные ресурсы в сервис интерпретаций. И уже можем сделать вывод и отправить пользователю интерпретацию.

Но наш сервис отличается тем, что у нас присутствуют дополнительные вопросы, которые задаются с целью уточнения введенных показателей, например, есть ли у пользователя аллергия, если да то на что именно, и другие вопросы.

Если пользователь хочет ответить на такие вопросы, чтобы интерпретация его анализов была более точной, то мы предоставляем ему эту возможность, если же нет, то сразу присылаем сообщение и сформированный pdf-документ в чат (см. рис. 5).



Labsy

Бот интерпретации лабораторных анализов

Интерпретация результата лабораторных исследований клинического анализа крови

Заказ 19-11-11|000001
Дата выполнения 2019-11-11

Показатель	Результат	Единицы измерения	Референсные значения
Лейкоциты (WBC)	4	*10^9/л	4 - 10
Эритроциты (RBC)	↑ 6	*10^12/л	3.8 - 5.1
Гемоглобин (HGB)	150	г/л	117 - 155
Гематокрит (HCT)	↑ 50	%	35 - 45
MCV	100	fL	81 - 100
MCH	↑ 40	пг	27 - 34
Средняя концентрация гемоглобина в эритроците (MCHC)	360	г/л	300 - 380
RDW SD	50	fL	37 - 54
Распределение эритроцитов по объему - коэффициент вариации (RDW-CV)	55	%	-
Тромбоциты (PLT)	200	*10^9/л	150 - 400
Распределение тромбоцитов по объему (PDW)	↑ 30	fL	10 - 20
Средний объем тромбоцита (MPV)	10	fL	9.4 - 12.4
Коэффициент больших тромбоцитов (P-LCR)	20	%	13 - 43
Нейтрофилы (NE) в *10^9/л	7	*10^9/л	1.8 - 7.7
Лимфоциты (LY) в *10^9/л	2	*10^9/л	1 - 4.8
Моноциты (MO) в *10^9/л	↑ 2	*10^9/л	0.05 - 0.82
Эозинофилы (EO) в *10^9/л	↑ 1	*10^9/л	0.02 - 0.5
Базофилы (BA) в *10^9/л	↑ 1	*10^9/л	0 - 0.08
Нейтрофилы, в % (NE%)	↓ 40	%	47 - 72
Лимфоциты, в % (LY%)	24	%	19 - 37
Моноциты, в % (MO%)	10	%	3 - 12
Эозинофилы, в % (EO%)	4	%	1 - 5
Базофилы, в % (BA%)	↑ 4	%	0 - 1.2
Скорость оседания эритроцитов (СОЭ)	111	мм/ч	-

1. **Состояние лейкоцитарной формулы**

В ходе проведения общеклинического анализа крови были определены следующие показатели: общее количество лейкоцитов (кровяных клеток, участвующих в защите организма от инфекций и чужеродных агентов) и лейкоцитарная формула (соотношение в крови различных форм лейкоцитов).По результатам проведенного анализа у Вас выявлена нейтропения – снижение уровня нейтрофилов в крови (нейтрофилы – это вид лейкоцитов, обеспечивающих защиту организма от различных инфекций) с изменением уровня ряда других показателей лейкоцитарной формулы. Общее количество лейкоцитов при этом находится в пределах нормы.Наиболее часто такие изменения в общеклиническом анализе крови встречаются на фоне выраженных инфекционных заболеваний (преимущественно бактериальной, реже вирусной, грибковой природы), неинфекционных воспалительных реакциях, при приеме ряда лекарственных средств (в том числе НПВС, ряда антибиотиков). Реже схожие изменения в общеклиническом анализе крови могут встречаться при других патологических состояниях, в том числе при некоторых формах анемии, заболеваниях крови.

Рекомендации

- Для уточнения причин выявленных в общеклиническом анализе крови изменений лейкоцитарной формулы Вам показана консультация врача-терапевта.

2. **Выявление лабораторных признаков анемии и уточнение состояния эритропоэза в целом**

В ходе проведения общего анализа крови были определены следующие показатели: количество эритроцитов, уровень гемоглобина, эритроцитарные индексы (размер, форма эритроцитов и содержание в них гемоглобина).По результатам проведенного анализа у Вас выявлены признаки эритроцитоза – состояния, при котором наблюдается повышение уровня эритроцитов в крови. Чаще всего причиной повышения количества эритроцитов в крови является длительная гипоксия (кислородное голодание). Она встречается при хронических заболеваниях легких, у курильщиков, при высотной болезни (у жителей гор, альпинистов). Также эритроцитоз может встречаться при ряде других заболеваний, в том числе истинной полицитемии.

Рекомендации

- С учетом выявленных в общеклиническом анализе крови лабораторных признаков эритроцитоза Вам показана консультация врача-терапевта или гематолога для уточнения причин его появления.

3. **Состояние тромбоцитарного гемостаза**

В ходе проведения общеклинического анализа крови были определены следующие показатели: тромбоциты, тромбоцитарные индексы. У Вас не выявлено признаков нарушения тромбоцитарного гемостаза. Выявленные у Вас изменения тромбоцитарных индексов без изменения уровня тромбоцитов являются клинически незначимыми изменениями. Вам целесообразно провести динамический контроль (в течение 3 месяцев) общеклинического анализа крови и в случае изменения уровня тромбоцитов крови обратиться с результатами анализов к терапевту.

4. **Состояние лейкоцитарной формулы (микроскопия)**

В ходе проведения общеклинического анализа крови были определены следующие показатели: общее количество лейкоцитов (кровяных клеток, участвующих в защите организма от инфекций и чужеродных агентов) и лейкоцитарная формула (соотношение в крови различных форм лейкоцитов).По результатам проведенного анализа у Вас выявлены изменения показателей, которые не позволяют с высокой точностью интерпретировать их по одному лишь общеклиническому анализу крови.

Рекомендации

Рис. 5. Пример PDF-документа с интерпретацией результатов анализа

Оплата

Как и любой коммерческий продукт, бот должен вносить свой вклад в дело компании. Первая интерпретация предоставляется пациенту бесплатно, все последующие можно получить за небольшую плату. Так как бот был реализован для двух мессенджеров Telegram и Facebook Messenger, то было решено использовать встроенные способы взаимодействия с платежами. Также хочется заметить, что можно использовать и любые другие внешние инструменты.

Telegram Payment API

С точки зрения пользователя система платежей полностью прозрачна. Боты могут отправлять пользователям сообщения в специально отформатированных счетах. Такие сообщения о счетах содержат фотографию и описание продукта, а также кнопку оплаты. Нажатие на эту кнопку открывает специальный интерфейс оплаты в приложении Telegram (см. рис. 6).

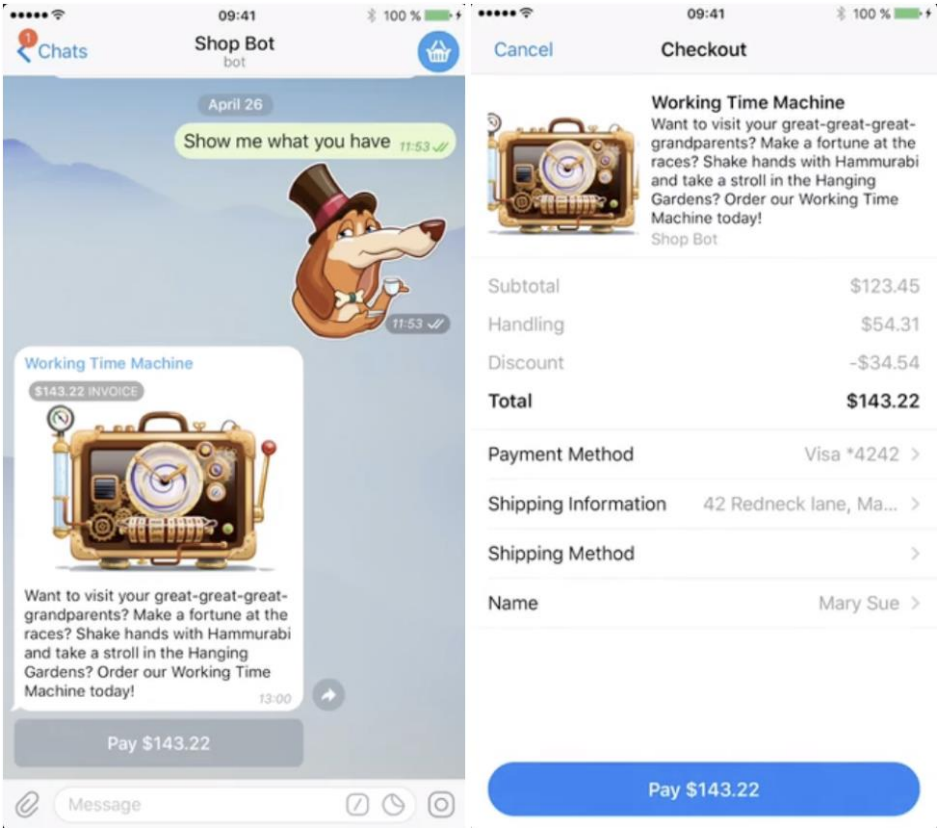


Рис. 6. Пример оплаты в Telegram

В этом интерфейсе пользователям предлагается дополнительная информация, такая как информация о доставке, номер телефона или адрес электронной почты. Как только они введут всю необходимую информацию, она будет передана боту. Когда все будет готово, пользователи могут ввести данные своей кредитной карты или выбрать одну из своих сохраненных карт - и оплатить продукт.

Telegram также поддерживает Apple Pay и Android Pay. Как только транзакция завершена, бот отправляет сообщение с квитанцией, которая содержит информацию об оплате, а также информацию о доставке.

Telegram не обрабатывает платежи от пользователей, а полагается на разные платежные системы. Они обрабатывают и хранят всю конфиденциальную информацию, такую как данные кредитной карты. Ни Telegram, ни разработчики ботов не имеют к нему доступа. На данный момент поддерживаются платежи из более чем 200 стран через следующие платежные системы:

- Stripe
- Paymentwall
- Яндекс.Деньги
- Сбербанк
- Payme
- CLICK
- Rave by Flutterwave

Telegram не берет никаких комиссий за использование Payment API. При этом надо иметь в виду, что платежные системы сами могут брать комиссию.

В своем блоге Telegram предлагает небольшой чек-лист с пожеланиями/требованиями/указаниями [5]. Всем этим правилам лучше конечно же следовать, чтобы избежать неприятных ситуаций с блокировкой вашего бота:

- Для Telegram аккаунта, с помощью которого создан бот, рекомендуется использовать двухфакторную аутентификацию.
- Владелец бота несет полную ответственность в случае возникновения каких-либо конфликтов или споров. Должна быть готовность правильно обрабатывать спорные ситуации и возвратные платежи.
- Во избежание недоразумений и возможных юридических вопросов необходимо,

чтобы бот мог ответить на команду /Terms (или любой другой доступ к Условиям). Условия и положения должны быть написаны в понятной и легкой для пользователей форме. Пользователи должны подтвердить, что они прочитали и согласны с вашими условиями, прежде чем совершить покупку.

• Бот должен предоставлять поддержку своим клиентам, либо отвечая на команду /support, либо другими способами. У пользователей должна быть возможность связаться по поводу их покупок, и необходимо своевременно обрабатывать их запросы в службу поддержки. Важно уведомить пользователей о том, что поддержка Telegram не сможет помочь им с покупками, сделанными через нашего бота.

• Важно, чтобы серверное оборудование и программное обеспечение были стабильны. В случае внештатных ситуаций использовать резервные копии, чтобы убедиться, что не данные о платежах пользователей не будут потеряны.

• Важно убедиться, что какой-либо чек-лист от провайдера платежной системы также был выполнен (возможно, что ему также нужно передавать какие-то обязательные параметры).

Теперь несколько слов о реализации взаимодействия с Payment API от Telegram. Прежде всего необходимо создать бота, который будет заниматься платежами либо подключить эту настройку в уже существующем боте. Делается это через BotFather. Выбираем с помощью команды /mybots нужного бота и идем в настройки платежей (Bot Settings > Payments). Выбираем провайдера (здесь существует возможность выбора тестового режима). После выполнения инструкции по подключению, необходимо опять вернуться в BotFather и мы сможем увидеть специальный токен подключения к платежной системе с префиксом TEST или LIVE в зависимости от того какой режим был выбран. Каждая платежная система предоставляет свою тестовую карточку, которой можно пользоваться при оплате.

Для обеспечения работы с платежами используем следующие методы:

• **SendInvoice** - метод для отправления счетов.

• **AnswerPreCheckoutQuery** - как только пользователь подтвердил свои платежные и адресные реквизиты, Bot API отправляет окончательное подтверждение в форме обновления с полем pre_checkout_query. Метод answerPreCheckoutQuery используется, чтобы ответить на такие запросы предварительной проверки. Важно: API-интерфейс бота должен получить ответ в течение 10 секунд после отправки запроса предварительной проверки.

Кроме этого, нам понадобятся следующие объекты API:

• **LabeledPrice** - стоимость товаров или услуг;

• **Invoice** - базовая информация о счете;

• **OrderInfo** - информация о заказе;

• **SuccessfulPayment** - информация об успешной оплате;

• **PreCheckoutQuery** - информация о входящем запросе предварительной проверки.

Facebook Payment API

Технология «Платежи Facebook» доступна во всех странах и поддерживает более 80 способов оплаты более чем в 55 валютах [6]. Ценовая стратегия, разработанная специально для региональных рынков, позволяет разработчикам оптимизировать свои продукты и создать нативные процессы оформления заказа для пользователей.

Людям удобно хранить платежную информацию на Facebook и оформлять покупки с помощью своих учетных данных. Facebook делает все возможное, чтобы обеспечить безопасность платежей и оправдать доверие людей.

«Платежи Facebook» позволяют разработчикам абсолютно свободно устанавливать цены на виртуальные товары для глобальной аудитории в местной валюте соответствующих регионов. Эта технология повышает эффективность процесса оплаты и делает процедуру покупки более удобной для потребителя.

Facebook позволяет провести оплату различными удобными способами:

• Кредитные карты - если пользователь хочет оплатить покупку с помощью кредитной карты, с которой он уже когда-то оплачивал свои покупки, то он имеет возможность воспользоваться сохраненной информацией об этой карте в Facebook. И также есть возможность добавить новую карту.

• PayPal - тут все аналогично кредитным картам. Пользователь пользуется либо уже сохраненным PayPal аккаунтом, либо добавляет новый.

• Мобильные операторы - в большинстве регионов люди могут также пользоваться финансовыми услугами мобильных операторов. В этом случае средства будут списаны с их счета напрямую или через SMS, а в ежемесячный счет на оплату услуг мобильной связи будет добавлена соответствующая сумма.

• И другие способы оплаты, такие как Western Union, MoneyGram.

В Facebook достаточно сложный способ настройки функционала, связанного с оплатой. Для начала необходимо зарегистрировать свою компанию и указать всю дополнительную информацию. После этого добавить продукты, которые будут продаваться, в нашем случае это интерпретации различных анализов.

Продукт содержит следующие поля:

- тип;
- заголовок;
- уникальный url продукта;
- описание;
- изображение - размер должен быть не менее 200 x 200 пикселей;
- стоимость;
- валюта - код валюты в формате ISO-4217-3.

Также в Facebook поддерживается статичное и динамическое ценообразования. Статичное ценообразование — это самый простой способ ценообразования. По этой модели цена на товар выставляется в объекте Продукт в определенных местных валютах, количество которых может быть любым. После анализа метатегов и кэширования данных объекта, когда Продукт участвует в процедуре покупки, пользователям моментально показывается диалог платежа.

Несмотря на то, что статичную модель отличает простота реализации и удобство платежей, в некоторых случаях более подходящим может оказаться метод, позволяющий динамическим образом изменять цену предмета в момент покупки. Чаще всего эту гибкую модель применяют, когда устраивают распродажу — на некоторое время снижают цены на товары в приложении или когда проводят A/B-тестирование разных цен для оптимизации конверсий. Эта модель также помогает установить для отдельных пользователей особые цены — например, чтобы поощрить лояльных игроков.

При использовании динамического ценообразования в момент покупки на сервер отправляется дополнительный блокирующий вызов, который задерживает показ диалога платежа. По возможности конечно же следует использовать статичное ценообразование. К динамической модели рекомендуется прибегать только в тех случаях, когда необходима дополнительная гибкость.

Заключение

В данной статье мы рассмотрели создание бота интерпретатора результатов анализов лабораторных исследований. Можно сделать вывод о том, что создание такого приложения является достаточно сложным процессом и подразумевает интеграцию с большим количеством внешних сервисов для обеспечения полноценной работы.

Также создание таких помощников является актуальной темой в современном мире, не только потому что огромное количество людей заинтересовано в использовании информационных технологий во всех сферах своей жизни, но и потому что сейчас развивается тренд на здоровый образ жизни, люди все больше и активнее следят за своим здоровьем. А разработка с помощью таких легких и понятных инструментов как боты, позволяет облегчить этот процесс в разы.

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INTERNATIONAL ASSESSMENT OF THE QUALITY OF EDUCATION: PARTICIPATION OF UZBEKISTAN IN PISA-2021 RESEARCH

Abstract: *In this article, we tried to cover the issues of the international assessment of the quality of education and our country's participation in such programs. PISA it is a program carried out to assess the achievements and shortcomings of students in the field of education, the main purpose of which is to increase the literacy of 15 – year-old students, to increase their mathematical potential, as well as to assess the level of knowledge in the Natural Sciences in the form of various tests. In 2021, our country will participate in this program for the first time. To prepare for this process, it is necessary to adapt our training program to it. The article will dwell on similar issues in detail.*

Key words: *programs for international assessment of the quality of Education, PISA, PIRLS, educational programs, the law "on education".*

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Introduction

At a time when our country is developing rapidly in the direction of innovative development, it is necessary to support the young people who are the continuation of our future in all aspects of their creative ideas and creativity, to formulate their knowledge, skills and skills, as well as to improve the evaluation system on the basis of advanced foreign experience, international criteria and, it is important to cooperate closely with research institutions. Today, Wide Opportunities and conditions for education are created in our country. In particular, after our independence, these opportunities have expanded even more. At the same time, on August 29, 1997, the law "on education " was adopted. This, of course, is also an example of the attention paid to education. Therefore, the purpose of this law is "to provide education and training to citizens in the Republic of Uzbekistan, to establish the legal basis of vocational training and the basic principles of the state policy in the field of education, and to provide everyone with constitutional rights to acquire knowledge. Also, the educational system of the Republic of Uzbekistan includes state educational standards, state educational requirements, and educational programs, or the first implemented educational organizations, individuals engaged in individual pedagogical activities, as well as scientific-pedagogical institutions. Also, on the basis of the decision of the Cabinet of Ministers of the Republic of Uzbekistan "On measures for the organization of international research in the field of assessing the quality of education in the people's education system" on December 8, 2018, the National Center for the quality assessment of Education under the Cabinet of Ministers of the Republic of Uzbekistan An important aspect is that on November 12, 2018, an agreement was reached between the State Department for quality control of Education under the Cabinet of Ministers of the Republic of Uzbekistan and the International Organization for cooperation and development on participation in the program of assessment of knowledge of international students in PISA-2021, i.e. "Argument for participation Within the framework of these studies, the literacy levels of students and young people of the Republic of Uzbekistan are tested for the first time, and this

requires very responsible preparation. To do this, it is important to develop special skills in students by conducting experimental tests based on assignments developed following the requirements of international studies, gradually integrating them into educational processes.

What is the PISA program?

PISA it is a program carried out to assess the achievements and shortcomings of students in the field of education, the main purpose of which is to increase the literacy of 15 – year-old students, to increase their mathematical potential, as well as to assess the level of knowledge in the Natural Sciences in the form of various tests. This lot has helped the reader assess the creative and critical thinking of young people, their ability to apply the knowledge they have acquired in life, and the formation of these skills. This program was adopted in 1997 and is carried out every three years. For the first time it was held in the 2000-the year, students from 43 countries tested their knowledge.

Does one question arise? Why is PISA exactly held among schoolchildren aged 3 to 15 years every year?

The main objective of the PISA program is to support the adoption of decisions in the field of educational policy between countries. The implementation of the program during the three-year analysis will, in turn, create the opportunity to provide timely information to all states, fact delivery for the analysis of the impact of the relevant programs. If the transfer period of the program is carried out in short periods, the development of changes and innovations or the inability to collect sufficient data, which in turn leads to a decrease in work productivity. Exactly the reason for the implementation of the program among 15 year old schoolchildren at this age, most of the countries that are members of the Organization for Economic Cooperation and development, the youth of schoolchildren move to the most recent stage in compulsory education.

In general, are schools able to prepare students suitable and original for the transition to a larger life? Is it true that some types of training programs are more effective than other programs?

Today, the PISA program is being launched and presented to practice with the responsibility of the ministers of education based on the decision of the board of directors. It is worth noting that the schoolchildren do not get enough of the knowledge that they need for themselves during a whole school period.

And the PISA program serves as a program that helps students not only to acquire knowledge but also to express their thoughts more deeply. Are students of Uzbekistan currently ready for the PISA program and assessment system?

We know that our education system is continuous. Several studies are being conducted in urban, district schools on this evaluation system. However, these studies, in my opinion, are conducted very rarely. We need to deal more with this program, which will be held among the students of our state in 2021. These programs not only serve as an important factor in the transformation of students capacity but also to update the teachers' experience. Today's International Assessment System is rapidly entering our educational system.

Consequently, PIRLS is aimed at studying and this system of assessment is mainly aimed at assessing the educational literacy of the students. More than 50 countries are participating in the PIRLS study. The purpose of this international study is to determine and evaluate the specific characteristics of Primary School students in the educational system which is composed of different educational systems as well as the preparation of the text for reading and acceptance as well as the various achievement of the students. Of course, such a study will help workers, scientists, Methodists, teachers in the field of public education, it is of great importance for parents and representatives of the church.

—Literacy question refers to the success of students in the implementation of their plans in the future, that is, the acquisition of knowledge, preparation for labor activity, the acquisition of literacy skills as the main tool for participation in social life and labor. The essence of the concept consists in understanding, analyzing, thinking, observing, applying to live the signs that characterize it.

—When writing text, we mean texts that are printed, handwritten, depicted on the display, used natural language. Such texts can consist of visual images in the form of diagrams, pictures, cards, tables, graphics. Except for films, TV shows, multipliers, the introduction of unconditional pictures, because they require a different way of perception. When visual images are inserted, the texts can be divided into holistic (without such images) and non-holistic (with images) texts. At the same time, visual images (visual texts) can also be given separately independently.

It is impossible to categorize texts perfectly. For the study, the following general characteristics of the texts were found to be very important:

- clarity and consistency of the statement;
- their reality;
- fact characterization without analysis (scientific, practical and other texts) and texture;
- artistry (artistic publicists and other texts) is their holistic and unique feature.

The study uses all types of texts, including texts that do not fit into any category.

To determine the differences in the ability of students to read different types of texts does not fall within the objective function of the study. The purpose of the study is to find out the results that are common and significant to them by offering more used texts in

life so that students can understand what they are reading.

The general summary classification of texts based on the study is as follows:

Holistic texts:

- Description (statement) artistic and technical assignments 13%
- Storytelling (story, Report, reportage) 22%
- Explanation (understanding giving, essay, description, explanation, summary (resume), interpretation (interpretation)13%
- Facts (commentaries, scientific justification) 13%
- Instruction-manual (instruction for doing work, rules, statutes, laws) 5%
- Instruction-manual (instruction for doing work, rules, statutes, laws) 5%

Non-holistic texts:

- Charts -11%
- Diagrams -3%
- Tables -11%
- Cards -3%
- Document samples - (tax documents, visiting papers, questionnaires) -3%
- Information papers and announcements 2%

When evaluating literacy, the following five aspects are taken into account:

1) to understand the general orientation of the text content and its logical integrity (20% of assignments).

2) identification of data (20%)

3) interpretation of the text, interpretation (30%)

4) analysis of text content, observation (15%)

5) thinking over the style of the text (15%) all aspects of Reading Literacy are interrelated with each other.

The successful discharge of the second aspect depends on the correct execution of the first. Full understanding of the text presupposes the level of in-depth knowledge of each aspect of the reader.

In order to determine what the content of the text is aimed at and to understand its meaning integrity, it is necessary to determine the general purpose of the main topic or what is the purpose for which the text is intended. To do this, the reader himself must be able to think up a title to the text, draw up a thesis that represents the general meaning of the text, explain the order of the lines shown in the text, determine from what the main components of the graph or tables are examples, determine the meaning of the card or picture.

Tasks such as determining the purpose are assigned.

Assignments aimed at determining whether one understands the text in general or not, can be given to readers to determine the compatibility between part of the text and the general idea in the form of a question, the compatibility between the part of the text and the specific interpretation given by the author.

Among the given definitions of the idea of the text, the proposal to choose a generalized, predicate indicates the skill of the reader to distinguish the main idea from the second.

In order to perform tasks, the reader must have knowledge of the structure of the text, the features of the genre, notice the subtleties of the meaning in which the word is expressed, understand the author's opinion, and be able to distinguish between the proverb that the author gives to the described event and the proverb that is described. Assignments that show the understanding of the style of the text critical analysis of the work activity, the appropriateness of the image to the idea that the author thought, or the assessment of the appropriateness of the text as a stylistic interpretation, and other methods.

—The term literacy is used to emphasize the skill of students to apply the acquired knowledge to everyday life.

For example, functional reading (service, work) implies the ability of the reader to receive information and evaluate it, to read diagrams, to find links (links) in the text, to interpret, interpret, to draw conclusions.

Literacy of reading is the ability to perceive the forms of written language that are required by society and respected by people and to apply them in practice.

Also, students will be able to master the content of the texts through various forms as well as figuras.

Why do students study?

Students first of all study to gain knowledge. They also study in order to participate in everyday life, as well as to occupy a worthy place in society. Pisa and PIRLS programs are considered to be important in terms of students knowledge,world outlook on growth and development. At the same time, he is directly and indirectly involved in the rapid development of the quality of Education. Currently, several developed countries are conducting such evaluation systems among students. In particular, in Uzbekistan, jannatmakon, this assessment system will be conducted among school children in 2021.The main purpose of this project is to further develop the minds of the students, expand their worldview, as well as to provide the children worthy of our state, that is, mature personnel.

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TECHNOLOGY OF IMPROVING THE PERSONALITY OF CREATIVE TEACHERS

Abstract: *In this article, we will talk about the technology of improving the personality of creative teachers, study and practical description of the scientific and theoretical foundations of the formation and development of creativity in future pedagogues, dwell on the issue of educating the personality of creative teachers.*

Key words: *creativeness, creative teacher, teacher personality, as an important factor of creativeness, pedagogical activity, pedagogical skill.*

Language: *English*

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Introduction

The world recognition of the national model of Personnel Training of the Republic of Uzbekistan, aimed at the training of a competent person and mature specialists, is largely determined by the fact that the education and training system is organized on fundamentally new grounds. The successful solution of the huge tasks carried out in this regard is largely due to the training of socially active teachers with professional skills, who can confidently introduce innovative technologies in their activities, have high professional independence and personal views. However, there is resistance to the objective between the new, higher requirements for the improvement of educational processes, as well as the need to form a flexible specialist in a new-thinking, professional-pedagogical activity and the lack of development of conditions that allow meeting these requirements. Elimination of this dependence is considered the problem of the study and determines its relevance.

The ideal of the teacher who should work in schools in the "Pedagogical education consortium" of the Republic of Uzbekistan is described as follows: "Teachers who are preparing for work in the schools of the Republic of Uzbekistan are aware of the religious sciences that are capable, creative, possess universal and national-cultural values, secular knowledge, knowledge, skills, psychological-pedagogical, methodical knowledge and skills, understanding duty, it is necessary to have a teaching profession and a division that loves children, humane, demanding, fair, pedagogical manners, which helps students to grow up as a harmonious person". The problem of the formation of these adjectives in the person of the teacher is that the modernization of the education system is more viscous and manifested. "Today we live in a time that is changing rapidly. The competition of interests on a global scale is increasing and the international situation is becoming tenser, " the head of state said in his appeal Mirziyoev. There are many difficulties and contradictions in solving the problems of the preparation of the teacher in the socially active vocational-pedagogical process. To eliminate them, a thorough study of the essence of teacher and active teacher activity, its components and the structure of individual activity is required.

Creativity (lat., ing. "create " – creation," creative" creator, creator) - expresses the meaning of the creative ability of an individual to characterize readiness to produce new ideas, as well as being part of creativity as an independent factor. The creativeness of a person is manifested in his thinking, communication, feelings, certain types of activities. Creativeness characterizes a person as a whole or as

its specific characteristics, mental acuity. It is also reflected as an important factor in creativeness.

American psychologist P. Torrens, creativeness represents the proposition of problem or scientific hypotheses; examination and modification of hypothesis; identification of problem-based on the formulation of decision results; interaction of cognitive and practical action in problem-solving.

Like any other quality (virtue), creativeness does not form at once. Creativeness is formed and developed consistently at certain stages.

The quality of the teacher's creativity is the direction of his abilities, natural and social strength to the qualitative, effective organization of professional activity. The fact that teachers working in the system of Higher Education have the qualities of creativeness helps to create new ideas, not to think in one mold, not to tolerate originality, initiative, uncertainty, in contrast to the traditional approach to the organization of educational and educational processes in them. Therefore, creative approach to the organization of pedagogical professional activity with the qualities of creativeness, activity in the creation of ideas that serve to develop the educational activity, personal qualities of new, advanced, future teachers, independent study of advanced pedagogical achievements and experiences, as well as to have a constant, consistent exchange of views on pedagogical achievements with colleagues. The pedagogue does not remain creative in itself.

His creative ability is shaped by consistent reading and learning, working on his own, over a certain period, and he gradually improves and develops. As in any specialist, the foundation is laid in the student's years so that future teachers can be creative, and consistent development is achieved in the organization of professional activities. It is important that the Bunda educator himself directs creative activity and can effectively organize this activity.

In the organization of pedagogical creative activity, it is necessary to pay special attention to solving problematic issues, analyzing problematic situations, as well as creating products of creativity of pedagogical character.

The creativeness of a person is manifested in his thinking, communication, feelings, certain types of activities. Creativeness characterizes a person as a whole or as its specific characteristics, mental acuity. It is also reflected as an important factor in creativeness. Modern pedagogy requires highly qualified pedagogical personnel. The implementation of this project work is carried out as follows:

1. Implementation of systems of moral and material stimulation of teachers;

2. Updating the requirements for the certification of pedagogical personnel;

3. Improve their skills;

4. Broad popularization of best teachers ' experiences.

Creativity can be called a desire for creativity, a creative approach to life, a constant critical look, and an analysis of oneself. Based on the dictionaries of modern psychology and pedagogy, the teacher can be described as creative, the level of creative approach, cognition in his senses of thoughts, in communication, in a particular type of activity.

The creativity of the teacher, this is his to look for different original ideas in conditions of strict, restrained or sluggish limitations. The analysis of scientific literature makes it possible to distinguish the following interrelated components of creativity:

1. Intellectual (intelligent);

2. Moral (self-management);

3. Motivational (purposeful);

4. Emotional (feeling exciting).

To teach future teachers to think creatively, to be able to form creative thinking in them, it is first necessary that the teacher himself is a creative, creative person. If he does not have the qualities of creativeness, then how can he motivate future teachers to creative thinking. The only conclusion that can be drawn is as follows: the teacher himself is creative, creative, and future educators can also be. It is necessary for the teacher not to be creative and creative, but to organize the lessons in the spirit of creativity, creativity, strive to test new ideas in the educational process. In the lessons, the teacher moves according to the" road map of creativity " in the following 4 directions, and the actions in them are considered to be the characters (Patti Drepreau) that represent the creativity of teachers:

a) demonstrate creative thinking skills;

b) to be able to use strategies that encourage future educators to adopt educational disciplines with interest;

c) innovative approach and creative approach to solving pedagogical issues;

d) expected result.

Creativeness is consistently developed at certain stages. So, when are the features of creativeness manifested in the activity of the individual? Although usually creativity is often overlooked in children's activities, however, this situation does not guarantee that children will achieve creative success in the future. Only by them he or she expresses the probability that they will need to master this or that creative skill, skill. When developing creativity in children, it is necessary to pay attention to the following:

1) to encourage them to ask a lot of questions and support this habit;

2) to encourage the independence of children and promote responsibility in them;

3) to create an opportunity for independent activities to be organized by children;

4) paying attention to the interests of children

The Researcher N.Fayzullaeva considers it necessary for future teachers to master the following skills, skills based on a thorough study of the knowledge of pedagogy: knowledge of the main ideas, conceptions, laws of pedagogy and the laws of development of pedagogical phenomena; knowledge of the most important theoretical ideas, main categories, and concepts of pedagogy; knowledge of the main pedagogics; possession of practical knowledge

E. In Psychology E.P.Torrens developed tests that determine personality creativity. E.P.Torrens believes that personality creativeness manifests itself in the following signs:

1) ignoring questions, shortcomings and conflicting information;

2) to attempt to identify the problems, to find solutions to them based on the assumptions put forward.

Today in psychology, personality creativeness is determined in two aspects inherent in its activity. The uses tests that illuminate two aspects of the activity.

In the process of developing personality creativity, it is worth noting that the concepts of "stratification", "periodization" play an important role. So, what kind of content do these two concepts represent?

Stratification (lot. "differentia" – "differentiation", "degree") - the separation of the whole into different stages or levels.

Periodization (Greek. "periods – - "circle rotation") – the separation of a particular phenomenon into units of time, covering some kind of completed process

In creative development, the period and stage in the life of each person play an important role. All in all:

The period of development of creativeness is a unit of time in which the development of certain qualities of creativeness is completed.

The stage of development of creativeness – the degree of development of certain creative qualities accordingly, the qualities of creativity even in pedagogues in certain periods and stages, the skills of creative activity develop. B die educators with creative thinking: express ideas that other future educators have never dreamed of;

chooses a specific style of self-expression;

sometimes the subject has no connection or asks unusual questions;

the solution enjoys tasks that remain open;

prefers to discuss ideas based on clear evidence;

chooses an unconventional approach in finding a solution to a problem.

- Personality-specific creative qualities are listed as follows:
- Creative direction;
- Ability to think logically;
- Erudition (bracelet);
- Rich imagination;
- Creative responsiveness and initiative;
- To demonstrate their creativity in full;
- Ability to reflect;
- Wealth to emotion;
- Ability to rely upon;
- Possess speed of thought;
- The development of internal intuition;
- Ability to advance specific (original) ideas;
- Ability to innovate;
- Possession of high artistic values;
- New decision-making skills based on existing experience and knowledge.

Educators need to have the following skills, which represent the qualities of creativity, as well as the ability to organize creative activities:

Groups of skills that allow educators to organize creative activities:

1) cognitive (Gnostic) skills;

2) design skills;

3) creative-practical (constructive) skills; research skills;

4) communication input (communicative) skills;

5) organizational skills;

6) procedural skills that ensure consistency;

7) technical and technological skills

Below is an overview of the essence of these skill groups:

Cognitive (Gnostic) skills:

- An accurate definition of educational tasks, taking into account the age and individual characteristics of future teachers, socio-psychological peculiarities of the team;
- didactic, psychological and methodical planning and analysis of the educational process, based on modern educational requirements;
- to be able to reasonably choose effective forms, methods, and means of organizing educational and educational processes;
- to be able to determine the results of material assimilation by future teachers due to the requirements of the curriculum, the level of education and development of students;
- to carry out various works on the development of interest, needs, and activities of future teachers in the field of knowledge;
- conduct various educational activities in the classroom, extracurricular conditions, day-to-day groups, circles, clubs or societies;
- future educators carry out individual work with their parents;
- formation of skills of personal and general hygiene practice, skills of providing first medical care, the need for healthy living in future teachers;
- the use of various instructional weapons, modern technical means, information and advanced pedagogical technologies in the educational process;
- development of didactic material and instructive weapons;

- to inform parents about the basics of pedagogical knowledge, the main age characteristics of children, psychological peculiarities, the essence of the relationship between parents and children at different age stages;

- self-analysis, self-assessment, and correction of inadequacies allowed in personal activity

Design skills:

- creation of projects of lessons or educational activities;

- create a technological map of a lesson or educational event;

-step-by-step lighting of the essence of the lesson or educational event;

- clearly define the purpose of educational or educational activity;

- to identify the tasks that are appropriate for the purpose;

- Didactic, Educational and developmental goals of educational material

statement;

- formation of the material content of educational or educational character;

- several that reveal the content of educational or instructional material

ensuring mutual consistency between data;

- questions that encourage future teachers to think independently

system development;

- justification of the methodological structure of the lesson or educational event;

- To create an assessment of the level of education and development of the future pedagogical team and individual student

Foreign educators, in particular, Patti Drapeau, believe that the creativity of one person, especially the teacher, inspires others (students)to organize the creative process. Creativeness has the property of; Infectious; a person to be creative can communicate with more creative people and should always be in search. As it is possible to formulate any skill, it is also possible to develop the ability or skill of creative thinking.

This is also true of future teachers, and working on creativity helps future teachers to think unusually. However, to enlighten future teachers and motivate them to be creative depends on how well the teacher is qualified. Studies on creativity and the work of the theorists of creativity serve as a guide in the formation of the skills of creativity in future teachers. It includes elements of the environment in the audience, the formation of the way of thinking in future teachers, the approach and strategies of the teacher.

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DESCRIPTION OF FEATURES OF THE CONCEPT OF SPIRITUALITY IN THE POLITICAL SYSTEM

Abstract: *Spirituality as a fundamental value has always occupied a significant place in the formation and strengthening of society, since historically it has become the main forms of existence and means of preserving national identity: cultural tradition is a form of social inheritance that has found expression in certain archetypes of national identity.*

Key words: *spirituality, societies, personality, political system, tradition, education, ideology.*
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ОПИСАНИЕ ОСОБЕННОСТИ ПОНЯТИЕ ДУХОВНОСТИ ПОЛИТИЧЕСКОЙ СИСТЕМЕ

Аннотация: *Духовность как основополагающая ценность всегда занимала значимое место в формировании и укреплении общества, поскольку исторически так сложилось, что основными формами существования и средствами сохранения национальной самобытности выступили: культурная традиция форма социального наследования, нашедшая выражение в определенных архетипах национального самосознания.*

Ключевые слова: *духовность, общества, личность, политическая система, традиция, воспитания, идеология.*

Введение

Сегодня мы живем во времена быстрого и постоянно меняющегося обмена информацией в условиях глобализации. Глобализация наряду с развитием науки и техники оказывает значительное влияние на моральный дух людей. Развал старых классических и традиционных научных взглядов на мир сегодня требует решения многих глобальных социальных и политических проблем, связанных с борьбой за выживание человеческой цивилизации. Это требует научно-методологического подхода к проблеме, выработки политических и концептуальных взглядов на развитие нового духовного мировоззрения. Вот почему сегодня обновление и реализация моральных ценностей и норм на основе существующих социальных и политических требований имеет первостепенное значение. Вот почему важно изучать проблему духовности в контексте современных политических требований в связи с фундаментальными (базовыми) этическими стандартами, их политическими основами через деятельность определенных государственных институтов и институтов гражданского общества.

Сегодня понятие «духовность» было предметом критических и рефлексивных комментариев многих философов и политологов. Хотя это понятие изучалось многими учеными-философами, понятие «духовность» еще не имело универсальной основы в политологических исследованиях. Ученые разных стран всегда анализировали явления, которые должны быть включены в концептуальные разработки, основанные на политической науке, в своих исследованиях. Например, в нашей стране многие

философы провели большое исследование, чтобы запомнить, возродить и переосмыслить первоначальный, глубокий и широкий смысл понятий «значение» и «духовность»[1].

В этом контексте А.Эркаев отмечает, «Духовность - это сущность человека как социокультурного существа. это сложный, объединенный набор многих человеческих качеств и волевых качеств, решимости и тому подобного» [1,с.27].

«Потому что честь - это, по сути, самооценка человека, его ценность в отношении того, признается ли она обществом или нет». Они борются за честь семьи и нации» [2,с.207-208].

В прежней Советской системе духовное наследие, историко-культурный процесс интерпретировались с точки зрения классических интересов социализма и освещались: ряд широко известных в мире исторических событий игнорировался, поскольку они не вписывались в классические идеологические интересы. был дан [3,с.27].

Кроме того, специфическая редукция в интерпретации духовности была связана с человеческим восприятием человека, определяемым внешними воздействиями социальной среды, определяемыми не только в их собственной деятельности, но и в их внутреннем существе. В то же время, что отличает человека от других живых существ, так это то, что оно не позволяет ему распознавать духовные явления как определенный уровень его существования.

Исследования, направленные на изучение внутренней потребности и логики национального духовного наследия, а также возможность познакомиться с достижениями мировой духовной культуры, позволили изменить многие подходы. Как отметил С.Отамуротов: «Национально-духовное наследие имеет положительный опыт, навыки и потенциал предков на разных исторических этапах государственного строительства. это комплекс [4,с.54].

Духовность - это совокупность качеств, основанных на способности создавать весь внутренний мир человека с приобретенными знаниями и переживанием эмоциональных переживаний, превращая его в субъективный, основанный на универсальных ценностях, с акцентом на истину, доброту, красоту и любовь в процессе самосовершенствования. В этом смысле Султанмурод Олим сказал: «Духовность - это тенденция творить добро и воздерживаться от зла [5,с.14].

С этой точки зрения на эволюцию мышления и внутренний мир индивида не может повлиять сущность понятия духовности, которое все больше теряет границы соответствия и представляет себя как характеристика человека и общая черта. Вот почему М. Имомназаров изначально предположил, что «Духовность - это божественный свет в сердце ...». [6,с.6]. По словам А. Джалалова, «духовность является одним из факторов, определяющих уровень развития нации, людей в целом и общества в целом». " [7,с.36-37].

По мнению И.Абдуллаева слова Маънавият-происходит от арабского слово маъно-суть! означающего несколько значений, таких как дух, разум, восприятие, духовное состояние, внутреннее настроение, смелость, смелость, характер, сущность, забота, забота, вкус" [8,с.14].

Академик Е.Юсупов объясняет, что духовность - это не одно из тех качеств и достоинств, которые существуют в человеке: является общей системой, которая может оказать положительное влияние на развитие общества, тесно связанного с ним [9,с.34].

С этой точки зрения самой сущностью духовности и ее существенной основой является мораль. Поэтому Т. Махмудов отмечает, «Духовность - это универсальная концепция, охватывающая всю человеческую деятельность и идеалы нации и личности ... это мир духовного восприятия ».[10,с.34]. Переход на духовный уровень - это сознательный выбор индивида, но основной закон духовного существования - это послушание. Послушание этому закону, в свою очередь, зависит от духовного облика нации. Вот почему М.Х. Ногайлиева сказала: «Образ нации - это реальность с ее культурными и нравственными качествами."[2] .

Моджайскова И.В. пишет о негативных изменениях, которые сейчас складываются у русской нации. По его словам, «негативные изменения во внешности российской нации в основном вызваны состоянием понимания и абсурдом. И чтобы избавиться от них, духовность нации является приоритетом ». Например, образ русской нации отражается в глазах американцев или других европейцев: представьте себе людей, живущих с сапогами на ногах, с балалайкой в руках и цепным медведем у дверей, с картофельным салатом и солеными огурцами дома. будет. Очевидно, что сколько бы россияне ни старались улучшить свой менталитет, и уж точно не в преддверии количества нобелевских лауреатов, истинный образ нации все еще сохраняется и опечатывается[3].

[1] Имомназаров М. Маънавиятимизнинг такомил босқичлари. – Т.: "Шарқ". 1996. 6-б.

[2] Ногайлиева М.Х. Образ человека в структуре духовного производства : социально–философский анализ : диссертация ... кандидата философских наук.– Пятигорск, 2007.– 133 с.

[3] См: АиФ №25, 2007.

В настоящее время научный анализ духовности все шире изучается в политической науке, поэтому мы считаем, что в центре нашего исследования до настоящего времени. Феномен духовности широко признается многими учеными как средство спасения мира от последствий глобальной политической экспансии и связанной с этим угрозы исчезновения. Вот почему Первый Президент Республики Узбекистан И. А. Каримов сказал: «Для всех нас ясно, что, где бы ни происходило пренебрежение и равнодушие, где игнорируются самые насущные проблемы, духовность становится самым слабым местом. И наоборот, там, где преобладают бдительность и бдительность, высокий интеллект и разум, духовность становится мощной силой.” [11,с.116].

Различные политические взгляды на изучение человеческой духовности в современном обществе имеют свои значения. Сегодня ведущая роль в выявлении и изучении политической сущности этого духовного явления тесно связана с политическими интересами государства, общества и человеческих отношений. Действительно, духовность также относится к внутренней сверхъестественной силе, которая обеспечивает существование государства. Потому что «духовность защищает нацию, национальную культуру, национальный образ жизни». Комплексный анализ этих концептуальных взглядов с точки зрения требований политологии помогает сформировать четкую политическую картину этого духовного мира человека.

Укрепление национального генофонда и воспитание молодого поколения в стране являются ключевыми вопросами в нашей стране. В соответствии с Указом Президента Шавката Мирзиёева «О мерах по радикальному улучшению управления дошкольным образованием» от 30 сентября 2017 года особое внимание было уделено созданию новой образовательной системы в этой области.[4].

Важно отметить, что вышеупомянутые реформы играют важную роль в понимании не только механизмов, влияющих на духовность общества, но и его политического значения. В частности, Указом Президента Республики Узбекистан Шавката Мирзияева «О Программе комплексных мер по развитию системы издания и распространения книжной продукции, воспитанию и развитию книжной культуры и культуры чтения» от 14 сентября 2017 года играет важную роль в продвижении его духовной жизни[5].

На основании этого решения были разработаны конкретные предложения по совершенствованию системы финансовой поддержки, развития и финансовой поддержки детских изданий, созданию электронных каталогов и систематических электронных книг, имеющихся в отечественных издательствах для удовлетворения спроса населения на научную, образовательную, художественную, энциклопедическую и детскую литературу. Это также страна, которая постоянно обновляет, обновляет лучшие образцы мировой литературы на узбекском языке. • Усилить меры по упорядочению, публикации, публикации и финансированию в высоком качестве, дальнейшему развитию системы распространения книг и разработке четких механизмов ценообразования и продажи книжной продукции, государственных стандартов в области издательского дела, информации и библиотек. реализация мер по дальнейшему совершенствованию, особенно неглубокого, этического, негативного воздействия на воспитание молодежи, не соответствующей нашим национальным моральным устоям и ценностям. дуэт подготовки, печати и распространения публикаций, которые могут принять меры для предотвращения дальнейшего получения заметного успеха[6].

С этой точки зрения важно укреплять нашу духовную деятельность в трудное время, когда каждая нация борется за сохранение своей культуры и распространяет различные разрушительные идеи, направленные на подрыв духовности наций.

Процесс понимания духовности связан с пониманием важных аспектов во всех аспектах политического процесса. Это проблема, потому что политика важна даже в различных социальных и гуманитарных науках. Кроме того, принципы открытости, добросовестности, свободы, равенства и коллективной собственности на политическую власть действительно присущи демократическому обществу и являются основой для установления и поддержания политических основ духовности. Потому что, как указывает Тоффлер, «землетрясение предшествует землетрясению в одном из самых уникальных событий в мировой истории - природа суверенитета меняется».[7]

На наш взгляд, именно эта политика демонстрирует целенаправленный характер политических процессов, рассматривая руководящие и организационные аспекты духовности. Это особенно важно в контексте политических потрясений и экономического

[4] http://xs.uz/index.php/uzhzhatlar/item/11097-maktabgacha-ta-lim-tizimini-tubdan-takomillashtirish-chora-tadbirlari-t-risida

[5] Ўзбекистон Республикаси қонун ҳужжатлари тўплами, 2017 й., 38-сон, 1029-модда.

[6] http://lex.uz/pages/getpage.aspx?lact_id=3338600

[7] Тоффлер, Элвин. Третья волна. М.: АСТ, 2004 — 784 с.

кризиса, который происходит в современном мире, а также возможности политических конфликтов на различных уровнях. Например, в современных глобальных политических трансформациях кризис моральных устоев жизни также трагичен. Проблема «потерянного поколения», на которую повлияла «популярная культура», находится в центре внимания не только философов, но и политиков. С этой точки зрения сложно определить стратегические направления развития государства и общества без политического понимания морали и ее проблем. В то же время, роль человека в мире, влияние политических изменений в конце 20-го века на человеческую мораль и необходимость пересмотра стратегии безопасности для предотвращения моральных кризисов. Особенно, учитывая факты и примеры из реальной жизни, можно сказать, что сегодня меняется политическое сознание и мышление граждан, а также активизируется гражданская активность.

Политические реформы, проводимые нашим правительством, требуют глубоких изменений в сознании людей, чтобы привести их в общественное сознание и вызвать быстрые изменения на практике. Особенно в политической жизни общества мы должны уделять особое внимание ликвидации единой партии, единого идеологического насилия и развитию многопартийности, плюрализма идей и мнений на основе современных требований. Невозможно полностью отказаться от мышления стариков и узких шаблонов.

Социолог М. Бекмурадов пишет: «Во-первых, сохранение у людей черт старой системы; во-вторых, у людей есть чувство инициативы, страх начать новую деятельность и страх; В-третьих, отсутствие знаний и навыков для начала новых видов деятельности, отсутствие знаний иностранных языков и современных средств связи, неадекватные навыки общения в многоуровневых системах связи, низкие навыки компьютерной грамотности и, в-четвертых, наиболее прискорбно, отсутствие энтузиазма для начала.

Большой недостаток - наша жестокость по отношению к нашей жизни. Причина этого заключается в том, что большинство наших граждан склонны отдавать предпочтение удовольствиям повседневной жизни в отношении духовной зрелости, роста и обновления. Мы много слышим о том, как они вкусны сегодня, как хорошо они веселятся и как они ходят на свадьбы, но мы редко слышим такую проблему в таком романе, статье или спектакле[8]. Вот почему наше политическое мышление и новые принципы все еще находятся на поверхности, на поверхности наших умов, и иногда мы пытаемся оценить новые политические ценности в старых измерениях. Когда в сознании людей нет радикальных изменений, мечта построить великое будущее для Узбекистана остается сладкой мечтой. Это главная причина, почему особое внимание уделяется вопросу духовности и просвещения. Среди недостатков человека как политического существа самым опасным из всех является бич души. В развитых странах болезнь каким-то образом смогла предотвратить распространение этой болезни.

И. А. Каримов в своей работе «Путь независимости и развития Узбекистана» писал о важности духовности в жизни человека: «Духовность так же важна, как воздух и вода. Путишественник в пустыне всегда жаждет весны. Точно так же человек ищет источник духовности с большой болью и трудностями » [13,с.78].

Духовность также представляет собой самостоятельную способность человека. Эта способность, в свою очередь, основана на чувстве цели человека в жизни. Цель всегда в определенной степени и в общей ценности того, кто ее создал. Смысл жизни представлен как уникальный феномен, который помогает человеку найти свое предназначение и выйти за пределы своей субъективной жизни. В этом смысле духовность напрямую связана со смыслом личной жизни человека, поскольку он объясняет суть человеческого существования.

Таким образом, проблема сейчас напрямую связана с кризисом политических ценностей. Другими словами, существуют противоречивые взгляды на природу политических ценностей, их критерии и соотношение между национальными и общечеловеческими, личными и коллективными. В этом контексте изучение кризиса политических ценностей на основе духовности требует высокого уровня практического понимания и выработки четкой и целенаправленной иерархии политических знаний. Здесь следует отметить, что антропологические проблемы современной эпохи связаны с кризисом политических ценностей.

Кризис - это представление о том, что любой объект, процесс достиг определенного порога в своем развитии, что он больше не может оставаться и что настало время для его трансформации (качественного изменения). Кризис политических ценностей интерпретируется как следствие управления государством и институтами гражданского общества на основе целей и стремлений, которые

[8] Жўраев С., Аҳмедов О., Раҳимова М. Ўзбекистон ва жаҳон ҳамжамияти. – Т.: “Ғофур Ғулом”, 2008, 12 б.

не ведут к «более высоким целям». Это связано с тем, что переход от индустриальной стадии к развитию человеческого общества - это не только количественное изменение условий жизни человека, но и негативное изменение политического характера людей.

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IMPACT OF INDUSTRIAL PRODUCTION ON THE ECOLOGICAL ENVIRONMENT OF NAVOI REGION

Abstract: *This article outlines various ecological problems of the industrial production of Navoi region on the basis of statistic and archive data. Furthermore, it seeks to show the negative effects of industrial waste to the health of the local people and the environment. The article presents some recommendations on the basis of the research conducted for the supplement of clean atmosphere as well.*

Key words: *Environmental balance, industry, wastewater, hazardous substances, alternative energy, legislation.*
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Introduction

Today, humanity have created a more advanced technological complex for subduing nature. However, the theoretical and practical backlog of nature conservation and protection efforts has led to the imbalance between nature and society.

If we look at current civilization in the context of environmental problems that are exacerbated and globalized by the advancement of science and technology, it is clear that it does not meet the interests of human civilization and we may state that "nature has not been won by humanity, but by technology" which in turn is accelerating man's alienation from nature. Technology has become more dominant and evil than man, and it has even subordinated the humankind. At present human life has become not only dangerous but also disastrous [2].

Materials and methods

Environmental imbalances and atmospheric emissions in the lower part of Zarafshan oasis are caused by the lack of appropriate filters for various industries, including mining, construction materials, chemicals, heating systems and the pipelines of a number of other organizations [3].

In Zarafshan oasis, the Zarafshan River is the main water line that is a part of the Amu Darya basin rivers. 4,200 water streams starting from glaciers and springs flow into it. The average annual water flow is 5064.2 million cubic meters, while the average annual flow during the irrigation season is 4198.4 million cubic meters. The water resources of the Zarafshan River are mainly used for irrigated areas and industrial needs of the area [4]. According to the results of the environmental monitoring carried out since 2002, there is high level of toxic metals such as antimony, mercury, cadmium, strontium and other pollutants in the waters of Surkhandarya and Zarafshan rivers due to the transboundary water pollution in the Republic of Tajikistan mainly caused by industrial enterprises. On the basis of the environmental observations, it can be claimed that Anzob Mining and Processing Combinate located in the Republic of Tajikistan as well as South and Ingichka mines in Samarkand region contaminate their toxic metals such as antimony and mercury into the water, and due to this pollution the water level in the river decreases every year [5].

Leading industrial enterprises of Navoi region are the Mining and Metallurgical Combinate, Navoi Hydroelectric Power Plant (HPP), Chemical and Cement Industry. The giant enterprises such as "Navoiazot" joint stock company (JSC) and Navoi Thermal Power Plant utilize the waters of the

Zarafshan river for their production. The river water used in various systematic stages of industrial production was eventually contaminated and turned into "dead" water and it is not possible even to clean it. The wastewater flows into the sanitary canal of "Navoiazot" JSC, the canal, in turn, adjoins the river. As a result, the amount of dirty water flown into the river during the year constitutes 4,668,000 cubic meters [6]. The area where industrial wastes are stored is also an environmentally hazardous source of pollution. There is a great risk of pollution by radioactive sand blown by wind [7]. Radioactive residues can be spread by wind to the villages of Durman, Azamat and Turkmen, where the final waste of the plant is stored. This poses a serious threat to the health of the local population [8]. Currently, Zafarabad Central Ore Administration is producing uranium at an area of 170,000 hectares and 16,000 hectares for the second turn. As a result of the activity, the amount of radioactive substances has increased by 10-50 times and the amount of ground salts by 10-50 times [9].

Each year Kyzylkumcement and Navoi Thermal Power Plant dispose of more than 30,000 tons of sulfur, more than 10,000 tons of dust, nitrogen oxides and other harmful substances into the atmosphere. The amount of fertilizers produced by Navoielectrokimyo JSC is several times lower than that of other industrial enterprises in the city, therefore the emissions disposed of the plants are also relatively low, but they are highly toxic. Air pollution levels in and around Navoi are generally considered to be hazardous according to their indicators [9].

According to 1998 data, there was an increase in toxic emissions across the city. Different serious diseases such as blood diseases, urinary tract infections and others have been caused by emissions of Navoiazot, Navoielectrokimyo, Kyzylkumcement and Navoi Hydroelectric Power Plant. As Navoipakhtatozalash plant is located nearby the urban area, there was no much attention to the amount of dust produced by the plant. According to the Atmospheric Protection Committee, there was produced 2,442 tonnes of hazardous substances, which is 1,855 tonnes more than in 1996 which can be seen in the Table 1 [10].

Table 1.

Name of the industrial enterprise	1996	1997	+ increase -decrease
Navoiazot	5756,7	6418,6	+761
Electic chemical plant	11,4	47,077	+35,629
Navoi Hydroelectric Power Plant (NHPP)	10158,5	10475,9	+317,4
Cotton plant	116,93	112,43	-4,5

From the achieved results it can be stated that harmful substances really affect the health of local population. Looking at the medical history of the urban population, the following groups of diseases are most common, especially among factory workers.

1. At the national level, women aged 40-49 are 1.5% more likely to have a relatively malignant tumor.

2. Blood diseases and blood-working organs increased by 2.5% among 15-19 year olds and by 1.5% among those aged 50-59.

3. Urinary tract infections increased 20 times within a year. They increased by 72% among people aged 15-19 and by 58% among 20-29.

Certainly, these results are very dreadful, and to prevent the growth of these types of illnesses the Environmental Protection Committee in cooperation with the industrial organizations have organized 224 conservation activities [10].

In 2014, Navoi Regional Inspectorate for Air Protection identified 396 different organizations, including 203 industrial and manufacturing enterprises which were charged to be under the control of the inspectorate [9]. The main sources of atmospheric air pollution in Uchkuduk and Zarafshan are the sulfuric acid production units of the Mining and Metallurgical Combinate, the city's transportation, massive steam boilers, the fuel and thermal power stations etc. which pollute the air with sulfur (IV) oxide, carbon dioxide and nitrogen oxides. Also, because of the unique nature of the deserted zones, the amount of dust particles in the air is always higher than normal [8]. While we analyze the environmental mistakes and shortcomings of the industrialized countries, we are still trying to hide the unpredictability of nature under the mask limiting ourselves with criticism only.

Dynamics of environmental pollution due to the industrial wastes of Navoi region (thousand tons measurement) [9]

№	Product name	2002	2005	2008	2011	2014
1	Power engineering	8,6	8,8	3,9	3,6	6,4
2	Mining	14,6	22,8	19,7	23,8	21,6
3	Geology	0,1	0,0	0,06	0	0
4	Chemical industry	7,0	6,3	9,38	8,04	8,0
5	Construction	6,5	5,5	4	3,9	8,8
7	Neftegaz	1,4	2,0	4,54	4,23	1,7

Hydrometeorological data (2014) showed that nitrogen oxides and ammonia in Navoi air were several times higher than in ambient air. Navoi Regional Office of Ecology and Environmental Protection has taken a number of measures to study and address existing problems. An action plan has been developed in cooperation with the Committee for Nature Protection and the Hydrometeorology Center to identify and regulate air emissions [9].

A number of activities are being carried out in Navoi region to ensure the environmental balance. Elaborated work in this particular field was carried out on the demands of the articles 18, 20, and 21of the law "On the protection of the ambient air" of the Republic of Uzbekistan. The Scientific and Technical Council of the Committee was established by the resolution No. 9/3 of the Board of the Navoi Regional Committee for Nature Protection dated November 12, 2013. During short period of time several important projects such as executing and signing contracts on the present conditions of regional flora and fauna, basics of installation of 450 Mw steam gas plants at the thermal power plant, improvement of water sprayers to reduce dust in cement production, replacement of electric filters, the issue of the sanitary column device for the storage of NH3 and NH4, NO3 emissions filtered through DAS apparatus in Section 003 of Navoiazot JSC and modernization of cyanide hydrogen gas combustion boiler were discussed in detail by the Committee and a number of resolutions were enacted [4].

As a result of the measures taken in enterprises and plants, 92.56% of air pollutants were seized in 2013, while in 2014 this figure was 92.65%. 93.1% of hazardous substances generated by the production of Navoiazot JSC, one of the largest enterprises in the region, was seized by 95.8% of dust and gas by the cleaning facilities of "Navoidonmakhsulotlari". Kyzylkumcement JSC was able to prevent 99.1% of emissions. The emissions from some sectors of Navoi HPP and Navoi oil storage base are discharged without intercepting dust and gas [4].

According to the calculations, due to the rapid development of the industry, the country's demand for electricity in 2030 will double. Long-term observations by actinometric stations have shown that 320 days in the year will be sunny in Uzbekistan, with the sun radiating from 2,400 to 3090 hours in various regions. According to experts, this will allow to produce up to 40 times the annual electricity consumption [11].

The use of solar energy is also being applied in Navoi region. Solar energy was used in the intensive care unit of Kyzyltepa District Medical Association in 2009. In 2014, residents of Kholmurod aul located in the village Baimurod, Konimeh district and in the secondary school 26 in Nurata district also were able to use solar energy. Many power stations have been put into operation and are successfully operating with the help of solar energy [4].

Conclusion

Based on the foregoing, we would like to offer the following:

Expanding tenders for exhibitions of investment programs, grants and projects that support technologies and projects that reduce harmful emissions into the environment of Navoi region;

Recycling waste compositions and implementing profit for economic development;

Establishing branches for training specialists in the faculties of two educational institutions (NSPI and NSMI), as there is a shortage of environmental staff in the region;

It would be expedient to increase the amount of compensation for environmental damage caused to the population of the region.

In conclusion, it is worth to say that with the development of industry will lead to the improvement of economic living conditions of the region's

population. Production of consumer goods in the industry will expand as well. The production of the regional industrial branches of the Republic is of great economic and strategic importance. It is one side of the problem, another is the balance. Even though responsible bodies and organizations pay attention to this problem, it hasn't been resolved yet. We should not allow humanity to suffer from this problem.

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ESTIMATING PROJECT TIMELINES USING A MODIFICATION OF THE PERT METHOD

Abstract: *Systems of project management, evaluation and review technique allow us to evaluate the risk of failure to complete the entire project on time. In the construction industry, the contractor and general contractor agree on the timing of individual work. They sign an act on a completed work checking report. If the deadlines for a certain stage of work are violated, the contractor pays a fine. Thus, the real risk assessment task is different from the academic task. Indeed, it is necessary to evaluate the risks of default on time for all controlled stages of construction. In this article we describe an approach to estimating project timelines by means of a modification of the Program Evaluation and Review Technique.*

Key words: *Evaluation of projects, Program evaluation and review technique (PERT), Critical path method (CPM), Network-based approach to the project management.*

Language: *Russian*

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ОЦЕНКА СРОКОВ ПРОЕКТА С ИСПОЛЬЗОВАНИЕМ МОДИФИКАЦИИ МЕТОДА PERT

Аннотация: *Методы управления сетевого планирования и управления позволяют оценить риск невыполнения всего проекта в срок. В строительной отрасли подрядчиком и генеральный подрядчик*

заказчик согласовывает сроки выполнения отдельных работ. Они подписывают акт сверки сроков работ. Если сроки выполнения определенного этапа работ нарушены, то подрядчик выплачивает штраф. Таким образом, реальная задача оценки рисков отличается от академической задачи. В реальной задаче нужно оценить риски невыполнения в срок для всех контролируемых этапов строительства. В этой статье описывается подход к оценке сроков проекта, использующий модификацию метода PERT.

Ключевые слова: *оценка проектов, метод оценки и пересмотра проектов (PERT), метод критического пути, сетевой подход в управлении проектами, алгоритмический подход в обучении.*

Введение

В любом договоре о выполнении строительных работ имеются участники, выполняющие роли заказчика и исполнителя. Контролирующая организация (заказчик) и непосредственно осуществляющая строительство организация (исполнитель) подписывают акт сверки сроков работ. Условимся называть осуществляющую контроль сторону договора генеральным подрядчиком. Организацию, непосредственно осуществляющую строительство, будем называть подрядчиком.

В учебниках для бакалавриата [1-5] подход для определения рисков невыполнения проекта в основан на методе оценки и пересмотра проектов (PERT), методе критического пути (CPM) и их обобщениях: методах GERT и PERT-COST (см. [1–4], [7]). Эти методы позволяют оценить риск для проекта в целом. Однако на самом деле генеральный подрядчик контролирует сроки выполнения не только всего проекта в целом, но и различных его стадий. Поэтому важную роль приобретает контроль выполнения стадий проекта и, в частности, контроль временных границ стадий проекта. Мониторинг таких проектов рисков включает в себя проверку соответствия плановым срокам фактических сроков реализации отдельных мероприятий проекта. А управление рисками включает в себя минимизацию ожидаемой суммы штрафных выплат. Для этих целей авторы предлагают изложенную ниже модификацию технологии PERT.

Пример модификации технологии PERT-сети.

Для того, чтобы понять сложность алгоритма вычисления риска невыполнения в срок проекта и его стадий рассмотрим небольшой комплекс работ, изображенный на рис. 1.

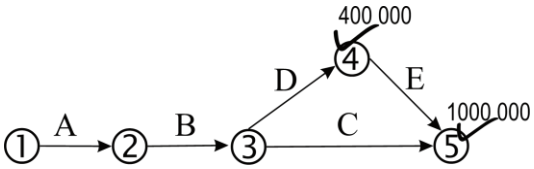

Рисунок 1 - Комплекс работ

Нестандартным для метода PERT является следующее условие: если событие 4 не свершилось позднее чем через 44 дня со старта проекта дня, выплачивается штраф в размере 400 000 д.е. Этот штраф назовем первым. Если время выполнения всего проекта заняло более 62-х дней, то по договору подрядчик выплачивает штраф в размере 1000 000 денежных единиц.

Длительности всех работ будем считать случайными нормально распределенными величинами. Параметры работ заданы в таблице 1 по технологии PERT. Время измеряется в днях.

Таблица 1. Положительности работ (в днях)

работа	A	B	C	D	E
a	12	16	27	7	15
m	14	18	28	8	19
b	16	20	29	9	23
$\bar{t}$	14	18	28	8	19
σ^2	4/9	4/9	1/9	1/9	16/9

Здесь a – оптимистическая экспертная оценка длительности работы; b – пессимистическая экспертная оценка длительности работы; m – наиболее вероятное время выполнения работы, $\bar{t}$ – ожидаемое время выполнения работы; σ^2 – дисперсия времени выполнения работы. Параметры $\bar{t}$ и σ^2 вычислены по значениям параметров a, m, c по формулам технологии PERT:

$$\overline{t} = \frac{a+4m+b}{6}; \quad \sigma^2 = \frac{(b-a)^2}{36}. \qquad (1)$$

Сопоставим первому и второму штрафам случайные величины Y и X:

$$X = \begin{cases} 1000\ 000, & if\ \ max(\xi,\eta) > 65, \\ 0, & if\ \ max(\xi,\eta) \le 63, \end{cases}$$

$$Y = \begin{cases} 400\ 000, & if\ \zeta > 44, \\ 0, & if\ \zeta \le 44. \end{cases}$$

Для необходимых нам путей сетевого графа введем следующие обозначения:

Таблица 2. Пути на сетевом графе

путь	состав пути	длительность	$\bar{t}$	σ^2
T_0	(A, B),	τ	32	8/9
T_1	(A, B, C)	ξ	60	1
T_2	(A, B, D),	ζ	42	1
T_3	(A, B, D, E)	η	59	25/9
T_4	(D, E)	α	27	17/9
T_5	(C)	β	28	1/9

Пути T_0, T_2, T_4 и T_5 являются неполными, T_1 – критический путь (по ожидаемому времени). Пусть T_3 является полным некритическим. Отметим, что длительности путей являются нормально распределенными величинами.

Вычислим математическое ожидание суммы двух штрафов.

Для вычисления математического ожидания величины первого штрафа воспользуемся функцией Лапласа

$$\Phi(x) = \frac{1}{\sqrt{2\pi}}\int_{-\infty}^{x} e^{-u^2/2}du \qquad (2)$$

Напомним, что для случайной величины Z распределенной по нормальному закону $Z \sim N(\boldsymbol{m}, \sigma^2)$ справедливо равенство:

$$P(Z \le t) = \Phi(\frac{t-m}{\sigma^2}). \qquad (3)$$

Используя (3) последовательно находим:

$$P(\zeta \le 44) = \Phi\left(\frac{44-42}{1}\right) = \Phi(2) = 0.97725,$$

$$P(\zeta > 44) = 1 - \Phi(2) = 0.02275,$$

$$E[Y] = 400\ 000 \cdot P(\zeta > 44) = 9100 \text{д.е.}$$

Как известно [6, § 13], плотность распределения совместного распределения невырожденного гауссового вектора (состоящего из нескольких нормальных случайных величин) с корреляционной матрицей K имеет вид:

$$f(\vec{x}) = \frac{exp(-\frac{1}{2}(\vec{x}-\vec{m})^T \cdot K^{-1} \cdot (\vec{x}-\vec{m}))}{\sqrt{(2\pi)^n\, det\, K}} \qquad (4)$$

Найдем плотность совместного распределения случайных величин ξ и η: Находим ковариацию матрицу ковариаций, обратную к ней матрицу и ее детерминант:

$$cov(\xi,\eta) = cov(\tau+\alpha, \tau+\beta) = D(\tau) = \frac{8}{9},$$

$$K = \begin{pmatrix} 1 & \frac{8}{9} \\ \frac{8}{9} & \frac{25}{9} \end{pmatrix},$$

$$|K| = \frac{161}{81},$$

$$K^{-1} = \begin{pmatrix} \frac{225}{161} & -\frac{72}{161} \\ -\frac{72}{161} & \frac{81}{161} \end{pmatrix}.$$

В соответствие с формулой (4) задаем функцию $q(x,y) = -\frac{1}{2}(x-60,\ y-59) \cdot K^{-1} \cdot \begin{pmatrix} x-60 \\ y-59 \end{pmatrix} = -\frac{81(x-60)^2 - 144(x-60)(y-59) + 225(y-59)^2}{322}$.

По формуле (4) получаем плотность совместного распределения величин ξ и η:

$$f(x,y) = \frac{9\, exp(q(x,y))}{2\pi\sqrt{161}} \qquad (5)$$

График функции (5) изображен на рис. 2.

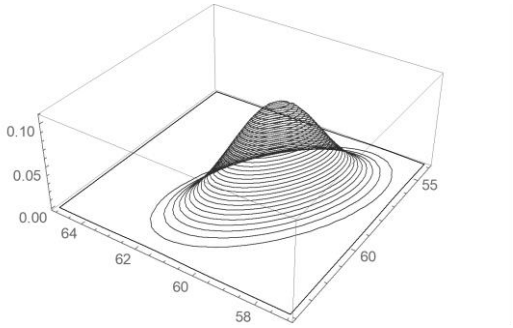

Рисунок 2 - График плотности распределения

По определению функции распределения: $P(\xi \le 62 \& \eta \le 62) = F(62;62)$ и

$$F(62;62) = \int_{-\infty}^{62}\int_{-\infty}^{62} f(x,y)dxdy \approx 0.947412.$$

Так как $max(\xi,\eta) > 62 \Leftrightarrow \xi > 62 \vee \eta > 62$, то

$$P(max(\xi,\eta) > 62) = 1 - 0.947\ 412 = 0.052\ 588.$$

Таким образом, математическое ожидание второго штрафа равно

$E[X] = 1000000 \cdot P(max(\xi,\eta) > 62) = 52588$д.е.

Так как математическое ожидание суммы нескольких случайных величин равно сумме их математических ожиданий, то

$E[X+Y] = E[X] + E[Y] = 52588 + 9\ 100 = 61688.$

Определим теперь вероятность того, что длительность пути T_1 окажется больше критического времени 62 дня и вероятность, что таковой окажется длительность пути T_2. По формуле (2) и (3) получаем:

$$P(\eta \le 62) = \Phi\left(\frac{62-59}{\sqrt{25/9}}\right) = \Phi\left(\frac{9}{5}\right) = 0.964\ 070, \quad (6)$$

$$P(\eta > 62) = 1 - 0.964\ 070 = 0.035\ 930, \quad (7)$$

$$P(\xi \le 62) = \Phi\left(\frac{62-60}{1}\right) = 0.977\ 250, \quad (8)$$

$$P(\xi > 62) = 1 - 0.977250 = 0.02275. \quad (9)$$

Из этого видно, что путь T_1 является критическим при условии, что все работы будут выполнены в точности за ожидаемое время.

Более того, так как риск, связанный с задержкой некритической цепочки работ T_2 выше, чем риск связанный с критическим путем, то проводить оптимизацию комплекса работ по методу Г.П. Фомина представляется нецелесообразным. Для того, чтобы убедиться в этом, построим сетевой граф комплекса работ в масштабе времени (рис. 3). На этом рисунке указаны ранние сроки свершения событий, рассчитанные по ожидаемым (средним) продолжительностям работ. Символом $4'$ обозначен ранний срок окончания работы E, пунктирной линией – свободный резерв времени (free float) для работы E.

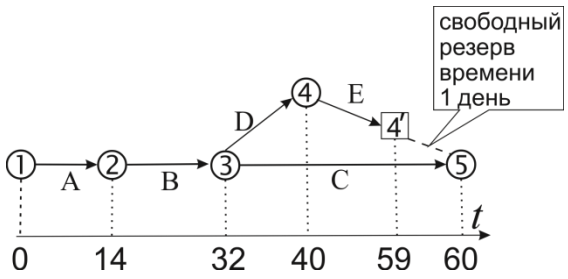

Рисунок 3 – сетевой граф в масштабе времени

По технологии, развитой Г.П. Фоминым, в ситуации, показанной на рисунке 3 для ускорения выполнения проекта без увеличения затрат следует ресурсы с некритической работы E перебросить на критическую работу C. При этом вероятность $P(\eta > 62)$ возрастет, а с ней возрастет и риск невыполнения проекта в срок.

Общий вид задачи об управлении рисками сроков реализации этапов комплекса работ.

Пример, приведенный выше, является частым случаем общей задачи, сформулированной ниже.

Пусть задан сетевой граф комплекса работ, для которых даны экспертные оценки их продолжительности: оптимистическая, пессимистическая и наиболее вероятная. Продолжительности работ считаются нормальными случайными величинами. Кроме того, задана ковариационная матрица продолжительностей всех работ. В отдельных узлах сетевого графа, включая завершающее событие, заданы штрафные выплаты за отклонение от календарных сроков выполнения работ. Эти выплаты имеют вид одноразовых штрафов или пени за невыполнение определенной стадии работ в срок. Кроме того, задана структурно-временная таблица комплекса работ, в которой указаны их трудоемкости и возможности по ускорению или замедлению работ при изменении затрачиваемых на них ресурсов (например, финансирования). Далее задается мера риска [7, глава 1]. Это может быть либо математическое ожидание суммы штрафных выплат либо квантиль стоимости под риском (Value at Risk). Требуется минимизировать выбранную меру риска путем перераспределения ресурсов между работами.

Выводы.

Сформулированной выше задача требует для своего решения определенной модификация технологии PERT-cost.

Процесс решения задачи состоит в поэтапном перераспределении ресурсов с целью выравнивания вероятностей срыва календарного срока в каждом узле со штрафными санкциями.

Количество обрабатываемых путей можно уменьшить, используя правило трех сигм. Узлы обрабатываются в порядке возрастания номеров. На втором этапе вершины перебираются в порядке

убывания ожидаемого штрафа. Либо дополнительные ресурсы расходуются из заданного в условии задачи фонда, либо повторно производится переброс ресурсов с целью уменьшения выбранной меры риска.

Заключение.

При определении срока выполнения комплекса работ удобно считать, что длительности работ распределены по нормальному закону. Это связано со следующими соображениями. С одной стороны, математическое ожидание и дисперсия нормально распределенной случайной величины являются независимыми параметрами. С другой стороны, нормальное распределение бесконечно делимо [6, § 8]. Если независимые случайные величины X_1 и X_2 распределены по нормальному закону со средними значениями μ_1, μ_2 и дисперсиями σ_1^2, σ_2^2 соответственно, то $X_1 + X_2$ имеет нормальное распределение со средним значением $\mu_1 + \mu_2$ и дисперсией $\sigma_1^2 + \sigma_2^2$. Отсюда вытекает, что сумма произвольного числа независимых нормальных случайных величин является нормальной величиной с суммарным средним и суммарной дисперсией.

В методе PERT принято бета-распределение продолжительности работ с модой в точке m и концами в точках a и b [1, гл. 6]. Но для этого распределения возникают трудности с эффективным вычислением совместного распределения нескольких сумм таких величин.

Похожим свойством обладает, например, распределение хи-квадрат [6, с. 227]. Если величины $X_1 \sim \chi^2(k_1)$ и $X_2 \sim \chi^2(k_2)$ независимы, то $X_1 + X_2 \sim \chi^2(k_1 + k_2)$. Но математическое ожидание и дисперсия для распределения хи-квадрат взаимосвязаны: дисперсия всегда в два раза больше среднего значения (если $Y \sim \chi^2(k)$, то $E[Y] = k$, $D[Y] = 2k$). Представляется интересным вопрос о возможности использования длительностей работ с распределением в виде свертки нормального распределения и «хи»-квадрат или нормального распределения и распределения Пуассона. В общей сложности, представляется полезной разработка программного обеспечения по управлению рисками комплекса работ основанного на серьезной математической статистике. Авторы планируют первоначально написание учебного программного обеспечения. Так как процесс решения включает вычисление значений многомерных статистических функции и нелинейную оптимизацию, то необходимо использовать языки программирования, имеющие соответствующую библиотеку математических функций. Программный код может быть написан либо на языке R, либо на языке Mathematica Wolfram Research, либо на другом языке программирования, но с использованием свободно распространяемого пакета математических функций Maple. В заключении, авторы статьи, хотели бы выразить благодарность доценту РЭУ им. Г.В. Плеханова, куратору нашей группы Мушрубу В. А. за научное руководство и помощь в написании статьи.

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THE PHILOPHY OF QUALITY, PRODUCT QUALITY AND MANAGEMENT

Abstract: *The article is devoted to study the philosophy of quality. In modern conditions, quality issues are considered as a factor that contributes to the vitality of humanity, economic, social and environmental security, as well as the sustainability and economic stability of society during the transition to a market economy.*

Key words: *certification, quality, product quality, management, marketing, competitiveness, standard.*

Language: *English*

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Introduction

Purpose of the study.

The transition to a market economy, the issue of the quality of products and services for the development of the company's reputation is considered an important factor in determining the competitiveness of production. Systematic organization of product quality management in enterprises and organizations and consideration of quality assurance issues at the level of continuous enterprise policy is key to gaining its own market presence and working with strategic partners and consumers.

In modern conditions, quality, economic, social and environmental factors play an important role in the human way of life, but also serve as a factor in ensuring the sustainability and economic stability of society during the transition to a market economy.

Since the first years of independence, Uzbekistan has been carrying out economic reforms. The quality of products and services in the economy based on international standards, as well as enterprises and organizations on the introduction of international standards to increase the export potential of the republic is one of the most important and strategic factors. Appropriate measures are being taken by the government to implement international standards on economic development and increase the export potential of manufacturing enterprises[1].

They were determined on the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan of July 22, 2004 No. 349 "About measures for implementation at the companies of the quality management systems conforming to international standards"[2], Resolution of the Cabinet of Ministers of the Republic of Uzbekistan of August 29, 2006

No.183 “About additional measures for the implementation at the enterprises of quality management systems according to the international standards”[3].

The resolution envisages further increase of competitiveness of local products and services in the local and foreign markets, expansion of export potential of the country, elimination of the Republic of Uzbekistan as a "raw material base", as well as re-establishment of oil, gas and mineral resources, machinery, automotive industry, textile, and rail transport make it one of the most developed countries in the world.

One of the most pressing issues is the systematic study of the essence of the quality system and its evolutionary origin, as well as training personnel in the quality management system to further clarify the work carried out to develop and implement quality management systems based on international standards. Our key points in this article are:

• Quality and its philosophical, economic, social and environmental views;
• product quality;
• product quality management;
• quality management system.

Quality is, in fact, a very broad concept that covers all aspects of human life.

When it comes to quality, it is important to consider the philosophical aspects of quality. First of all, quality reflects the interrelationships of the constituents of an object, and these relations represent the peculiarities that distinguish one object from another. At the same time, the quality of a specific type of objects represents a generalization.

The term quality is an integral part of human life, and this term has been paying much attention to humanity from the earliest times to the present and today.

The notion of quality was first analyzed by the great scientist Aristotle. Aristotle approached quality from a philosophical point of view, and regarded quality as an "accent" on matter, a matter of matter, a philosophical coincidence or phenomenon, a partial feature of things..

Medieval scholar Abu Ali Ibn Sina considered quality as an inalienable feature of things.

The famous German scientist Hegel described quality as a definitive identity. According to him, any loss of quality with the object itself disappears. According to him, with the loss of quality the subject also disappears. While things in the objective world are in change and evolving, they have a relatively stable integrity and appear as a particular thing or object. **The quality of something is its quality.**

Methods: Quality reflects the internal nature of the subject, the unity of internal and external relations. Quality is inextricably linked to the quantitative features of the subject. For example, water is formed by the chemical composition of two hydrogen atoms joining one oxygen atom. If the ratio of atoms changes, water can turn into another useful chemical. By its physical properties, water retains its fluid quality at temperatures between 0 ° C and + 100 ° C. At temperatures below 0 ° C it turns to ice, and at temperatures above + 100 ° C it becomes vapor, ie gas. Here you can observe the change in quantity into a qualitative change.

In modern philosophy, quality is defined as the internal and external specificity of things, which represents the unity of a number of properties, attributes, and properties.

Sustainability of the subject of quality.

If quality refers to the relative stability, continuity, and generality of the subject, the properties and features represent the specific aspects and features of the subject, as well as aspects that are associated with other objects and events.

Types of quality.

In philosophy, adjectives are divided into two types:

1. Natural.
2. Social.

In nature, the quality that represents the physicality, the structure of space time, the energy, and the composition of certain aspects of things and events is called natural quality.

In nature, the quality that represents the physicality, the structure of space time, the energy, and the composition of certain aspects of things and events is called natural quality.

The quality that is associated with human activity is the result of human interactions with one another and nature is called social quality. Social quality arises from the individual's work through the individual and social consciousness.

Social quality is subdivided into functional and systemic qualities.

A set of objects of **functional quality** is also called the second nature. It includes man-made things (house, nail, tractor, plane, etc.).

There is also a quality that reflects a **particular set of social relationships** that exist only in the context of social intercourse in a particular product, but it is lost outside of it.

The Universe is a process of the creation, development, decay, that is, new things that have other attributes. A change in quality means that a particular object has become a different object.

Any subject is a unit of quality and quantity. The notion of quality represents a certain stage in which a person becomes aware of objective reality. Knowing goes **from quality to quantity** and then **their unity goes back** to norm

Thus, the issue of quality has been considered by a number of scholars, and their attitudes have increased. Improving the quality of goods through the economic approach to quality issues, including the production of goods, products, and the introduction of new effective technologies, has become a requirement of the international market.

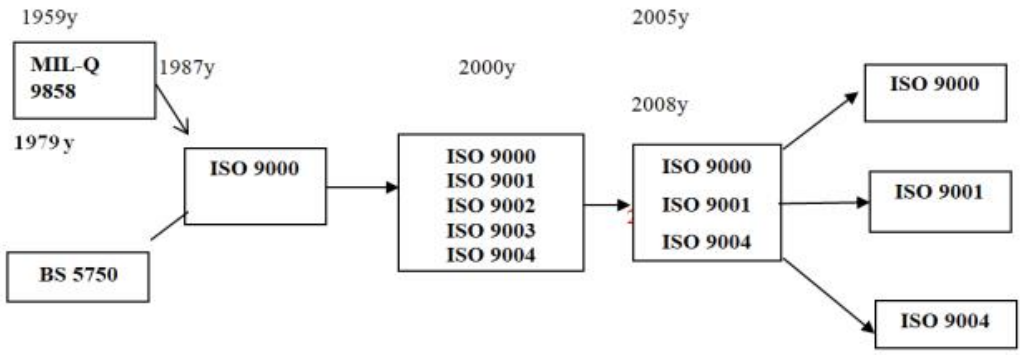
Especially since the 20th century, there has been a need to assess the quality issue through economic indicators. The views on quality began to evolve with advanced ideas in the activities of F. Taylor, V. Schuhrat, E. Deming, F. Kroebi, and other prominent scholars. As a result of their scientific and practical researches, the evolutionary stages of development of phases were created. Thus, it is recommended to study the concept of creation and development of quality systems in 5 phases.

5 stages of the creation and development of quality systems:

1st stage	The initial stage of quality control
2nd stage	The beginning of the product quality control system (Taylor System).
3rd stage	It covers the 20-50's of the 20th century. The period of development of statistical methods for quality control.
4th stage	It covers the 50s of the 20th century. General development of quality control. This period is briefly marked as "TQC".
5th stage	It covers the 70-80s of the 20th century. That period is perceived as a period of general quality management and is briefly referred to as "TQM"

The evolutionary stages of the concept of quality.

By the end of the twentieth century, the International Organization for Standardization had developed international terminology and international quality standards, taking into account the importance of ISO in the production. ISO standards, from terminology to quality assurance products (ISO 9000, ISO 9001, ISO 9000: 2005, ISO 9000: 2008, ISO 9000: 2015) were developed and recommended as a basic guide.



Quality management: a quality management unit focused on compliance with quality requirements.

Quality Management System: A quality management system to control and managing an organization.

Quality Planning: Quality Management focuses on setting goals in the field of quality and defining the necessary business processes and the appropriate resources to achieve the goals in the field of quality.

Quality Assurance: A part of quality management aimed on ensuring compliance with quality requirements.

Quality Improvement: Quality management as part of expanding quality assurance capabilities.

Quality management system.

Various interpretations of the notion of quality are common in contemporary literature and practice. The International Organization for Standardization (ISO) defines quality as follows: quality is a set of features and characteristics of a product or service that satisfies established or anticipated requirements for products and services [3].

In order to properly understand quality problems, it is important to consider the following characteristics:

- Quality should be consumer-oriented;
- Quality assurance is not only a technical activity carried out by a particular department, but also a continuous activity that covers the entire

organizational structure of an organization or enterprise;

- The issue of quality does not lose its relevance not only in production, but also in product development, marketing, service delivery and management;
- product quality improvement is inextricably linked with technology upgrades;
- general improvement of quality is possible only with the help of the economic interests of the participants in production;
- To ensure competitiveness, the product must fully meet the needs of customers and consumers.

In the struggle for the market in product sales, the main weapon is the quality of the product.

Product quality level is developed on the basis of technical, functional, social, aesthetic, ergonomic and environmental features of the consumer.

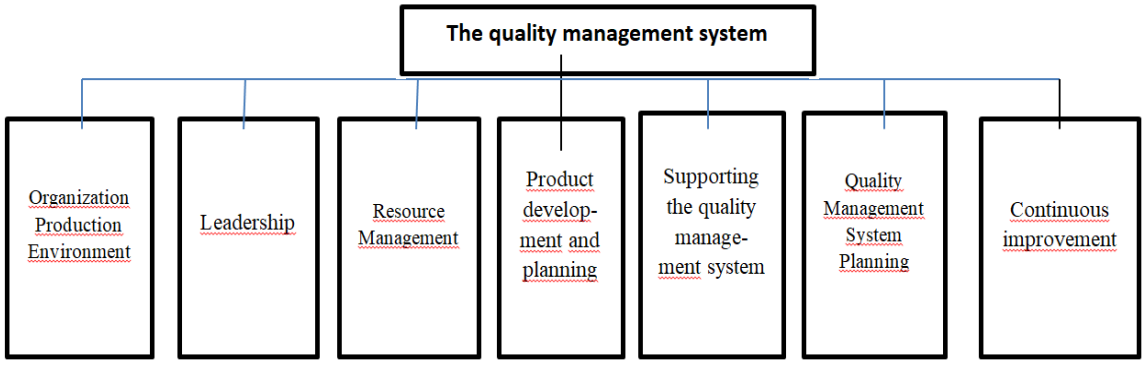
Competitiveness is determined by the degree of consumer satisfaction of the product, the quality and cost characteristics of the product, the costs of purchasing and consuming the product. For the same purpose, it is important to take into account that the product has the highest competitiveness among the manufactured products, which give the consumer maximum benefit..

Undoubtedly, quality improvement will have at a great cost, but at the expense of the profits. It is impossible to occupy leading positions in the market without the development and production of new products.

Unless attention is paid to the quality of the product, it will have to spend a great deal of money to repair the defects. The great economic effect can be achieved by developing long-term programs to eliminate defects.

Leading companies in countries with developed market economies believe that in order to achieve quality all services should be organized. Consumer requirements, fault information, flaws and errors, customer ratings play a key role in improving quality.

The quality management system and its components [4]



Quality as an object of management.

The basic principle of modern quality management is that the quality management activities should be carried out not after the release of the product, but in the process of production**.**

Quality assurance activities are very important in the production process. Quality is determined by the influence of many random, local and subjective factors [5]. **A quality management system is nnecessary to stop these factors from affecting the quality level**. In that case, it is important to constantly monitor and improve the product creation process to maintain the appropriate quality level.

Quality - the object of management, including all the components of management, planning, analysis and control.

The main purpose of the quality management system, based on the international standard ISO 9000: 2000, is to ensure the quality of the product demanded by the customer and to prove to the consumer that the enterprise is capable of doing this and the mechanism of the system, methods and tools used in the same purpose [6].

For successful operation of the enterprise in the current market it is essential to have a quality system and a certificate of conformity with international standards of ISO 9000 series..

The quality control system is a quality management system for managing and controlling an organization, a group of responsible, competent and distributed personnel, and a management system that relates to a set of specific descriptions to handle and control the necessary tools of relationships.

Using a quality management system is a strategic decision that can help improve the performance of an organization and provide a solid basis for sustainable development initiatives.

Conclusion: Quality of results determined in accordance with the strategic direction of the organization to achieve the necessary processes and their interaction includes the systematic identification and management.

Integrated processes and system management, access to capabilities, and prevention of adverse outcomes can be achieved through the use of the PDCA cycle.

Applying a process approach to the quality management system enables:

a) Understand and always enforce requirements;

b) reviewing processes from the point of view of adding value;

c) achieving efficient processes;

d) improving processes based on data and information evaluation

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OWN WAVES IN A SPATIAL VISCOELASTIC CYLINDER WITH RADIAL CRACK

Abstract: *This work considers the propagation of natural waves by an infinite viscoelastic cylinder with a radial crack. The task is posed in cylindrical coordinate systems. Using the Navier equation and the physical equation, a system of six differential equations is obtained. After not complicated transformations, a spectral boundary-value problem was obtained for a system of ordinary and partial differential equations with complex coefficient equations, which is further solved by the direct and orthogonal Godunov sweep method with a combination of the Mueller and Gauss methods. The dispersion relation is obtained for a viscoelastic cylinder with a radial crack. It was found that, in the case of a cylinder with a radial crack, the first mode has a cutoff frequency, and the phase velocity tends to infinity. At large wavenumbers, the limiting phase velocity of this mode coincides with the velocity of the Rayleigh wave. At the cutoff frequency, the axial displacements are equal to zero and the oscillations of the cylinder occur in a plane deformed state.*

Key words: *crack, viscoelastic cylinder, freezing procedure, Navier equation, orthogonal sweep, ordinary differential equation.*

Language: *English*

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Introduction.

In a number of works, for the control of linearly extended objects, the use of a rod wave is proposed to give rise to the minimum velocity dispersion and torsion wave mode, in which there is no dispersion [1,2]. As an informative parameter in the waveguide control of linearly extended objects, as a rule, the reflection coefficient is used. The specified parameter does not allow to identify longitudinal defects [3,4]. Taking into account the damping ability of the waveguide material plays an important role in the dynamic behavior of the structure [5,6]. It leads to a noticeable weakening of natural oscillations, a significant decrease in amplitudes during forced oscillations and smoothing of stresses in the concentration zone during oscillations. The complexity of their solution is explained by many reasons, for example, the rheological properties of real waveguides, non-classical geometric shapes, etc., which causes a wide variety of schematized models to describe real phenomena in one approximation or another and makes it difficult to create a unified mathematical model of a mechanical system [7] .

The dispersion dependences having a certain number of traveling wave modes in the frequency range were obtained in [8, 9]. In this paper, we consider one of the problems of this type on the propagation of Eigen waves in an isotropic viscoelastic cylindrical waveguide with a radial crack. The viscoelastic properties of materials are described using the Boltzmann – Voltaire integral [10, 11]. A solution technique and an algorithm have been developed to study the propagation of waves in a viscoelastic cylinder with a radial crack.

2. Statement of the problem of wave propagation in an infinite cylinder with a radial crack.

A viscoelastic isotropic cylindrical waveguide is considered which occupies a region in

$V = \{r_0 < r \le R, 0 < \theta \le \theta_0, -\infty < z < \infty\}$,

a dimensionless system of cylindrical coordinates (r, ϕ, z). The waveguide has a collinear direction Oz axis. Let the natural (harmonic) waves propagate along the Oz axis in an infinite viscoelastic cylinder with a radial crack. The relationship between stress and strain is as follows [7]

$\sigma_{ik} = \tilde{\lambda}\theta\delta_{ik} + 2\tilde{\mu}\varepsilon_{ik}$.

Here σ_{ik}- is the stress tensor, $\hat{\varepsilon}_{ik}$- is the strain tensor, θ -is the volumetric strain, $\tilde{\lambda}$ and $\tilde{\mu}$ is the operator modulus of elasticity [3,5]

$$\tilde{\lambda}\phi(t) = \lambda_{01}\left[\phi(t) - \int_0^t R_\lambda(t-\tau)\phi(t)d\tau\right];$$
$$\tilde{\mu}\phi(t) = \mu_{01}\left[\phi(t) - \int_0^t R_\mu(t-\tau)\phi(t)d\tau\right], \qquad (2)$$

$\phi(t)$ – a random function of time; $R_\lambda(t-\tau)$ and $R_\mu(t-\tau)$ - relaxation nuclei and λ_{01}, μ_{01}- instant elastic moduli.

We take the integral terms in (2) as small, then the functions $\phi(t) = \psi(t)e^{-i\omega_R t}$, where $\psi(t)$- is a slowly varying function of time, ω_R- is a real constant. Further, applying the freezing procedure [5], we note relations (2) with approximate forms

$$\tilde{\lambda}\phi = \lambda_{01}\left[1 - \Gamma_\lambda^C(\omega_R) - i\Gamma_\lambda^S(\omega_R)\right]; \tilde{\mu}\phi = \mu_{01}\left[1 - \Gamma_\mu^C(\omega_R) - i\Gamma_\mu^S(\omega_R)\right]\phi,$$

Where

$$\Gamma_\lambda^C(\omega_R) = \int_0^\infty R_\lambda(\tau)\cos\omega_R\tau d\tau; \Gamma_\lambda^S(\omega_R) = \int_0^\infty R_\lambda(\tau)\sin\omega_R\tau d\tau,$$
$$\Gamma_\mu^C(\omega_R) = \int_0^\infty R_\mu(\tau)\cos\omega_R\tau d\tau, \Gamma_\mu^S(\omega_R) = \int_0^\infty R_\mu(\tau)\sin\omega_R\tau d\tau$$

- respectively, the cosine and sine Fourier images of the core relaxation of the material. As an example of a viscoelastic material, we take three parametric relaxation nuclei

$R_\lambda(t) = R_\mu(t) = Ae^{-\beta t}/t^{1-\alpha}$.

The basic equations of motion of a viscoelastic cylindrical mechanical waveguide occupying region *V*, which are defined by the following equations [2]:

$$\frac{\partial\sigma_{ik}}{\partial x_k} = \rho\frac{\partial^2 u_i}{\partial t^2}, \qquad (3)$$

where ρ - is the density of the material.

Relations (1) and (3) after identical algebraic transformations are reduced to a system of six differential equations resolved with respect to the first derivative with respect to the radial coordinate

$$\frac{\partial u_r}{\partial r} = \frac{1}{K_\lambda}\sigma_{rr} - \frac{\tilde{\lambda}}{K_\lambda}\left(\frac{1}{r}\frac{\partial u_\phi}{\partial\phi} + \frac{u_r}{r} + \frac{\partial u_z}{\partial z}\right);$$
$$\frac{\partial u_\phi}{\partial r} = \frac{1}{\tilde{\mu}}\sigma_{r\phi} - \frac{1}{r}\left(\frac{\partial u_r}{\partial\phi} - u_\phi\right);$$
$$\frac{\partial u_z}{\partial r} = \frac{1}{\tilde{\mu}}\sigma_{rz} - \frac{\partial u_r}{\partial z};$$
$$\frac{\partial\sigma_{rr}}{\partial r} = \rho\frac{\partial^2 u_r}{\partial t^2} - \frac{\tilde{A}}{r} - \frac{1}{r}\frac{\partial\sigma_{r\phi}}{\partial\phi} - \frac{\partial\sigma_{rz}}{\partial z};$$
$$\frac{\partial\sigma_{r\phi}}{\partial r} = \rho\frac{\partial^2 u_\phi}{\partial t^2} - \frac{1}{r}\frac{\partial}{\partial\phi}\left[\sigma_{rr} - \tilde{A}\right] - \frac{2\sigma_{r\phi}}{r} - \frac{\partial}{\partial z}\tilde{B};$$
$$\frac{\partial\sigma_{rz}}{\partial r} = \rho\frac{\partial^2 u_z}{\partial t^2} - \frac{\partial}{\partial z}\left[\sigma_{rr} - 2\bar{\mu}\left(\frac{\partial u_r}{\partial r} - \frac{\partial u_z}{\partial z}\right)\right] - \frac{\sigma_{rz}}{r} - \frac{1}{r}\frac{\partial}{\partial\phi}\tilde{B},$$
$$\tilde{A} = 2\bar{\mu}\left[\frac{\partial u_r}{\partial r} - \frac{1}{r}\left(\frac{\partial u_\phi}{\partial\phi} + u_r\right)\right];$$
$$\tilde{B} = \bar{\mu}\left(\frac{\partial u_\phi}{\partial z} + \frac{1}{r}\frac{\partial u_z}{\partial\phi}\right), K_\lambda = \bar{\lambda} + 2\bar{\mu}.$$

Where $\sigma_{rr}, \sigma_{r\phi}, \sigma_{rz}, \sigma_{\phi\phi}, \sigma_{\phi z}, \sigma_{zz}$- are the components of the stress tensor, respectively; $\varepsilon_{rr}, \varepsilon_{r\phi}, \varepsilon_{rz}, \varepsilon_{\phi\phi}, \varepsilon_{\phi z}, \varepsilon_{zz}$ -respectively, the components of the strain tensor. the relationship between stress and strain is given in (1). The boundary conditions are set in the form:

$$r = r_0 \to 0, R: \sigma_{rz} = \sigma_{rr} = \sigma_{r\phi} = 0; \quad (5)$$

$$\phi = 0,2\pi: u_\phi = 0; \sigma_{\phi z} = \sigma_{\phi r} = 0, \quad (6)$$

conditions (5) at r = 0, in the physical plane it can be interpreted as the result of the passage to the limit, from a hollow cylinder with a free inner surface to a solid, when the inner radius tends to zero.

3. Solution Methods.

In the case of traveling harmonic waves along the z axis, the solution of the boundary value problem (7), (8), (9) allows separation of variables [8]

$$u_r = w(r)\cos\frac{\phi}{2}\cos(kz - \omega t);$$
$$u_\phi = v(r)\sin\frac{\phi}{2}\cos(kz - \omega t);$$
$$u_z = u(r)\cos\frac{\phi}{2}\sin(kz - \omega t);$$
$$\sigma_{rr} = \sigma(r)\cos\frac{\phi}{2}\cos(kz - \omega t);$$
$$\sigma_{r\phi} = \tau_\phi(r)\sin\frac{\phi}{2}\cos(kz - \omega t);$$
$$\sigma_{rz} = \tau_z(r)\cos\frac{\phi}{2}\sin(kz - \omega t), \quad (7)$$

Where $w(r)$, $v(r)$, $u(r)$- are the displacement amplitudes, $\sigma(r)$, $\tau_\phi(r)$, $\tau_z(r)$ - are the stress amplitudes of the stress tensor components, $\omega = \omega_R + i\omega_I$ - is the complex natural frequency, ω_R-is the natural wave propagation frequency, ω_I- is the damping coefficient, κ – is the wave number, $C = \omega/k$ -is the phase velocity.

Substituting (7) into (4), (5), (6), we obtain the spectral boundary value problem. The problem is reduced to a system of ordinary differential equations with complex coefficients

$$w' = \frac{\sigma}{K_\lambda} - \frac{\bar{\lambda}}{K_\lambda}\left(ku + \frac{v}{r} + \frac{w}{r}\right);$$
$$v' = \frac{\tau_\phi}{\bar{\mu}} + \frac{v}{r} + \frac{w}{2r};$$
$$u' = \frac{\tau_z}{\bar{\mu}} + kw;$$
$$\sigma' = -\omega^2\rho w + \frac{\tilde{a}}{r} - \frac{\tau_\phi}{2r} - k\tau_z;$$
$$\tau_\phi' = -\omega^2\rho v - \frac{2\tau_\phi}{r} + (\sigma + \tilde{a})\frac{1}{2r} - k\tilde{b};$$
$$\tau_z' = -\omega^2\rho u - \frac{\tau_z}{r} - \frac{\tilde{b}}{2r} + k\left(\sigma + 2\bar{\mu}(ku - w')\right), (\dots)' = \frac{d}{dr}. \quad (8)$$

Here

$\tilde{a} = 2\mu\left(\frac{v+w}{2r} - w'\right); \tilde{b} = \mu\left(-\frac{u}{2r} - kv\right)$, the boundary conditions

$$r = r_0 \to 0: \sigma = \tau_\phi = \tau_z = 0;$$
$$r = R: \sigma = \tau_\phi = \tau_z = 0. \quad (9)$$

Thus, the spectral boundary-value problem (8), (9) is formulated that describes the propagation of harmonic waves in an infinite cylinder with a radial crack. We note that the choice of boundary conditions on the faces of the slit in the form of (6) was determined primarily by the possibility of separation of variables along the coordinates r and φ, which greatly simplifies the solution of the original problem. Separation of variables is also possible in the case of the following boundary conditions:

$$\phi = 0: \quad \sigma_{\phi\phi} = 0; u_r = u_z = 0;$$
$$\phi = 2\pi: \sigma_{\phi\phi} = 0; u_r = u_z = 0. \quad (10)$$

Indeed, performing a change of variables in (7), (8) so that conditions (10) are satisfied

$$u_r = \tilde{w}(r)\sin\frac{\phi}{2}\cos(kz - \omega t);$$
$$u_\phi = \tilde{v}(r)\cos\frac{\phi}{2}\cos(kz - \omega t);$$
$$u_z = \tilde{u}(r)\sin\frac{\phi}{2}\sin(kz - \omega t);$$
$$\sigma_{rr} = \tilde{\sigma}(r)\sin\frac{\phi}{2}\cos(kz - \omega t);$$
$$\sigma_{r\phi} = \tilde{\tau}_\phi(r)\cos\frac{\phi}{2}\cos(kz - \omega t);$$
$$\sigma_{rz} = \tilde{\tau}_z(r)\sin\frac{\phi}{2}\sin(kz - \omega t), \quad (11)$$

we obtain a spectral boundary-value problem having complex coefficients and roots

$$\tilde{w}' = \frac{\tilde{\sigma}}{K_\lambda} - \frac{\lambda}{K_\lambda}\left(k\tilde{u} - \frac{\tilde{v}}{2r} + \frac{\tilde{w}}{r}\right);$$
$$\tilde{u}' = \frac{\tilde{\tau}_\phi}{\mu} + \frac{\tilde{v}}{r} - \frac{\tilde{w}}{2r};$$
$$\tilde{u} = \frac{\tilde{\tau}_z}{\mu} + k\tilde{w}; \quad (12)$$

$$\sigma^{\sim}{}^{2}\frac{2\mu}{r}\left(-\frac{\tilde{v}}{2r} + \frac{\tilde{w}}{r} - \tilde{w}'\right)\frac{\tilde{\tau}_\phi}{2r}_z$$

$$\tau^{\sim}_\phi{}^{2}\frac{2\tilde{\tau}_\phi}{r}\frac{1}{2r}\left(\tilde{\sigma} + 2\mu\left(-\frac{\tilde{v}}{2r} + \frac{\tilde{w}}{r} - \tilde{w}\right) - k\left(\frac{\tilde{u}}{2r} - k\tilde{v}\right)\right)$$

$$\tilde{\tau}_z' = -\rho\omega^2\tilde{u} - \frac{\tilde{\tau}_z}{r} + \frac{\mu}{2r}\left(\frac{u}{2r} - k\tilde{v}\right) + k\left(\tilde{\sigma} + 2\mu(k\tilde{u} - \tilde{w}')\right).$$

With boundary conditions

$$r = r_0 \to 0: \tilde{\sigma} = \tilde{\tau}_\phi = \tilde{\tau}_z = 0;$$
$$r = R: \tilde{\sigma} = \tilde{\tau}_\phi = \tilde{\tau}_z = 0 \quad (13)$$

It is easy to see that problem (12), (13) reduces to problem (8), (9)

Using replacement

$\tilde{\tau}_z = \tau_z, \tilde{\tau}_\phi = -\tau_\phi, \tilde{\sigma} = \sigma, \tilde{w} = w, \tilde{u}_\phi = -u_\phi, \tilde{u}_z = u_z$.

The solution of problem (8), (9) was carried out by the orthogonal method Runs of Godunov, Muller and Gauss [9, 10].

At the cutoff frequency, the axial displacements are equal to zero and the oscillations of the cylinder occur in a plane deformed state.

In the second mode, cutoff frequencies are observed at $0 \le k \le 0.075$. Only real and part opinion axial displacements, annular and radial displacements are equal to zero. The curves are numbered in the order of growth of k. Note the strong dependence of the

forms on the wave number. With an increase in the wave number in the first mode, localization of oscillations near the outer surface of the cylinder takes place. It is characteristic that the second mode, which at small wavenumbers is a form of predominantly axial vibrations, gradually grows into a form of predominantly radial vibrations with increasing *k*.

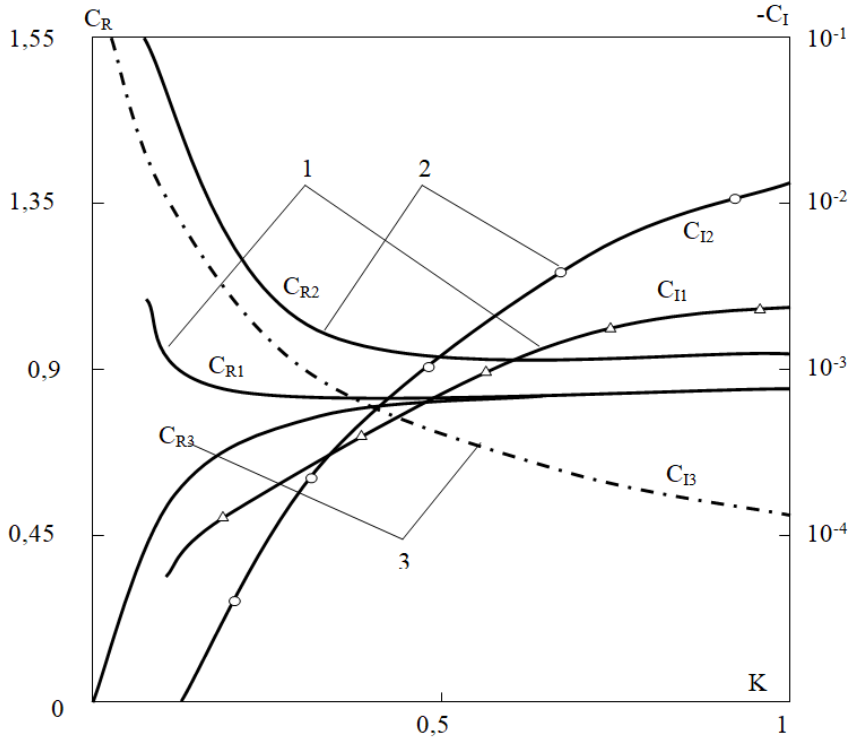

Fig. 1. Change the real and imaginary parts of the oscillation frequency depending on k.
1.C_{R1}, C_{I1}, - real and imaginary parts of the first mode of the complex phase velocity of the cylinder by a radial crack;
2. C_{R1}, C_{I1}, - real and imaginary parts of the second mode of the complex phase velocity of the cylinder by a radial crack;
3. C_{R3}, C_{I3} - real and imaginary parts of the first mode of the complex phase velocity of a continuous cylinder.

Findings.

1. It was found that in an elastic cylinder with a radial crack there are no waves having real parts of the phase velocity localized near the axis of the cylinder.

2. Taking into account the viscoelastic properties of the wedge material reduces the real parts of the wave propagation velocity by 10-15%, and also allows you to evaluate the damping capabilities of the system as a whole.

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RESEARCH OF SORPTION PROPERTIES OF HYBRID ZIRCONIL-SILICA COMPOSITE SORPTION MATERIALS

Abstract: *Research in the field of synthesis of selective monohybrid composite materials for use as sorption materials using sol-gel technology is currently very relevant and promising and attracts the attention of specialists.*

Key words: *nano hybrid materials, sol-gel, rheology, optics, film, membrane.*

Language: *Russian*

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ИССЛЕДОВАНИЕ СОРБЦИОННЫХ СВОЙСТВ ГИБРИДНЫХ ЦИРКОНИЛАКРЕМНЕЗЕМНЫХ КОМПОЗИЦИОННЫХ СОРБЦИОННЫХ МАТЕРИАЛОВ

Аннотация: *Исследования в области синтеза селективных нано гибридных композиционных материалов для применение в качестве сорбционных материалов с использованием золь-гель технологии в настоящее время являются весьма актуальными и перспективными и привлекают внимание специалистов.*

Ключевые слова: *нано гибридные материалы, золь-гель, реология, оптика, пленка, мембрана.*

Введение

Наногибридные материалы, получаемые золь-гель методом обладают хорошими термохимическими, реологическими, оптическими и эксплуатационными свойствами, что немаловажно при формировании из них различной продукции в химической, оптической (пленки, мембраны), нефтехимической, фармакологической, парфюмерной промышленностях [1-5].

Разработка гидролитически стабильных пористых сорбентов высокой эффективности является одной из важных проблем в современной жидкостной хроматографии. Необходимым условием, предъявляемым к хроматографическим сорбентам, является наличие достаточно жесткой матрицы, способной выдерживать высокие рабочие давления в колонке без ухудшения структурных характеристик. В большой степени это характерно силикагелям и пористым стеклам, которые являются наиболее признанными и широко применяемыми в высокоэффективной жидкостной хроматографии и высокоэффективной тонкослойной хроматографии [6].

Особый интерес представляют наногибридные полимер кремнезёмные материалы на основе тетраэтоксисилана (ТЭОС) или полиэтоксисилана (ПЭС) с хлорокисным циркон илом. Известны способы получения наногибридных композиционных материалов на основе хлорокисным цирконилом [7-9].

Основным достоинством силикагелей является то, что они не набухают и не сжимаются при любых условиях хроматографирования, а мягкость гидрофильного покрова позволяет варьировать в широких пределах удельной поверхностью, объемом пор и ковалентно связывать с фазами, содержащими различные функциональные группы.

Большинство сорбентов на основе силикагеля, выпускаемых промышленностью в настоящее время, имеют достаточно близкие характеристики: размер пор 6-12 нм, удельная поверхность 200-550 $м^2$/г, объем пор 0,7-2,2 $см^3$ / г [10,11]. Преобладающей формой производимых силикагелей является сферичность, в отличие от частиц неправильной формы микросферы оксида кремния, которые имеют преимущества с точки зрения достижения более однородного и плотного заполнения хроматографической колонки [12].

Однако пористая структура силикагеля очень чувствительна к обработке водными растворами, особенно к щелочным растворам. Очень часто наблюдается нанокомпозиционные полимер кремнеземные материалы не устойчивы к воздействию буферным растворам при высоких значениях pH 9-10, что силикагель постепенно начинается разрушаться. К тому же часто возникает проблема, когда используется в качестве подвижной фазы буферные растворы с довольно высокими значениями pH. Гидролитическая устойчивость силикагелевых сорбентов, в этом случае не отвечает к требованиям поставляемым сорбентам.

Для решения этой проблемы была предпринята попытка получения гидролитически стабильного микросферического силикагеля на основе наногибридного полимеркремнеземного композиционного материала с включением в процессе синтеза хлорокисного цирконила.

Синтез гидролитически стабильных наногибридного полимеркремнеземного материала проводили следующем образом. Для синтеза гидролитически стабильных сорбционных материалов, ТЭОС был заполнен в колбу и нагревали до 80^0С. При постоянной температуре ТЕОС и хлорокисный цирконил медленно добавляли в колбу с ТЭОС при молнем соотношении ТЭОС: хлорокисный цирконил (4:1). Реакционную смесь продолжали перемешивать при 80^0С, до полностью реакции этерификации. Реакция считалься законченной, тогда, когда этанол израсходовался полностью.

В настоящее время поиск путей получения и исследования свойств композиционных сорбентов для хроматографии, широко использующихся в научных исследованиях и для решения многих практических задач, является актуальной и важной проблемой. Полимеризация на поверхности дисперсных наполнителей способствует повышению их однородности путем заполнения открытых пор и трещин полимеризующимся мономером, а также улучшению их гидрофобности [13].

В последние годы выявлено, что с помощью такого рода процессов проводят модификацию поверхностных свойств различных материалов: ионообменных мембран, наполнителей полимерных материалов, хроматографических сорбентов и т.п., получения композиционных материалов методом полимеризационного наполнения. Также эти процессы могут быть использованы для получения защитных полимерных покрытий и капсулирования твердых тел [14-16].

Сорбенты с нитрильными группами составляют около половины наименований, производящихся за рубежом средне полярных сорбентов [17]. Одним из основных среди них является цианопропилсилилированный силикагель, который получают в жестких высокотемпературных условиях многостадийным путем, включающим очистку промышленного силикагеля от примесей соединений металлов, затем основную модификацию цианпропилсиланом и последующую дополнительную – триметилхлорсиланом, для связывания остаточных силанольных групп. Кроме того, вследствие того, что поверхность силикагеля обычно покрыта полимолекулярным слоем адсорбированной воды, которая почти всегда препятствует силанизации, стандартная процедура до модификации состоит в удалении адсорбированной воды [18-21]. Хорошей альтернативой этому является сорбент, полученный нанесением хлорокисным цирконилом на пористый силикагель, который

оказался даже более селективным для разделения поли ароматических углеводородов. Интерес к разработке полимер-кремнеземных сорбентов, содержащих нитрильные группы, связан с возможностью использования в качестве одного из исходных компонентов хлорокисным цирконилом, а также использование золь-гель процесса, позволяющего получать кремнеземную матрицу в мягких условиях. Химическими стадиями золь-гель процесса являются одновременно протекающие гидролиз и конденсация тетраэтоксисилана, приводящие к образованию олигомера полиэтоксисилоксана в растворе (золь) и последующее формирование трехмерной сетки, представляющей собой «гель».

Так как большой интерес представляет структура нано гибридного композиционного материала для сорбционных материалов нами было исследована рентгенографические, и сорбционные свойства.

Экспериментальная часть и постановка задачи.

Рентгенографическими исследованиями установлено, что при введении модифицирующего мономера при соотношении хлорокисный цирконил:пористый микросферический силикагаль=1:5, образующиеся макромолекул проявляются на дифрактограмме небольшим пиком в области 2Θ=170 вместо довольно интенсивного максимума (рис.1.), характерного для самого цирконила, что показывает наличие водородных связей между пористого микросферического силикагеля и хлорокисного цирконила. По-видимому, в хлорокисный цирконил-кремнеземном сорбенте происходит подавление кристалличности в результате взаимодействия хлорокисного цирконила с поверхностными силанольными группами частиц пористого микросферического силикагеля.

Свидетельством аморфной структуры полимер-кремнеземного сорбента является размытость контуров поглощения ИК спектров образцов исходного пористого микросферического силикагеля и полученных модификацией хлорокисным цирконилом.

Исследована сорбционные характериститки гидролитически стабильных сорбционных материалов таких как КСК-2,5; лихосорб цирконилкремнеземный сорбент. Сорбционные измерение проводились на вакуумных весах Мак-Бена с кварцевой пружиной в интервале от 0-100% относительной влажности при 25^0C.

На основании полученных данных по уравнению БЭТ оценивали удельную поверхность ($S_{уд}$), объем пор (V_0) и средний радус пор (r_n). Результаты исследования сорбционной способности и оценка сорбционных характеристик полученных сорбентов представлены в таблице 1.

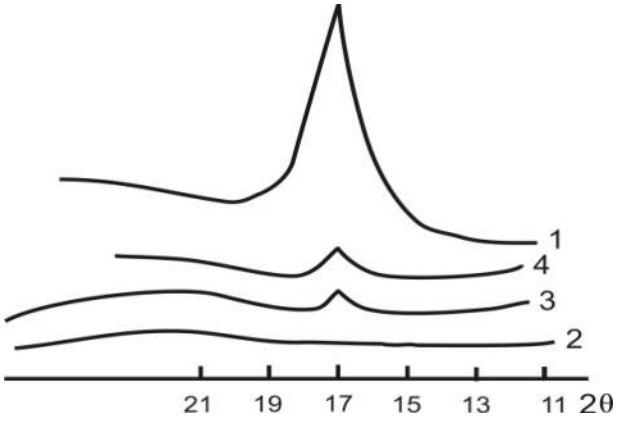

Рис. 1. Дифрактограммы образцов сорбентов: 1-исходный хлор окисный цирконий; 2-исходный пористый микросферический силикагель; 3-цирконил-кремнеземный сорбент (при; 4- механическая смесь цирконий-кремнеземного сорбента (при хлор окисный цирконий: пористый микросферический силикагель - 1:5).

Таблица 1. Сорбционные характеристики образцов сорбентов

Образец характеристики	КСК-2,5	Лихросорб	пористый микросферический силикагель	TEOC: хлорокисный цирконил 20%	TEOC: хлорокисный цирконил 10%
X_m,г/г	0,0179	0,0120	0,0211	0,0261	0,0285
$S_{уд}$, м^2/г	62,892	4,077	70,190	64,525	70,026
V_0, см^3 /г	0,238	0,181	0,246	0,277	0,234
$R_п$,А^0	76	86	66	71,5	70,6

Сравнение данных по сорбции паров воды для пористого микросферического силикагеля и хлор окисный цирконий образцов пористый микросферический силикагель показывает, что у гибридных сорбентов значение сорбции паров воды уменьшается с увеличением содержания хлор окисного цирконах. (Рис.2).

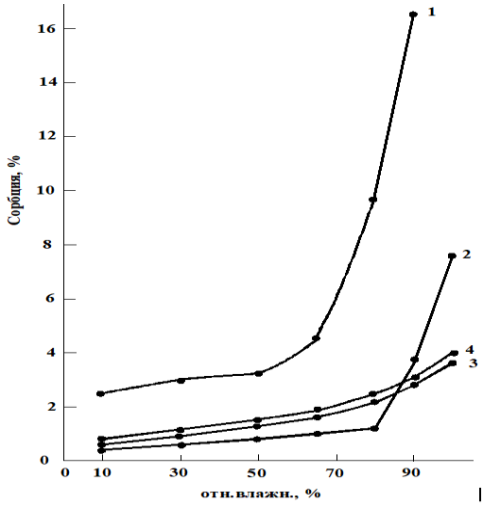

Рис. 2. Сорбция паров воды образцами сорбентов 1 - пористый микросферический силикагель, 2 - пористый микросферический силикагель, содержащий 2% хлор окисный цирконил, 3 - пористый микросферический силикагель, содержащий 10% цирконил, 4 – хлор окисный цирконил.

При 10 %-ном содержании последнего сорбционная способность при 65% относительной влажности становится сопоставимой с сорбционной способностью, наблюдаемой для чистого микросферического силикагеля (1,7%).

Для сравнения свойств исходного пористый миркосферический силикагель были испытаны также выпускаемые за рубежом силикагели: КСК-2,5 (Россия) и Лихросорб (Мерк, Германия). Результаты исследования свидетельствуют о том, что с добавлением хлорокисного цирконила сорбционные способности и близок к сравниваемым КСК-2,5 (рис. 3).

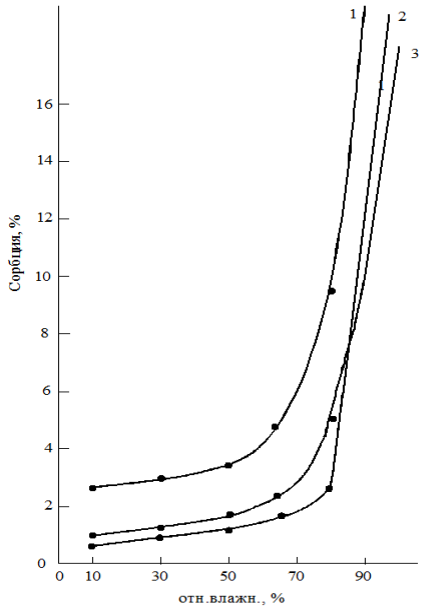

Рис. 3. Сравнение сорбции паров воды различными образцами сорбентов. 1 - пористый миркосферический силикагель, 2 - КСК-2,5, 3 - Лихросорб.

Полученные данные по сорбции паров воды дают возможность полагать, что содержание адсорбированной влаги может в значительной мере характеризовать надмолекулярную структуру сорбента и зависит не только от химической природы полимера, но и от надмолекулярной структуры, в частности, от различий в капиллярно пористом строении сорбентов.

Выводы.

Таким образом применение в качестве сорбентов цирконий содержащих полимер кремнезёмных сорбционных материалов является наиболее эффективными, так как подобные сорбенты гидролитический стабильные и дает возможность их применение в высокоэффективной жидкостной и тонкослойной хроматографии.

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IMPROVING TECHNOLOGY OF INDIVIDUALIZATION ON EDUCATION FOR STUDENTS OF TECHNICAL SPECIALTIES IN TEACHING ENGLISH

Abstract: *Regardless of the improvement of material, standard, curricula, programs and textbooks in education, the achievement of the expected core result, deep and deep learning, high quality assurance can be achieved by the teacher who conducts theoretical and practical lessons creativity, diligence, professionalism, pedagogical skills, and the center of learning requires the learner's life.*

Key words: *self-awareness, technology, self-reliance, supplementary literature, visualization, methodology.*

Language: *English*

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Introduction

Pedagogical technology is a system of continuous development of pedagogical activities aimed at achieving educational goals and personal development. The reform of higher education forces a scientifically sound approach to this issue. Any design, though scientifically sound, is not technologically relevant. Designing has a methodological function. It has emerged as a research tool for students' mental development laws, features of the learning process, and pedagogical management. Teaching technology provides educational activities, ensures the implementation of cognitive work, facilitates the consciousness of a teacher, influences his / her mobility and way of life. Vocational training technology creates an individual's interest in discipline, will, and specialization. Educational technologies that meet the most demanding requirements of the specialist are aimed at implementing the rapidly adapted psychological and pedagogical environment for the collaboration of the teacher and the student.

Literature review.

An analysis of the literature on pedagogy shows that at present the concept of pedagogical technology is firmly established in the science and practice of education, but its role in the complete dictionary of pedagogy (thesaurus) remains unclear. The history of the formation and development of the concept of pedagogical technology has been widely regarded as a doctrine of technical means and a systematic organization of the learning process. There are several definitions of pedagogical technology now. V.P. Bespalko defines pedagogical technology as a specific pedagogical system project to be implemented. He believes that the pedagogical system is not the basis for technology development. The emphasis is on pre-designing the teaching and learning process, using the concept of didactic tasks and learning technologies. Thus, V.P. Bespalko promotes the idea of designing the learning process. Unfortunately, there is still no clear understanding of pedagogical technology and project concepts. Although pedagogical technology is rapidly being introduced into the educational process, its status remains unclear. Researchers play a leading role in science and practice. N.F. Talizina believes that every teacher must have a technological knowledge of the learning process before creating a realistic pedagogical process. He believes that there must be a separate discipline that deals with science, practice, methodology, and consistent application. Without

them, the pedagogical process would not be based on technology as a real learning process. Some authors treat learning technologies as science and art, while others relate it to design. Thus, in one approach, learning technologies are defined as any equipment that covers all the learning tools. The technology requires the technicalization of the learning process. In another approach, technology can be viewed as a way of providing educational experience with new or modern knowledge. It is seen as the implementation of scientific principles and practice of technology education. The concept of technology has come to light in the 1960s in America and Western Europe with the reform of education. B.Blui, J. Coroll, P.J. Galperin, V.I. Davidov, N.A. Menchinskaya, Z.I. Kalmikova, L.I. Zankov technologies are popular. Technological approach to the organization of training belongs to psychologists and didacticists like V.P. Bespalko, N.F. Talizina, L.M. Friedman, Y.N. Kulyutkina, G.S. Suhobskoye, T.V. Kudryavsev The analysis of technological approaches shows that most teaching technologies remain idle. A number of technologies have strengthened the theoretical foundations, and its practicality is not so clear. TA Ballo highlights one aspect of the technology, namely, the task-oriented approach to teaching. Elsewhere, there is a problem with the computer-based learning or teaching structure. L.V. Zankov, T.Y. Galperin, V.l. Davidov's research focuses on holistic learning technologies. 1. There are many unexplained issues in pedagogical technology. This is related to the study of the problem, understanding the methodology and understanding of teaching technology. Pedagogical technology is defined as the field of theoretical and applied research (within the educational system) that is relevant to all the organizational aspects of the pedagogical system to achieve specific and potentially useful pedagogical outcomes. From these definitions, it can be concluded that pedagogical technology is the planning and implementation of a system of learning tools necessary to achieve results. Educational technology refers to a theoretical project of educational activity management and a system of necessary tools for the functioning of the pedagogical system, depending on the purpose of education and the level of knowledge of the student. Teaching technology is based on a theory and a purpose. The functioning of the pedagogical system, its flexibility, and the individual characteristics of the student, is linked to technological and individual standards of networking. The flexibility of this technology, the variability of the network, the gradual nature of student behavior is important. The educational technology level covers all the components of the learning process. Person-centered technology involves the intellectual and emotional development of students, the formation of knowledge and professional skills, the value-added approach to the educational process, the development of activity, self-awareness and self-reliance. The educational technology level covers all the components of the learning process. Person-centered technology involves the intellectual and emotional development of students, the formation of knowledge and professional skills, the value-added approach to the educational process, the development of activity, self-awareness and self-reliance.

Discussion: Any education should focus on the student, his interest, his desire, needs. That is, it is necessary to focus on the individualization of education. Now what about personalization of education? Let's answer the question:

- The individualization of the learning process is a teaching method that takes into account the individual contribution of each student to the learning process;
- methodological approach, quickness of the teacher, personal characteristics of the student are taken into account in the organization of the educational process;
- Student conducts educational and methodological, psychological and pedagogical organizational management.

What is an individual approach?

1. When working in groups, organizing educational work with each student individually, their personal characteristics should always be taken into account by the teacher.
2. Even when communicating with a student, his or her personality must be taken into account.
3. It should also take into account its ability and capabilities in the learning process.
4. It is necessary to consider the level of personal development of the learner when conducting pedagogical psychological processes.

Individualized Education Principles:

- Individualization is the main strategy of the educational process.
- Individual development through the individualization of the learning process.
- Implementation of each learning subject through the individualization of teaching guarantees the expected result.

Creation of conditions for integration of forms on education with individualization.

- Individualized learning ensures the quality and effectiveness of the learning process.
- Skills, qualifications and knowledge in the individualized education are based on the interest of the student.
- Being able to work independently develops and enhances the learning skills of the learner.

Thus, the quality and effectiveness of education is related to the effective engagement of the learner with independent reading, thinking, and thinking activities aimed at assimilating the learning content. In interactive teaching methods, students can show the following characteristics of their development.

• The learner is not trained, he or she is taught to work independently.

• Students are taught to develop self-reflection, creative thinking, and independent thinking through independent analysis.

We are given the skills to take a stand against foreign ideas and defend their position.

• The ability of the learner to acquire knowledge by searching, finding, and processing information in textbooks, on the Internet, and from other sources is not provided to the learner. The knowledge gained creates opportunities for creative thinking. Students will be able to master the skills of working with textbooks, reading, learning, writing a commentary, supplementary literature, and reference books.

• All students in the classroom are guaranteed to be proficient in their abilities. At the same time, assimilation of the learner is defined by the skills and abilities to apply the acquired knowledge in life and in practical activities.

• All learners can achieve the same result if they learn to work using interactive methods and integrate them into their learning activities.

• When organizing an interactive learning process:

1. The learner's interactions are growing, and the skills to work in partnership and creativity are formed.

2. Forms the curriculum, programs, textbooks, standard standards, guidelines, skills to work with the content of the topic.

3. The reading, processing, mastering of the content of the education, text and curriculum become their daily routine.

4. A student is accustomed to expressing himself freely, defending, proving.

5. More importantly, there are didactic motivations in the learning process. That is, the needs, wants, wishes of the student are met. The interest of the learner in the learning process increases. This puts the learner on a high level in achieving the learning objectives.

What is personalized learning among teachers lately, and why is it necessary for interactive teaching? When did this method come into the learning process? What are its types? What is its structure? How do we incorporate it into the learning process, and how it differs from previous methods, we are faced with such questions. To do this, it is worth repeating the traditional lessons in our schools these days. Traditional teaching was offered in the 17th century by Czech teacher Jan Amos Komensky. He develops a single classical system of teaching and calls it a classroom-learning system. Later this system was widely used in pedagogy. Naming a traditional school classroom system, it has the following traditions:

• Children who are of the same or near age are in the class of close children.

• The classroom is based on a single plan, program, and lesson plan.

• Basically, the type of occupation is the only lesson.

• Lesson is a well-known educational subject that works on the same material as the theme.

• Supervises the activity of the student, evaluates the level of knowledge of each student, and also decides to move the student from class to class by the end of the year.

• Textbooks are mainly used for homework.

The traditional lesson scheme is as follows.

New Topic -> Strengthening - Control - Assessment – Learning

The Conceptual Condition of the Traditional Lesson:

• Science;
• Adaptation to the learner nature;
• Consistency, regularity;
• Understandability;
• Visualization;
• Practical relevance of theory.

Technological principles of vocational training are the goals, content functions, and teaching methods for the future profession. On this basis, pedagogical technologies will be developed. Different approaches to definitions of pedagogical technologies show that in fact, teaching technologies are moving between science and production and the teaching and learning process. This is an independent field of knowledge in the professional didactic training system that is closely related to the didactic theory and practice of teaching. It incorporates the functions of designing and designing the learning process. Teaching technology includes both theoretical and practical knowledge about specific ways of managing the learning process, the most promising management and learning activities. The consistency of the network is determined according to the conditions of the educational process. These are the pedagogical areas for managing educational activities. They are based on their generalized level. Pedagogical technology is an aspect of education. The design of teaching technology is the normative process of managing the educational process, which ensures the effectiveness of educational and professional development. The scientific literature focuses on three aspects of pedagogical technology: scientific, descriptive, practical. The purpose, content and methods of teaching in the scientific aspect are scientifically grounded and the pedagogical process is designed. An algorithm process is developed based on the purpose, content, methods and means of achieving planned learning outcomes in the descriptive aspect. In the practical aspect, the process of pedagogical technology is implemented. Three levels of pedagogical technology are defined in relation to educational practice: general education, private methodical, local (modular). Universal pedagogical

technology represents a holistic educational process. Specific methodology is a method and tools for the implementation of the educational process library in a single subject. Local (module) technology refers to the application of technology to specific sections of the educational process. This technology aims to solve specific didactic and educational tasks. Pedagogy and teaching technologies are also included.

Conclusion.

Educational technology content is an information aspect, and learning technology is considered process-related, meaning that there are still no clear differences between them. Pedagogical technology should be tailored to the level of student readiness, access to information, and practical training of students. Teaching technologies in the system of vocational education reflect the development of fundamental and applied knowledge, reflective behavior, and formulate professional activities. Pedagogical technology is defined by teacher and student activity. These kinds of activities determine the structure of pedagogical technology.

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IMPROVEMENT OF PEDAGOGICAL CONDITIONS FOR THE DEVELOPMENT OF COMMUNICATIVE CULTURE IN FUTURE HIGHER EDUCATION SPECIALISTS

Abstract: *To impact through words is important for the teacher's cultural and student engagement. Because, to some extent the human mind, thoughts, knowledge, and the level of knowledge and culture of the mind are expressed in words. In a culture of communication, words take away the power of language and language. The teacher who applies the verbal interaction in his or her teaching activities should possess the skills to manage their emotional responses and to express their feelings. It should be expressed only for the purpose of educational purposes and should not injure the student's heart by the use of inappropriate words, and the pedagogical throne in expressing the words should not deviate from the rules.*

Key words: *methodological ideas, vocabulary, creative teachers, pedagogical technologies, social relationships.*

Language: *English*

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Introduction

Teacher gestures and facial expressions enhance verbal and non-verbal effects. Facial expressions and gestures should be consistent with the volume of your speech. An illustrative example of a teacher's readiness to interact with the classroom is given by F. Samuylenkov in his work "The skill and tactics of the teacher are his reputation":"Before I enter class VIII B, I smile in my face in the teacher's room. Before I enter the classroom, I consciously pause for a moment and begin to think of myself as a serious, almost indistinct figure. I talk to my students rarely, clearly and sharply. I am not joking. I do not sit down while I teach, I am officially friendly with children. It is not easy for me to maintain such a rhythm, but I have learned so far that I can no longer behave in this way: the class is fast-moving, quickly out of the shore and difficult to get back into the flow. " these remarks of the scholar are still alive today. Vocabulary in the communicative relationships that are present in the teaching activities of the teacher is so varied that it represents a relatively independent form of direct pedagogical influence.

Literature review.

Specifically, there are special requirements for the culture of pedagogical communication and the sweet words of the educator, which relate to the importance of the word in organizing the pedagogical effect. In his speech, manners and respect are shown as the most important human qualities that can be found in the teacher's pedagogical skills. It is worth noting that the following criteria of politeness in the professional activity of teachers are the following: According to the proposed system, the personality and tact of the teacher are formed. Throughout his career, he improves his vocabulary. She strives to be effective in making use of rich language opportunities. A teacher who does not enjoy this art does not develop professional skills. That is why it is important to always make sure that your teaching speech is fluent and beautiful. After all, the teacher's main weapon is

his vocabulary. Although important skills are not the same as knowledge, skills they are interrelated. The skills do not appear in the knowledge, skills but rather in the dynamics of their acquisition, in other words, how quickly and efficiently the process of acquiring the knowledge and skills that are important to this activity is presented deep, light, and durable when you perform. The ideas that appear on the same page give us the right to talk about abilities. Consequently, abilities are an individual-psychological trait that is a prerequisite for successful performance of an individual's capabilities and is reflected in differences in the dynamics of acquiring knowledge, skills and qualifications. If a given set of personality traits meets the demands of a person's career within a given pedagogical time frame, then we can conclude that he or she has the ability to do so. If another habit is not able to meet the requirements of the activity, then it is the basis for the assumption that the psychological qualities that are attributed to him are otherwise incompatible. The process of acquiring them will be frustrating and will require a lot of effort and time. Article 5 “the Law on Education” states that "persons who have professional training and have high moral qualifications have the right to be engaged in pedagogical activity." The requirements for the teacher, law, national curriculum, and current requirements are also expanding and becoming more complex. Teaching is an honorable but challenging profession. In order to be a good teacher, it is not enough to master pedagogical theory. Because pedagogical theory sets out general rules for teaching and educating children, generalized methodological ideas. Emphasis is placed on the individual characteristics of the teacher. School life is a very diverse and practical pedagogical process. There are situations that do not correspond to pedagogical theory. It requires a great deal of knowledge, great practical training, high pedagogical skills and creativity. Therefore, the teacher of the present day is: creative, entrepreneurial, capable of teaching; perfect knowledge of national culture and universal values, secular knowledge, knowledge of religious knowledge, spiritual perfection; A confident citizen who understands the duty of patriotism in Uzbekistan as an independent state; Excellent knowledge of specialty, psychological, pedagogical knowledge and skills, as well as theoretical knowledge; love the teaching profession and the children, sincerely believe that every student will grow up to be a good person, help them to grow and develop as a person; to be free and creative, demanding, fair, and ethical. It is up to the teacher to carry out the tasks set by the state in the field of public education. At present, education is the task of achieving the goals of education, the organization of diverse activities of students, the cultivation of a well - educated, well - mannered, believing, hardworking, free-thinking, intelligent person. In every society and in the past, teacher education is the most important task of educating and educating young people with the future of society. Even at the end of the primitive community system, youth education institutions were established, where older, more experienced elders were brought up. The number of creative teachers contributing to improving the quality of education and upbringing of the young generation is increasing year by year. Competitions for the best teachers are an important factor in these successes. There is an increasing number of teachers in schools, methodical teachers, senior lecturers, honored teachers of Uzbekistan, and teachers who have been awarded the title of Uzbek national teacher. On October 6, 1997 the Presidential Decree “On radical reforming of the system of education and training, upbringing of the harmoniously developed generation” was published: "Training in the educational institutions of the best teachers of the higher educational institutions as professors and pedagogical staff will allow them to learn from the positive experience of education in the developed foreign countries, to learn new pedagogical technologies and to gain experience abroad. The Fund was established to assist in the training of highly-qualified teachers, to identify talented young teachers, to enhance their professional skills, and to assist in the development of advanced democracies in leading universities and centers. In general, the training and retraining of teachers is in the focus of attention of the state and society. The focus is on making teachers think philosophically. The reason for these concerns is that the future of our nation and our nation is largely a teacher, its level and dedication.

Discussion.

Pedagogical activity is the labor activity of specially trained people to educate children, who are accountable to the state before the people for the preparation of the young generation for life and labor. School teachers are focused on the formation of a personality. Every child has his or her own behavior and character. These aspects should be taken into account in training. It uses special methods that reflect the complexity of social relationships between people. Young people preparing for pedagogical activities should know these characteristics. These characteristics of the teaching profession are reflected in the professorial curriculum, which includes:

1. Features of the teacher`s personality.
2. Requirements for the teacher's psychological and pedagogical training.
3. The scope and content of special training.
4. The content of general training in the specialty.

Features of teacher`s personality:

In the field of ideology: A deeper understanding of scientific worldview and beliefs, social needs and ethical needs, understanding of social and civic duty, and socio-political activity. In the pedagogical

profession: love for children and their interest in work, love for pedagogical work, spiritual pedagogical vigilance and observation, pedagogical control, pedagogical imagination, organization ability, honesty, diligence, rigor and purpose, self-control, professional competence. To the field of knowledge: wide scientific level, spiritual need and curiosity, intellectual curiosity, ability to feel new. Pedagogical activities enrich a person's experience of analyzing and generalizing what has happened to him. Pedagogical qualifications are the ability to master and acquire the knowledge and skills acquired by a particular type of activity.

Such teaching skills include:

a) Practical constructive skills:

Ability to choose the most important rules of planning the educational work

Ability to implement individual plans for teamwork in relation to each student.

The ability of individual students to take into account their age and personality.

b) Organizational qualifications:

Identify, select, and manage active children among students.

To be able to organize students' individual teamwork in different types of community, to know their social activity.

Establish control over the delivery of community assignments to students and provide them with practical assistance when needed.

Manage case management in a self-directed classroom. Able to work with parents and the general public, school schedules should be designed to ensure that a child is a good student, has a good career, has a good time, and always has a good and enjoyable activity to be engaged, there are pedagogical requirements for organizing such activities. Requirements for the teacher:

Make the students and team members feel clear about what they expect from the activity. (For example, metalworkers should do this at their own discretion.)

Organization of activities should be based on student initiative and positive activity. It is important for students to refer to the allocation of work, planning, accounting, and reporting. The teacher conducts pedagogical activity. Ensure that every child acquires entrepreneurial and executive skills. Discussion of results and encouragement of participants. What is a good pedagogical skill and what does it consist of ?

This understanding is the true science of reason and knowledge, the authoritative leadership that is able to cope with the challenges of parenting, the ability to feel the hearts of children, and the ability to fantasize and fantasy. Pedagogical skills include pedagogical knowledge and understanding as well as skills in the field of pedagogical techniques, which allow less effort for parenting to achieve greater results. Each skilled teacher is associated with the formation of such necessary general pedagogical skills, and the solution of these issues is an extraordinary force of the teacher - the enthusiasm, determination, diligence, commitment to research, the new situation, new collective requires accessibility, sincerity, honesty and honesty, the ability to test one's intelligence with another.

A.S. Makarenko says, "If a teacher fails to master the skill, if he or she does not become a progressive force in a child's environment, it will inevitably integrate personal influence, stimulating their growth and developing their best practices," that is, he chooses the easiest path for himself. True skill and prestige do not fit together. If a really good educator ever thinks that a system of communication should help kids' creative maturity, the educator prefers to limit their independent work and their unconditional listening, thereby contributing to the disintegration of the children's environment. "Pedagogical skills include extensive knowledge about the organization of the educational process and its contents and methods. This knowledge constitutes a common pedagogical culture, and a teacher can never become a true master of his or her profession unless a teacher takes over that culture. Modern culture is not enough for a common culture. In-depth analysis of the dialectics of child-rearing, comparisons of their growth with the main ideas emerging in the community, identifying ways and ways of their development, the interdependence of different ways of teaching and learning. skills to do scientific research, to integrate pedagogical research and achievements into a system.

The main components of pedagogical skills are:

a) humanitarian direction of the teaching activity;

b) profound knowledge of specialty and pedagogical and psychology of specialization knowledge;

c) pedagogical skills (ability to know, to explain, to observe, to gain prestige, to communicate correctly, to see the future, to distribute attention, and pedagogical behavior);

d) pedagogical technique (speech skills, mimic pontamic expression, emotional control.)

"Upbringing is a matter of life, death, salvation, destruction, happiness, or disaster," said one of our national educators, A.Avloni. He is the teacher of life, salvation, happiness and prosperity. Kindness and kindness in children should be the main motivation, not just internal feelings and circumstances, but also the main motivation for a child or classroom relationship in our teaching activities. The kindness and kindness of the children, the cruelty to them, the crushing of their dignity and their dignity, the shouting and the intimidation of them, the joy of each of them, and the joy of their success. It does not allow us to trust them not to come to our aid. A loving river

teacher who loves a child with all his heart will smile more, smile less, he will lead a truly pedagogical life and thus achieve professional happiness. When a humanist educator introduces children to knowledge, he is able to give them a character at the same time as a human example. There is no teacher knowledge for the child. So when a child loves a teacher, he or she will be interested in learning. What a teacher needs to do is to entertain the world of knowledge that only a child who loves his teacher will love. It will continue to promote the spiritual values of society.

Conclusion.

The methods and forms of education and training are derived from the teacher's affection for children, and his humanistic sense of perfection is enhanced. The teacher must be the only person who can bring up the personality. Only human kindness can be humanized. He must be a well-educated creative person, because knowledge can only be enjoyed by those who are passionate about it. In our society, a teacher's dream is to educate children about the future, to instill in them future ideals that will inspire them with hope. From the earliest times up to the 7th century, the teacher, the student, and their views on the role and skill in society are very high.

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THE ROLE OF NATIONAL VALUES IN UPBRINGING OF YOUNG PEOPLE WITH THE SENSE OF PATRIOTISM

Abstract: *The State Educational Standard of Higher Education focuses on the education of young people in the spirit of humanism, patriotism and internationalism, the formation of an independent person who is able to think independently and make the right decisions in difficult situations. After all, the main goal of the state policy and higher education is to instill in the minds of young people the idea of the Motherland and bring up a harmoniously developed generation that meets high moral and ethical requirements. This article discusses the importance of national values in developing young people with the spirit of patriotism.*

Key words: *patriotism, education, practice, motherland.*

Language: *English*

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Introduction

Patriotic education is an important pedagogical problem. Today a new generation of thinkers is born, who see their future as a way to strengthen democratic values in the society and integrate the future of our country into the international community. Thus, the study of the history of our country and our people, the formation of the ideals of the motherland in the youth, plays an important role in enhancing their political and economic activity. Certainly, it provides valuable insights into the historical context of teaching literature, history, and other social sciences, as well as the patriotic texts that influence the great figures and commanders in the historical development of our homeland. It is particularly important to hold lectures, meetings, discussions, debates and conferences on the ideals of the motherland. All this allows young people to fully enjoy the rich cultural heritage and immortal values of our people and to foster a healthy spiritual environment. Educational backgrounds, personal identities (self-identities, historical figures), and role models provide effective results. In fact, many young people today are fans of foreign rock stars and know their names by heart. But little is known about the duties and great services of the great nobles to the motherland of Shirak, Tumaris, Temur Malik, Najmiddin Kubro, Jaloliddin Manguberdi, Amir Temur and others. Yet, their love for the country is an example for young people. When our young people use our national history, national traditions and customs in the development of the Motherland, their respect for national culture increases. The active participation of young people in the activities can help to identify the level of development of the Motherland idea and promote best practices.

On the basis of the developed criteria, the peculiarities of the formation of the idea of the Homeland in young people were identified. These are:

- to be ready to defend the Motherland in any case for the sake of the motherland, to do good to the motherland, society, nature and people;
- mobilization of own emotions and actions for the prosperity of the country, striving to understand the country and its results;
- formation of feelings about the duty of childhood connected with the idea of development of the country.

These features are deeply embodied in the criteria for the development of the Motherland in young people. It is not accidental that the works of patriotic people, country, nature, history, and traditions are of particular importance. Upbringing spiritually mature and cultured people is at the heart of an independent Uzbekistan. The revival of our national traditions, the abandonment of traditional teaching methods, the use of advanced teaching and information technologies in education have become a popular requirement today. As a result of changes in the political, social and spiritual life of the Republic, the formation of the idea of the Motherland in the youth of higher education institutions is a requirement of the time.

The main purpose of the program "Idea of National Independence", "Fundamentals of Spirituality" and textbooks taught in higher education institutions is to educate the young generation in the spirit of patriotism, humanism, diligence in all aspects of the future of independent Uzbekistan. The purpose of the National Idea program is to increase the love for the idea of independence and to nurture young people in the spirit of devotion to the ideas of prosperity of the Motherland, peace and prosperity of the country. The book "Idea of National Independence: Basic Concepts and Principles" states that "National ideology can never originate and develop outside the country. The idea that does not serve the prosperity of the motherland can never be a national idea." It will become a source of strength only if it reflects the principles that determine the prosperity of the country. Indeed, any state or society that wants to build its future adequately must rely on its own national ideals. Because the main idea today is the formation of the idea of devotion and love for the country. The idea of love for the motherland and the country is a divine blessing. That is why the Motherland is dear and holy to everyone. Consequently, one of the main challenges facing the higher education system is to bring youth to the understanding of the basic concepts and principles of the Motherland. It is important to shape the mind and world outlook of young people in accordance with modern requirements, to enrich and further enhance their knowledge with the ideas of the Motherland, and to use effectively the social and humanitarian sciences in this area. The feeling of love for the motherland is absorbed into our minds through mother's milk and motherhood. Therefore, motherland is Motherland. All our noble aspirations and good deeds are addressed to the Motherland. Therefore, to live with a high faith in our priceless homeland, to be worthy of the sacred word “Motherland”, to always raise the love and devotion to the motherland, to the true feelings of each of us. Thus, in the course of the lessons on the development of the motherland, young people form an idea of love for the country, live with pride of the Motherland, adherence to the symbols of independent Uzbekistan, and raise the flag of our country even higher. In the course of formation of the idea of development of the Homeland in young people the followings are considered:

- know and be proud of the history of the motherland;
- active in the study and consolidation of the spiritual heritage of our people
- involvement in participation;
- a decision of a just, legal, democratic civil society;
- achieving the activity of each individual in the acquisition;
- maintenance of peace, stability and peace, nationality;
- to know and respect human values;
- understanding the high role of Uzbekistan in the world;
- knowledge of the great future of Uzbekistan,
- acquiring skills.

Each teacher should strive to convey the essence of the idea of development of the Motherland in accordance with the youth's knowledge and outlook. The teacher should be able to direct the young people's ability to think freely. It is necessary to have the skills to monitor and respond to changes and reforms in an independent state. In the course of the training, it is advisable to use the methods of interviewing, question-answer, explanation, comparative analysis and advanced pedagogical technologies based on the age of the youth. Certainly, knowledge and pedagogical skills of the teacher are important. The following is an example of how youth can develop their own homeland ideas.

The dominance of the notion of freedom at the core of national ideology shows that the independence of the Motherland is the basis of all our aspirations, our practical activities and our bright future. The core ideas of the national ideology are based on the idea of independent development of our nation and strive to bring it into the hearts and minds of our people with its essence and attractiveness. In its essence, national ideology envisages strengthening of freedom and independence of our Motherland, prosperity of the Motherland, peace of the people, welfare of the people. Performing this noble task requires every citizen to feel free thinking, responsibility for the fate of the country and independence. Where there is no freedom, there is irresponsibility and indifference. Homeland is a land where the blood of a person is shed, which makes him perfect and gives his life meaning. The prosperity of the motherland depends primarily on her children and their condition. It encourages each of our compatriots to feel a high responsibility for their spiritual development and to live up to their interests in harmony with the interests of this country and the people. As President of Uzbekistan Sh.Mirziyoyev noted, “We will preserve the vivid memory of our ancestors and preserve them

in our hearts and hearts forever. We are immensely proud of our teachers and contemporaries who dedicated their lives to the prosperity of our beloved Motherland, demonstrating the unwavering will, dedication and courage". The national idea never takes root or develops outside the homeland. The idea that does not serve the prosperity of the motherland can never be a national idea. Today in our society entrepreneurship, free economic activity is the basis for the development of our country, the economic power of our people is growing, our people's spirituality and scientific potential are growing.

The work of our state on the development of education, education of young generation in accordance with international standards, their upbringing in the spirit of devotion to the Motherland and national ideas is recognized worldwide. Due to the adoption of the Education Act and the National Program for Personnel Training, the content of education has been radically reformed. The first, second and third stages of the national program were implemented. As a result, new programs, tutorials and textbooks have been introduced. Academic lyceums and vocational colleges were built. All conditions for development of higher and secondary special education are created.

Today, the main goal of higher education institutions is to educate initiative, highly talented and highly competitive professionals. After all, the economic, political, and spiritual orientation of society depends on mature people. As the President Sh.Mirziyoev noted, "People act for a specific purpose, become wealthy, find happiness, honor or anger or despair, and bear the burden of misery. Their dependence on others and their captivity depends on their upbringing from their parents. Training of qualified personnel is the basis for development of Uzbekistan. This is the basis for the training of future professionals in higher education, which is the cornerstone of the continuing education system. Higher education institutions not only provide young people with opportunities to train them in certain professions, engage in professional activities, but also develop their spiritual life. It provides the national economy with qualified specialists. In the spirit of firm beliefs and views on life, the younger generation can resist harmful influences and currents that are alien to our mentality. as well as in the spirit of respect for universal values. Of course, the effectiveness of these works depends on what knowledge, what intellectual and spiritual wealth, and how modern knowledge comes to life. What ideas do they promote? What spiritual values do you prefer? What will be the fate of the country? These questions can be solved only through the formation of the idea of the motherland prosperity in higher education institutions. Thus, it is important for young people to develop the ideals of their Motherland and to instill in them the responsibility for the development of the Motherland and the nation. It is a great human virtue to love the motherland with all its being, to be proud of being a child of the motherland, to be willing to sacrifice one's life for it.

These ideas demonstrate the seriousness of such issues as human interests, life, freedom, rights, upbringing of the children, upbringing the young generation, providing prosperity of the Motherland. Thus, the sacred duty of the present generation of the Uzbek people is to make Uzbekistan a free and prosperous homeland, to spread its fame across the globe, to gain power and glory, to think deeply about the fate and the future of our nation. From ancient times our ancestors believed that love for the country, respect of people and devotion were the holy feeling, prioritizing the Motherland, nation, honor and dignity, and it was an honor to sacrifice them in this way.

The main task of today's education system is to strengthen independence, to develop patriotism in the younger generation, national pride, the idea of prosperity of the Motherland, to educate them in the spirit of pride of history, culture, rich spiritual heritage, present and future of our country. After all, the feeling of love for the country is sacred. This feeling should also become a reality for our children.

The motherland is sacred to every human being. By living in the homeland, everyone understands the meaning of his life, feels and understands the world, thus forming a worldview. As Professor Kurbanov rightly points out, the following issues are based on the prosperity of the country:

- strengthening the economic power of the state, entrepreneurship development, freedom of economic activity, and modernization of the economy based on advanced technologies;
- increasing the spiritual wealth of the people, its intellectual potential and professionalism;
- comprehensive and full use of creative abilities of the people; nurturing a spiritually rich, intellectually and spiritually mature, morally and physically healthy youth.

The material that has left an indelible mark on our history show to be an important factor in helping our students love and safeguard their homeland, its future, its fame and its future. Indeed, in the formation and development of love for the country, such qualities as humanity, justice, pure conscience, faith and humanity play a role. The future of Uzbekistan as a great state, the fate of our independence depends on the strength, intelligence, practical training, and mental, physical, cultural and spiritual development of our youth who are the guards of national independence. Young people are the future of our motherland and nation. The present generation should deeply feel and deserve the highest responsibility for the fate of our country. Therefore, it is necessary primarily that young people have a deep understanding of the concept and essence of the country. People's Poet of Uzbekistan Abdulla Aripov

wrote many years ago "Why I love Uzbekistan?" Recalling the creation of his poem, he said: "It is likely that my open confession of the motherland began in those years. Of course, there was a time when the whole world was shouting that it was my homeland. "There is no doubt that such a nation has a bright future."

To love the land that we have received when we are alive in spirit and body, is faith. We call Motherland, Motherland! You must love your homeland just as you love your parents. Love is not enough. We must fight for his freedom and purity. The original notion of homeland has nothing to do with time or quality. Patriotism means love for the country. Homeland is a source of spirituality, culture, science, literature and art. There is no sacred wealth in the country. Faith - When it comes to religion, primarily, we see it. Without restoring faith and religion, we cannot create an independent, promising great country. The feeling of homeland is embedded in the blood of everyone with their mother's song, that she had heard in her childhood. If the patriotism is formed from infancy, it will last forever. Every citizen should deeply understand the sense of patriotism and patriotism and nationality and be proud of their involvement in this country.

For the development of the country, everyone must use his conscience and heart, his mind and all his strength. The idea of homeland prosperity gives a person stability, and endurance in life, restricts his vision of loss, protects from tragedy and strengthens his will in difficult times. The prosperity of the motherland cannot be created without the strength of the people, the people, the society, the state, without it. Formation of the idea of the motherland cannot be accomplished without separation from world culture and rich traditions, beautiful traditions of our multinational society.

Formation of the idea of development of the motherland starts with the knowledge and gifted young people, first and foremost in their efforts towards specific goals. Therefore, the formation of the idea of development of the Motherland in the youth based on legal, spiritual and democratic changes in the country, its development is the basis of all educational work carried out in educational institutions. It needs a device. Today's life center is dedicated to patriotic, liberating, loving people, ready to defend the territorial integrity and sovereignty of Uzbekistan. It stops training and nurturing perfect humans who can fulfill their purpose.

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QR – Issue QR – Article

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THE CONCEPT OF INNOVATION, ITS SCIENTIFIC AND PHILOSOPHICAL STUDIES

Abstract: *this article discusses the term "concept" from the viewpoint of Philosophy and clarifies its role in technology, management and labor organization. Moreover, innovative features and their impact on the educational process, the teaching functions, as well as its negative impact on the social life of the people are defined. Furthermore, the issues that impede the development of the innovations, their preventive measures, as well as, their negative consequences are also discussed. The given opinions are justified with examples.*

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Introduction

The concept of "innovative potential" began to be actively involved in science since the late 1970s. It has been defined and developed in methodological and theoretical research by a number of scholars. However, to date, the only universal definition of this concept has not been developed. Every scientist or expert interprets the potential of innovation in a specific way, taking into account the specifics of their country.

The current stage of modernization of the economy in our country requires economic entities to pursue innovative policies aimed at creating new products and technologies in entrepreneurial activity and producing export-oriented goods. Indeed, as the President of the Republic of Uzbekistan Sh.Mirziyoev noted, "Innovation is the future. If we start building our great future today, we must start with the same innovative ideas and innovative approaches. " The essence of innovation and its features are embodied in the concept of innovation. It is noteworthy that this notion has been described differently in the works of foreign scientists and in the work of our scientists. Specifically, Volume 4 of the National Encyclopedia of Uzbekistan describes:

Innovation - (innovationas - embedded innovation, invention):

1) economic costs to replace the generation of technology;

2) innovations in areas such as technology, management and labor organization based on scientific and technological achievements and best practices, as well as their application in various areas of business .

In our view, this definition does not fully explain the modern nature of innovation, and is not sufficient to categorize and detail it. According to J. Cook and P. Mayers: "Innovation is a complete process, from idea to ready-to-market products." According to Professor M. Dodgson of Oxford University, "innovation consists of scientific, technological, organizational and financial activities that result in the commercialization of new (or improved) products, new (or improved) production processes, or devices." According to S.V. Ildemenov, innovation activity: "is an object introduced into production as a result of scientific research or discovery, and qualitatively different than before". We can go further with the definition of innovation. The most important difference between different definitions is how the

author approaches the notion of innovation. We can divide these approaches into two categories:

1. Innovation is a creative process and the result.
2. Innovation - introduction (commercialization) of innovations.

Until recently, there has been a lively debate about which of these approaches is the best in definitions. In recent times, this kind of debate has diminished. This is due to the development of a unique international standard of innovation as a comprehensive management category. The development of this international standard was based on two works known as the Frascati Handbook and the Oslo Guide. The first of these is the recommendations for the collection, processing and analysis of information on science and innovation, adopted in 1963 in Frascati, Italy, and hence the so-called Frascati Guide. This handbook is regularly updated and improved by national experts in the OECD's Science and Innovation (OECD). The Oslo Handbook introduces a general approach to innovation, which was adopted in 1992 in Oslo and collects data on technological innovation. Currently, most theorists and practitioners in the field of management support the notion of innovation presented in these documents. This concept is based on the development of concepts, programs and other strategic documents on innovation activities in the formation of the legal and regulatory framework for innovation. By summarizing the above theoretical, legal, and methodological reviews, we propose the following approach to the definition of innovation:

Innovation is the product of creative and intellectual activity, embodied in the form of new or improved products and intended for market or new or improved technology used in practical activities, when new ideas are presented in the form of drawings, or detailed descriptions. However, if it is not used in any industry and does not find a consumer in the market, this idea or knowledge is not innovation, although it is the result of scientific and creative work. These ideas can be summarized and divided into 3 main types of innovation.

1. Absolute.
2. Relative.
3. In part.

If the news has no analogue, it is called absolute innovation. An innovative product is a relative innovation if it has been used previously in other businesses and is used for the first time at this enterprise. Partial innovation is an update of an item or network of equipment (technology). Based on the above, the main criteria for innovation are as follows:

- scientific and technical innovation;
- use of innovation in practice, for example, in industry, agriculture, health care, education or other activities;
- application of the novelty in the market, that is, meeting the demand of buyers or customers.

Thus, no matter how detailed the new idea is, whether it is in the form of drawings, or other exhibitions, that does not mean innovation. For innovation, the idea must be embedded in products, services or processes that meet vital needs. Only innovation that can be implemented in new products or processes can be innovative. In other words, the most important features of the innovation, the criteria are the novelty and implementation of the idea, the mobilization of business activities, new products or processes, and their success in the market.

The word “innovation” means “news in use”. Works of foreign scholars such as R. Akkof, W.M. Blumental, V. Bryens, R. Drucker, D. Clark, G.Ment, R.Porter, R.Forster, T. Kun, I. Schumpeter, E.Torfler shows that they view and interpret innovation as a reality in all areas of social life.

Aristotle introduced the word "Potentia" to science and philosophy. According to him, the potential is "the possibility of a new reality." This possibility exists in social reality. Thus, the basis of innovation is always ready to innovate in the social realm and relationships. However, the willingness of social relations to innovate does not mean that the problem can be solved effectively. Innovation requires innovative ideas, development and innovation. Social inclination towards innovation is a positive thing, of course. Sometimes this being can resist innovation and deny it. For example, the Soviet lifestyle and the administrative-command economy were skeptical of new developments and saw the goal of the totalitarian system as the only way out. As a result, society was disengaged from human development and society was in decline. The Soviet system and economy, which rejected innovation as a standard of development, collapsed. One cannot forget this sad event. Therefore, innovative ideas, developments and innovators are seen as key factors in bringing innovation.

Innovation is essentially a gnesological phenomenon, at the core of which is the desire and interest of the person for knowledge, understanding and perception. The pursuit and interest in news inspires a person to pursue scientific, creative or social studies. The scientific literature sometimes refers to the term "innovative research." The phrase is a person's quest for innovation, and it is based on knowledge, understanding and perception. All philosophers, from Plato to Popper, call knowledge a "painful point of philosophy." Because Socrates's statement "I knew I didn't know anything" is still relevant. The fact is that innovation is based on the gnoseological principle that "I know what I do not know" but "implement what I know." “All human knowledge is limited, unreliable and uncertain,” but it is creative and practical with this relative knowledge being transformed into a real event.

Philosophy of innovation examines this creative - practical activity, research from the philosophical

point of view, and studies its general theoretical and conceptual issues. In our opinion, these issues are:

First, what is the difference between innovation and other cognitive processes as a scientific and creative activity ?; and **second**, is it a new direction, flow, doctrine in the science of philosophy? If there is a new doctrine, what are its goals and objectives, ways of knowing?

Thirdly, what does the philosophy of innovation give to the gnoseological research of human beings, what experiences enrich them ?;

Fourth, what are the innovations that we should call innovation ?;

Fifth, socialization of innovation is the attribute of life, progress, so how does the philosophy of innovation determine this attribute, and reveal what it is, according to the imagination, practical or theoretical model?;

Sixth, are there any particular research methods, categories, objects of innovation philosophy? If so, what is their role in philosophy and science?

Seventh, is there an empiricism prevailing in the philosophy of innovation, or can the theory, a harmonious approach be established? Such questions can be asked again.

The above questions require extensive, coherent research, but we must answer them briefly, depending on the requirements of the article.

Each branch of knowledge with its immanent features differs from other fields. Immanent signs of innovation philosophy as scientific research may be included;

- Based on empirical research and based on the requirements of social life and development;
- Searching for a topic from the needs of social existence and revealing its gnoseological significance;
- To find and justify ways of bringing real life to the ideal level;
- Finding the humanistic nature of innovative ideas, developments and inventions, and developing them as concepts for social development.

Most importantly, the philosophy of innovation differentiates scientific, creative and sociological research from ordinary activities It provides a humanistic and progressive spirit to ordinary, innovative research.

The purpose and objectives of the philosophy of innovation determine the nature of the activities aimed at innovation, research and creativity. It is natural that these goals and objectives are different, but they always explore the kinds of activities, ideas and approaches that will bring innovation to traditional approaches, procedures and ideas.

The philosophy of innovation reflects the essence of gnoseological reality, that is, man's efforts to know and learn. Therefore, it contributes to gnoseology, enriches it with views, approaches, and postulates from the study of scientific, creative and social studies. Its gnoseological object is news, activity to look for something new.

Not all innovations can be innovative. For example, if you move the pen on the table from left to right, you will create something new in the space (on the table) and create a new space. Such innovation is not yet innovation. Innovation needs to change traditional ideas, approaches and ways of working, enrich them with new elements. From this point of view, it is difficult to deny radicalism in innovation. What is changing and enriching traditionalism is the task of innovative ideas, developments and approaches.

Finding innovations that are attributes of social life is not easy, but in the philosophy of innovation it seeks not only empirical experience, but primarily subjective reality, the minds of creators, innovators and reformers. The ideas, concepts and approaches created by these individuals will come to life as theoretical developments. These recommendations will be explored, and scientific discoveries will be revealed.

Private research methods of innovation philosophy include expression, implementation of scientific and technical developments, direct observation, objective analysis, forecasting, profitability index and growth index. Common research methods of philosophy, ie integrated approach, structural - functional analysis and synthesis, theoretical modeling are also research methods of innovation philosophy.

In the philosophy of innovation, theoretical and empirical research of theoretical empiricism is dominated. Therefore, it is one of the philosophical disciplines. The influence of empirical experiments on the human mind and imagination cannot be undeniable, but philosophy is a way of understanding generalizations. The philosophy of innovation relies on this common feature.

In sum, the empirical experience has accumulated enough to shape the philosophy of innovation as a scientific activity, and now it is necessary to give philosophical and universal theories. This is the gnoseological essence of the philosophy of innovation.

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ANALYSIS AND SOME DIRECTIONS OF FORECASTING THE DEVELOPMENT OF THE ECONOMY OF UZBEKISTAN

Abstract: *The article discusses macroeconomic indicators of the development of the national economy of Uzbekistan. The interdependence of the economies of individual states in the world economy is studied. The issues of development of the main trade partners of Uzbekistan are considered. The prospects for the implementation of strategic directions for the economy are identified. The dynamics and forecast of some macroeconomic indicators of the Republic of Uzbekistan in recent years are analyzed. Identified factors and solutions that have a negative impact on the growth of the economy of Uzbekistan.*

Key words: *analysis, GDP, consumer price index, inflation, macroeconomic indicators, forecast, economy of Uzbekistan, economic growth.*

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АНАЛИЗ И НЕКОТОРЫЕ НАПРАВЛЕНИЯ ПРОГНОЗИРОВАНИЯ РАЗВИТИЯ ЭКОНОМИКИ УЗБЕКИСТАНА

Аннотация: *В статье рассматриваются макроэкономические показатели развития национальной экономики Узбекистана. Изучена взаимозависимость экономик отдельных государств в системе мирового хозяйства. Рассмотрены вопросы развития основных торговых партнеров Узбекистана. Выявлены перспективы реализации стратегических направлений для экономики. Проанализирована динамика и прогноз некоторых макроэкономических показателей Республики Узбекистан за последние годы. Выявлены факторы и пути решения, оказывающие негативное влияние на рост экономики Узбекистана.*

Ключевые слова: *анализ, ВВП, индекс потребительских цен, инфляция, макроэкономические показатели, прогноз, экономика Узбекистана, экономический рост.*

Введение

В последние годы в экономике Узбекистана осуществлены кардинальные меры по экономическому реформированию, направленные на повышение эффективности рыночных механизмов и укрепление частной собственности.

С учетом значительно увеличившегося числа трудоспособного населения, главным приоритетом страны является создание новых рабочих мест и улучшение условий труда. Узбекистан уже реализовал первую волну важных экономических реформ, включая либерализацию валютного рынка, налоговую реформу и серьезное улучшение статистики. Столкнувшись с необходимостью масштабных структурных реформ, официальные органы хотят в первую очередь провести реформы, направленные на устранение искажений, которые наносят наибольший урон экономике страны. Главная задача в области краткосрочной макроэкономической стабильности заключается в предотвращении кредитного бума, способного вызвать чрезмерные внешние дефициты и усилить инфляционное давление.

Materials and Methods

К примеру, по предварительной оценке Госкомстата, ВВП Республики Узбекистан за январь-сентябрь 2019 года в текущих ценах составил 361 858,4 млрд. сум и, по сравнению с январем-сентябрем 2018 года, вырос в реальном выражении на 5,7 %. Индекс-дефлятор ВВП по отношению к ценам января-сентября 2018 года составил 118,0 %. ВВП на душу населения составил 10 805 тыс. сум и, по сравнению с соответствующим периодом прошлого года, увеличился на 3,7 %. По сравнению с соответствующим периодом прошлого года, в отраслевой структуре ВВП (ВДС) снизился удельный вес сельского, лесного и рыбного хозяйства с 31,3 % до 28,0 %, сферы услуг – с 36,8 % до 35,9 % в то время, как удельный вес промышленности увеличился с 25,4 % до 29,2 % и строительства – с 6,5 % до 6,9 %.

Темпы экономического роста за январь-сентябрь 2019 года обусловлены положительной динамикой в основных отраслях экономики. Валовая добавленная стоимость, создаваемая всеми отраслями экономики, составила 90,9 % от общего объема ВВП и выросла на 5,7 % (вклад в прирост ВВП – 5,0 процентных пункта). Чистые налоги на продукты в структуре ВВП составили 9,1 % и продемонстрировали прирост на уровне 5,6 % (вклад в прирост ВВП – 0,7 п.п.).

По итогам января-сентября 2019 года сельское, лесное и рыбное хозяйство продемонстрировало положительные темпы прироста на уровне 2,4 %. Вклад данной отрасли в прирост ВВП составил 0,6 п.п. Положительная динамика в сельском, лесном и рыбном хозяйстве связана с ростом производства продукции растениеводства на 2,4 % и животноводства на 2,5 %. В отрасли промышленности наблюдается прирост добавленной стоимости на 7,0 %. При этом положительный вклад в прирост ВВП со стороны промышленного производства составил 1,6 п.п. Положительная динамика в этой отрасли обеспечена за счет роста добавленной стоимости горнодобывающей промышленности и разработки карьеров на 1,9 %, обрабатывающей промышленности – на 8,9 % и других отраслей промышленности – на 1,6 % [1].

Один из важнейших показателей Системы Национальных Счетов, характеризующий конечный результат производственной деятельности экономических единиц - резидентов, который измеряется стоимостью товаров и услуг, произведенных этими единицами для конечного использования является ВВП. Его анализ представляет особый интерес в макроэкономике.

Макроэкономический анализ - заключительный этап всякого статистического исследования. Анализ развития экономики, как правило, проводится с целью выявления основных взаимосвязей и пропорций общественного производства; степени влияния отдельных факторов на результаты экономической деятельности; получения теоретических выводов; образования целесообразности и направлений дальнейшего совершенствования используемой статистической методологии; формулировки практических выводах об основных тенденциях развития социально-экономических процессов и их эффективности [2].

Исходя из особенностей республики и мирового опыта институциональное реформирование экономики страны сосредоточилось на передовых высоко эффективных предприятиях. Цель составления адекватного социально-экономическим реалиям прогноза развития страны на краткосрочную перспективу распадается на ряд обособленных задач, сопряженных со сложностями разного типа. Трудности макроэкономического прогнозирования связаны не только с тем, что глобальная финансовая система находится в ситуации посткризисной трансформации, но и сложностью отыскания аналитического инструментария, который можно было бы задействовать в теперешней ситуации.

Существует несколько методов прогнозирования: во-первых, метод экстраполяции наметившихся ранее тенденций в данный момент может иметь лишь ограниченное применение именно потому, что недавние тенденции были так или иначе связаны с

докризисными характеристиками экономический динамики. Во-вторых, наработки исследователей экономических циклов не могут стать основой для краткосрочных выводов ввиду их принципиальной ориентации на обобщение данных за длительные периоды на основе анализа соответствующих временных рядов. В-третьих, построение математических моделей не отвечает задаче формирования целостного понимания, происходящего: указанный метод требует игнорирования конкретных цифр и событий во имя достижения искомого уровня формализации расчетов и формулирования выводов [3].

Компромисс, как представляется, может быть найден, если для целей прогнозирования использовать причинно следственный метод анализа событийного ряда и статистических данных. Причем достоверность того или иного вывода достигается при этом за счет его двойной проверки – статистической и фактической.

Быстрота восстановления предпринимательской уверенности в наличии перспектив роста – очевидный аргумент в пользу тезиса о том, что микроэкономические предпосылки (на уровне улучшения мотивации предпринимателей и роста финансовой устойчивости предприятий) для модернизации экономики существуют [4].

В товарной структуре экспорта Узбекистана за последние 10 лет (2008–2018 гг.) произошли изменения в сторону снижения доли хлопка-волокна и увеличения долей продовольствия, энергоносителей и услуг. Однако, как показал анализ технологичности структуры экспорта Узбекистана, существенную долю (порядка 60%) в нем продолжают занимать сырьевые и ресурсоемкие товары.

Таблица 1. Анализ основных макроэкономических показателей (прогноз) развития Республики Узбекистан на 2019 год и целевых ориентиров на 2020-2021 годы

№	Показатели	2019 год	Целевые ориентиры на:	
			2020 год	2021 год
1	Валовой внутренний продукт, млрд. сум	424 113	524 105	637 970
2	Темп роста валового внутреннего продукта, в %	105,4	106,0	107,0
3	Индекс потребительских цен к декабрю прошлого года, в %	15,5	12,6	9.9
4	Темп роста промышленной продукции, в %	104,9	106,2	107,2
5	Темп роста производства сельского, лесного и рыбного хозяйства, в %	103,3	103,4	103,4
6	Темп роста капитальных вложений, в %	117,0	110,1	110,9
7	Темп роста розничного товарооборота, в %	104,8	105,5	106,5
8	Дефицит Консолидированного бюджета (в % к валовому внутреннему продукту и без учета Фонда реконструкции и развития Республики Узбекистан)	-1,8	-0,8	0,0

По предварительной оценке, прогноз ВВП Республики Узбекистан на 2019 год составит 424 113 млрд. сум, а в последующие 2 года ВВП Узбекистана составят соответственно 524 105 и 637 970 млрд. сум. Темпы роста ВВП в 2019 году составят 105,4 %, а в 2020 году – 106,0 % и в 2021 году – 107,0 % [5].

При сохранении динамики зависимости индекс потребительских цен Республики Узбекистан и, исключив влияние изменения определенных факторов, прогнозируемый индекс потребительских цен на 2020 год будет составлять 12,6 %, а в 2021 году ИПЦ – 9,9 %.

В последние годы развитие национальной экономики проходило в условиях адаптации к последствиям мирового экономического кризиса, замедлению темпов роста мировой экономики в целом и основных торговых партнеров страны. Согласно последним данным Международного валютного фонда (МВФ), за 2019-2023 годы мировая экономика будет расти умеренными темпами в среднем на 3,8% в год. В 2019 году в странах – основных торговых партнерах Узбекистана прирост ВВП составит: в России – 1,5%, Казахстане – 2,8%, Китае – 6,4%, Евросоюзе – 2%.

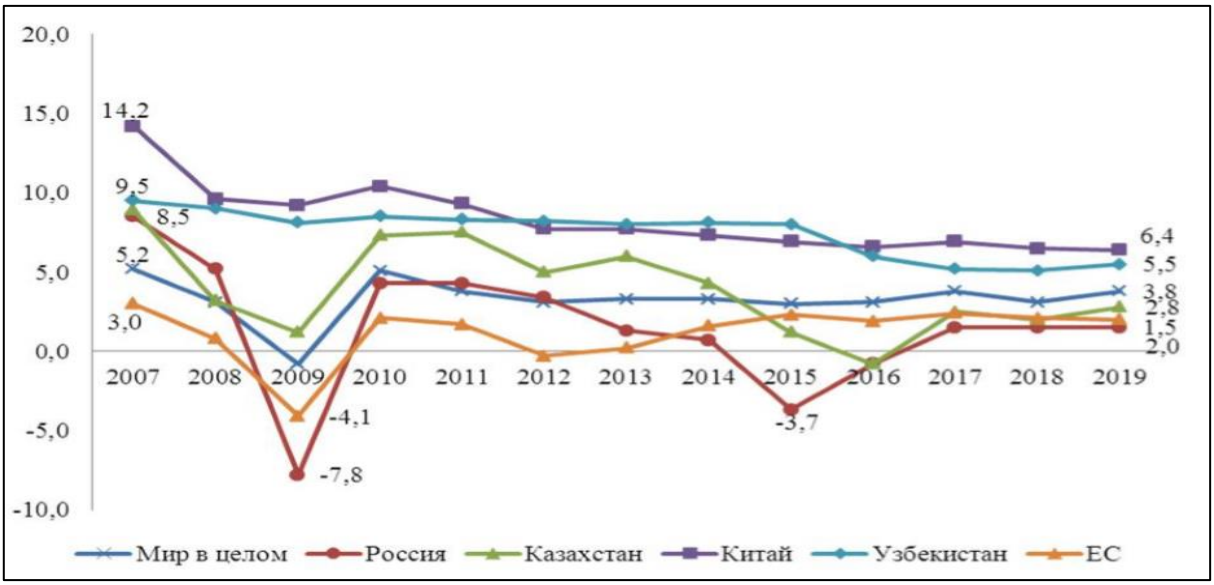

Рисунок 1 - Рост мировой экономики и основных торговых партнеров Узбекистана (в %).

По данным МВФ, за последние три года цены на энергоносители имели тенденцию роста. До конца 2019 года средняя цена на золото ожидается на уровне 1 496,9 долл./унция или – с ростом на 2,4%, цена сырой нефти составит 70,3 долл./баррель и природного газа – 106,5 долл./тыс. куб. м. В 2020 году тенденция роста мировых цен на сырьевые товары, являющиеся основными статьями отечественного экспорта (золото, природный газ, хлопок), прекратится, и в последующие годы цены стабилизируются.

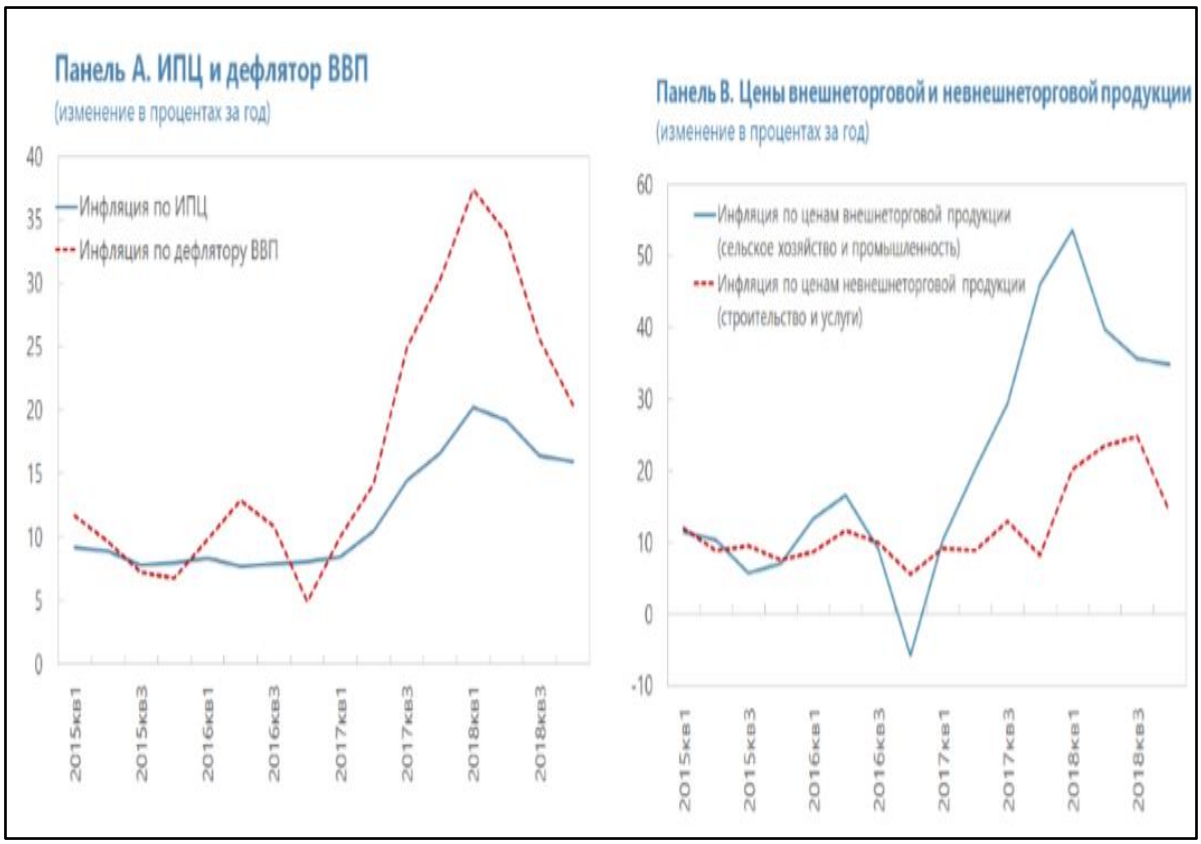

Рисунок 2 - Инфляция Республики Узбекистан 2015-2019 годы.

Либерализация валютного рынка, первые шаги в сторону либерализации цен, корректировки относительной заработной платы государственных служащих и быстрый рост кредитования и внутреннего спроса оказывали мощное разнонаправленное воздействие на инфляцию с момента инициирования реформ в 2018 году [6].

Отражая преобладание эффекта снижения обменного курса, инфляция по индексу потребительских цен (ИПЦ) в начале 2019 года достигла пикового уровня 20 процентов, но к концу года отступила до уровня 14 процентов. Сохраняются устойчивые ожидания высокой инфляции, а альтернативные показатели инфляции, особенно дефлятор ВВП, указывают на высокое давление со стороны базовых цен, причем цены на внешнеторговые товары по-прежнему поднимаются до уровней, намного превышающих ИПЦ [7].

Потенциальные риски и угрозы, оказывающие негативное влияние на устойчивое развитие экономики:

Во-первых, развитие мировой экономики будет сопровождаться ужесточением конкуренции на глобальных рынках, предъявляющих жесткие требования к повышению эффективности факторов производства, в том числе накоплению и развитию человеческого капитала [8].

Во-вторых, проблема обеспечения занятости, в условиях быстрорастущих трудовых ресурсов в Узбекистане, требует создания благоприятных условий для организации новых производственных мощностей. В то же время, существующая структурная деформация экономики страны, характеризующаяся отсталостью технологической базы основных отраслей, сырьевой направленностью экспорта и высокой долей сельского хозяйства в валовой добавленной стоимости, высоким размером теневой экономики, низкой производительностью труда, высокой энерго- и ресурсоемкостью, предопределяет долгосрочный характер решения существующих проблем [9].

В-третьих, проводится ускоренное внедрение эффективных инструментов обеспечения функционирования рыночной экономики, включая внедрение эффективных механизмов защиты частной собственности и регулирования земельных отношений, повышение эффективности работы государственных органов, искоренение коррупции и обеспечение развития финансового рынка [10].

В-четвертых, экономика страны характеризуется низким уровнем инклюзивности, сопровождающаяся невысоким качеством человеческого капитала, неравенством в распределении созданных доходов, слабой социальной защитой и научно-техническим потенциалом, нерациональным использованием и истощением природных ресурсов [11].

В-пятых, имеющиеся проблемы, наравне с недостатками в обеспечении надлежащей материально-технической базы системы образования, отражаются на низком уровне подготавливаемых кадров и территориальной несбалансированности спроса в кадрах различного профиля. Слабая взаимосвязь между научными учреждениями и реальным сектором экономики сдерживает возможности внедрения инноваций и адаптации новых технологий в производство [12].

В отдельных регионах страны наблюдается нехватка специалистов, особенно врачей и учителей, а также специалистов рабочих профессий, что приводит к трудоустройству выпускников образовательных учреждений не по специальности. В то же время высокий уровень предложения рабочей силы отражается на росте безработицы в регионах с избытком трудовых ресурсов, а высокая доля неформальной занятости (40%) отрицательно влияет на доходы Государственного бюджета страны [13].

В-шестых, глобальный экологический вызов и неблагоприятные долгосрочные климатические изменения в результате роста индустриализации, увеличения выбросов, освоения новых месторождений природного сырья, а также истощение природной среды и водных ресурсов (включая сокращение посевных площадей и падение плодородия земельных угодий) отражаются в проявлении неблагоприятного тренда климатических изменений, что отрицательно сказывается на росте уровня заболеваний, водообеспечении и развитии экономики Узбекистана в целом [14]

Кроме того, в сфере регулирования экономических отношений сохраняется несовершенство правовой базы и механизмов реализации законов и других нормативно-правовых актов, в системе государственного управления доминируют прямые инструменты регулирования без соответствующего механизма ответственности и контроля за их применением [15].

В 2020-2021 гг. произойдет адаптация экономики к новым условиям и рыночным механизмам посредством реализации принятых документов, что отразится в решении следующих задач:

- обеспечение макроэкономической стабилизации;
- реформирование системы подготовки, переподготовки и повышения кадров кадров для госслужбы;

- переход к стандартам развитых стран в сфере бюджетной политики;
- дальнейшее развитие институциональной базы рыночных отношений;
- развитие сфер образования, науки, здравоохранения, ИКТ, опережающие инвестиции в человеческий капитал;
- ограничение коррупции и снижение уровня теневой экономики;
- реконструкция, модернизация и расширение производственной, социальной и финансовой инфраструктуры [16];
- ускоренное развитие рынка акций и облигаций;
- развитие конкуренции и демонополизация: контроль на ценами естественных монополий, устранение простых монополий; усиление конкуренции в банковской сфере, авиатранспорте, в автомобилестроении, в энергетике и т.д.;
- расширение внешней торговли за счёт подписания соглашений о свободной торговли с ЕАЭС и рядом других стран;
- ускоренное внедрение современных экологических и ресурсосберегающих стандартов, систем управления качеством ISO в производстве товаров [17].

При этом в направлении обеспечения макроэкономической стабильности планируется:

- дальнейшая оптимизация налогового бремени и уровня вмешательства государства в экономику;
- усиление протекционисткой политики в отношении экспортно-ориентированных отраслей производства товаров и услуг до вступления страны в ВТО;
- повышение эффективности трансмиссионного механизма за счёт обеспечения развития финансовых рынков и конкуренции в банковском секторе, внедрения современных инструментов монетарной политики: внедрение механизмов операций на рынке ценных бумаг за счёт выпуска облигаций ЦБ; внедрение ключевой ставки с формированием межбанковского рынка краткосрочной ликвидности [18].

Conclusion

В заключении скажем, что прогноз показателей изменения ВВП Республики Узбекистан на 2020-2021 годов, что возможно сохранение соотношения валового накопления и расходов на конечное потребление валового внутреннего продукта. Большую часть в ВВП Республики Узбекистан будут занимать расходы на конечное потребление в сравнении с валовым накоплением ВВП Республики Узбекистан.

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SOME ASPECTS OF FORECASTING AS PART OF MACROECONOMIC ANALYSIS

Abstract: *The article considers the essence and concept of forecasting and planning, which allows to anticipate the possibilities and consequences of all changes in the economy. In particular, summary information on the stages of forecasting and planning formation in the history of macroeconomics is presented. The possibility of reducing and eliminating the influence of negative factors on social and economic processes was analyzed. It is also about methods, function and principles of economic forecasting, its role in planning. Approaches to forecasting have been studied. In addition, the current state of forecasting and planning in developed foreign countries of the world has been studied, as well as the possibility of applying best practices of forecasting in the Republic of Uzbekistan has been considered.*

Key words: *classification of forecasts and plans, economy, finance, forecasting, forecasting methods, planning, principles of forecasting.*

Language: *English*

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Introduction

In today's environment, there is an ever-increasing need for forecasts. The history of forecasting shows that forecasting originated many centuries ago and has improved continuously since forecasts appeared. The development of their farm feudals was predicted. The capitalist brought to perfection the planning and management of production within the firm. Early predictions were based on certain subjective reasons, and the likelihood of their failure was very high. As the methodology for the justification of phenomena has developed, as a result of the accumulation and use of human experience and scientific knowledge, forecasts have become more complex and more reliable[1].

Materials

In the ancient ages, attempts to imagine the future were characterized by an orientation towards certain philosophical concepts. Such ideas of the future include the concepts of philosophers such as

Plato and Confucius. In the middle ages, progress was understood as a consequence of the improvement of the human mind and the influence of the world around it. At the beginning of the economic forecasting, the main methods were the expert assessment method and the extrapolation method. Crisis of 1929-1933. Abroad was a powerful impetus in the development of forecasting and planning[2] .

Planning at the macro level abroad arises for the first time in the 1930s. In the system of economic regulation, forecasts and plans become a necessary element.

Forecasts were made using the cost-output model. In the formulation of national budgets, the first plans at the macro level covered such as fiscal and monetary policies.

In the 1950s two new directions of forecasts were formed. The first relates to the complexity of the administrative apparatus used for planning, and the second to the expansion of the planning sphere.

And in 60. Special economic planning and forecasting bodies have been formed. Office of Economic Planning, Economic Advisory Council in Japan. The General Commissariat for Planning is in France. The central planning bureau is in the Netherlands. The Economic Council is in Canada. The System of National Accounts (SNA) is being implemented. Cross-sectoral and financial balances are integrated with the SNA in many countries around the world.

In the mid-1970s, new macroeconomic models of forecasting began to emerge, with the help of which the development of the economies of a number of countries, regions and the whole world is predicted [3].

Forecasting is a crucial link between theory and practice in all areas of society. According to modern researchers, it performs two main functions. The first function is prediction, which implies a description of possible or desirable states, solutions, alternatives. The second function is prediction, which means using information about the future in targeted activities. The first function reflects the theoretical-cognitive aspect of forecasting, and the second one reflects the managerial aspect of forecasting.

Nature of the forecast object: economic; social; scientific and technical; ecological.

Approach to forecasting: normative; search; complex. The task of the search forecast is always to determine the prospects, possible states of development of the prediction object in the future and probabilities of their achievement. The normative forecast defines the ways and means of achieving certain alternatives, considering the alternatives themselves as specified. The comprehensive forecast combines the two previous ones. Level of forecasting object: local, regional, interregional, national, interstate, global. Plans are classified by content, planning object, time of operation, and degree of accuracy [4].

A prediction method is a method of investigating a prediction object aimed at developing a forecast. Currently, there are about 150 prediction methods, but about 20-30 main methods are practically used. By degree of formalization, prediction methods are divided into formalized and intuitive. Formalized methods are used when information about a prediction object is mostly quantitative and the influence of various factors can be described using mathematical formulas. Intuitive methods are used when quantitative information about the prediction object is not available or is mainly qualitative and the influence of factors cannot be described mathematically. The goal tree method is used to predict more complex economic processes in which many structural or hierarchical levels can be identified. The "goal tree" procedure is the formulation of the general objective of the forecast and then divided into a series of level 1 sub-goals, which in turn results from the implementation of level 2 sub-goals, etc. At the same time, this division of the general goal comes as if from the future in the present with the establishment of intermediate events and the fixation of causal relations between them[5]. Intuitive prediction techniques are typically applied to processes that cannot be described by mathematical formulas. The use of these methods makes it possible to obtain a forecast estimate of the state of development of the object in the future regardless of its information security. First of all, when classifying forecasting methods, it is necessary to bear in mind that the meaningful systematization of forecasting methods should be determined by the object of forecasting itself, economic processes of development and their patterns. The main function of forecasting is to carry out scientific analysis of socio-economic processes and trends, as well as to anticipate new economic situations and identify core economic problems. The main functions of forecasting are also to study the objective links between socio-economic phenomena and processes in specific conditions, at a certain stage of economic and social development, to assess the object of forecasting, to identify possible alternatives to economic development in the future, to make optimal decisions[6].

The principles of forecasting change according to the economic conditions that exist at some historical stage of society 's development.

Planning disadvantages include:

♦ weak accounting of natural laws and trends of development of the commodity-money relations;

♦ increase of a role of the plan as end in itself of activities for the principle "the plan - at any cost", some kind of fetish of the plan over the economic relations;

♦ lack of the field for maneuverability of actions of the enterprises of different regions and inflexibility of the developed system of planning;

♦ methodological weakness of the planning which is not considering reserves, an initiative, variety of microlevel;

♦ oblivion of the separate aspects of life recognized by ruling party unpromising, for example cybernetics, genetics;

♦ considerable expenditure of forces, time and funds for development, coordination, statement, specification and maintenance of stability of planned targets[7].

Prediction techniques such as extrapolation, expert assessments and goal tree techniques were widely used. Analysis of this work reveals a number of problems of forecasting. Among them:

♦ weak study of questions of the theory and practice of forecasting, than speaks relative disorder of organizational forms of new science;

♦ insufficient coordination of actions for forecasting development, including for exchange of information and training;

♦ ignorance by performers of forecasts of many methods of forecasting;

♦ insufficient information base for development of forecasts, closeness of many data;

♦ essential costs of performance of separate types of forecasts;

♦ the indistinct expressiveness is more whole than development of forecasts, frequent lack of interrelation between expected and planned targets;

♦ insufficiency of development of techniques and procedures of implementation of forecasts.

Thus, in the context of a market economy, when making forecasts, it is necessary to answer the following questions: for whom to produce and sell? What to make production from? How should production and sales be carried out?[8]

In Japan, all large firms have planned departments; Plan preparation is centralized, planning is carried out from top to bottom. The planning time horizon is usually five years, and the forecasting horizon is fifteen years. The planning process in Japan in most cases consists of four stages: formulation of prerequisites, clarification of problems, long-term strategy, medium-term and short-term plans. It should be emphasized that Japan, like France, has a system of nationwide forecasting, sometimes referred to as indicative planning[9]. In South Korea, expert assessments have been widespread in forecasting. For quantitative calculations using modeling methods,

South Korea uses USA assistance. South Korea 's economic reality is centralized planning using medium- and long-term plans and targeted programs, with sometimes detailed production tasks and deadlines, with a strict system of monitoring economic activity and ruthless economic and sometimes administrative-command rejection of "losers." But all this is linked to the market. Forecasting in the USA is one of the most important forms of economic regulation. Tens of thousands of professionals work in the field of forecasting. Forecast development is carried out by government departments of various levels, research organizations, commercial forecast firms, private industrial, banking and trading corporations[10]. The economy at world level, development of the certain countries and groups of the countries, economy of the USA in general, its industries, states, districts, counties and urban areas, separate firms, commodity markets is predicted[3].

GDP is one of the most important indicators of the System of National Accounts, characterizing the final result of the production activity of economic units-residents, which is measured by the value of goods and services produced by these units for final use[11].

Table 1. Production of GDP by types of economic activities in January-September

	Billion soums		Physical volume index, %	Impact on GDP growth, %
	2018	2019		
GDP - total	290 161.9	361 858.4	105.7	5.7
including:				
Gross value added (GVA)	256 716.4	329 091.0	105.7	5.0
agriculture, forestry and fisheries	80 331.3	92 186.7	102.4	0.6
industry	65 351.2	96 227.9	107.0	1.6
construction	16 677.7	22 561.0	119.3	1.1
trade, accommodation and catering services	19 496.9	23 094.3	104.1	0.3

transportation and storage, information and communication	22 185.4	25 834.5	105.7	0.4
other service industries	52 673.9	69 186.6	105.3	1.0
Net taxes on products	33 445.5	32 767.4	105.6	0.7

According to preliminary estimates, the gross domestic product (GDP) of the Republic of Uzbekistan during January-September 2019 in current prices amounted to 361 858.4 billion soums and increased in real terms by 5.7% compared with January-September 2018. The GDP deflator index with respect to January-September 2018 prices was 118.0 %. GDP per capita amounted to 10 805 thousand soums and increased by 3.7 % compared to the corresponding period last year[12].

Compared with the corresponding period last year, in the sectoral structure of GDP decreased the share of agriculture, forestry and fisheries from 31.3% to 28.0 %, services – from 36.8% to 35.9%, while the share of industry increased from 25.4% to 29.2% and construction – from 6.5% to 6.9 %.

Table 2. Structure of gross value added of industry January-September

	Billion soums		physical volume index, %
	2018	2019	
Industry	65 351.2	96 227.9	107.0
including:			
mining industry and quarrying	14 692.9	21 369.9	101.9
manufacturing industry	46 503.6	68 071.0	108.9
other industries	4 154.7	6 787.0	101.6

According to the results of January-September 2019, agriculture, forestry and fisheries showed a positive growth rate of 2.4%. The contribution of this industry to GDP growth was 0.6 percentage points. The positive dynamics in agriculture, forestry and fisheries is associated with an increase in crop production by 2.4% and livestock by 2.5%.In the industry, there is an increase in value added by 7.0%. At the same time, the positive contribution to GDP growth from industrial production amounted to 1.6 percentage points. The positive dynamics in this industry was ensured due to the growth of value added of the mining industry and quarrying by 1.9%, manufacturing - by 8.9% and other industries -by 1.6%[13].

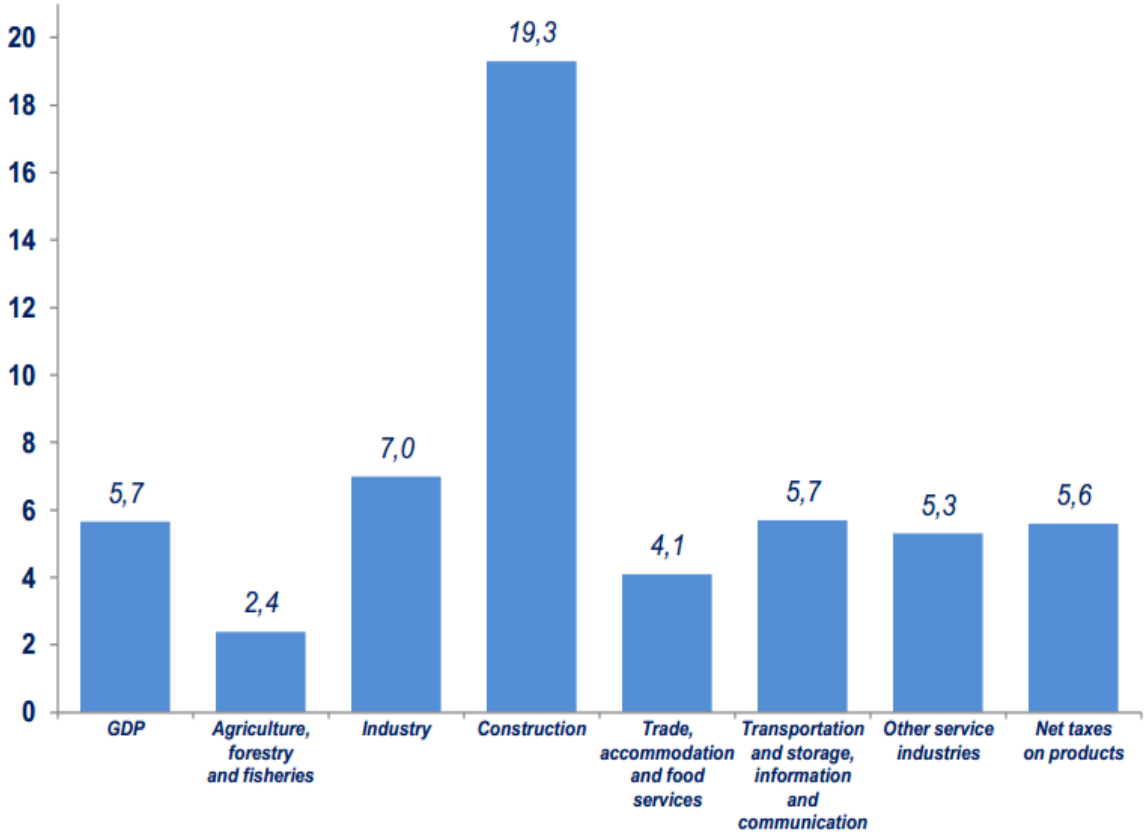

Figure 1- GDP growth rates by economic activity in January-September 2019 (% compared to January-September 2018)

The pace of economic growth in January-September 2019 was due to positive dynamics in the main sectors of the economy. Gross value added generated by all sectors of the economy amounted to 90.9 % of the total GDP and grew by 5.7 % (contribution to GDP growth-5.0 percentage points). Net taxes on products in the structure of GDP amounted to 9.1 % and showed an increase of 5.6 % (contribution to GDP growth-0.7 percentage points)[14].

In January - September 2019, the GDP deflator index was 118.0 % with respect to prices of the same period in 2018. The highest values of deflator indices in the structure of GDP were recorded in industry - 137.6% and other services - 124.7%.Deflator indices below the national average were observed in agriculture, forestry and fisheries - 112.1%, construction - 113.4%, trade, accommodation and food services - 113.8%, transportation and storage, information and communication - 110, 1% and in net taxes on products - 92.8%[15].

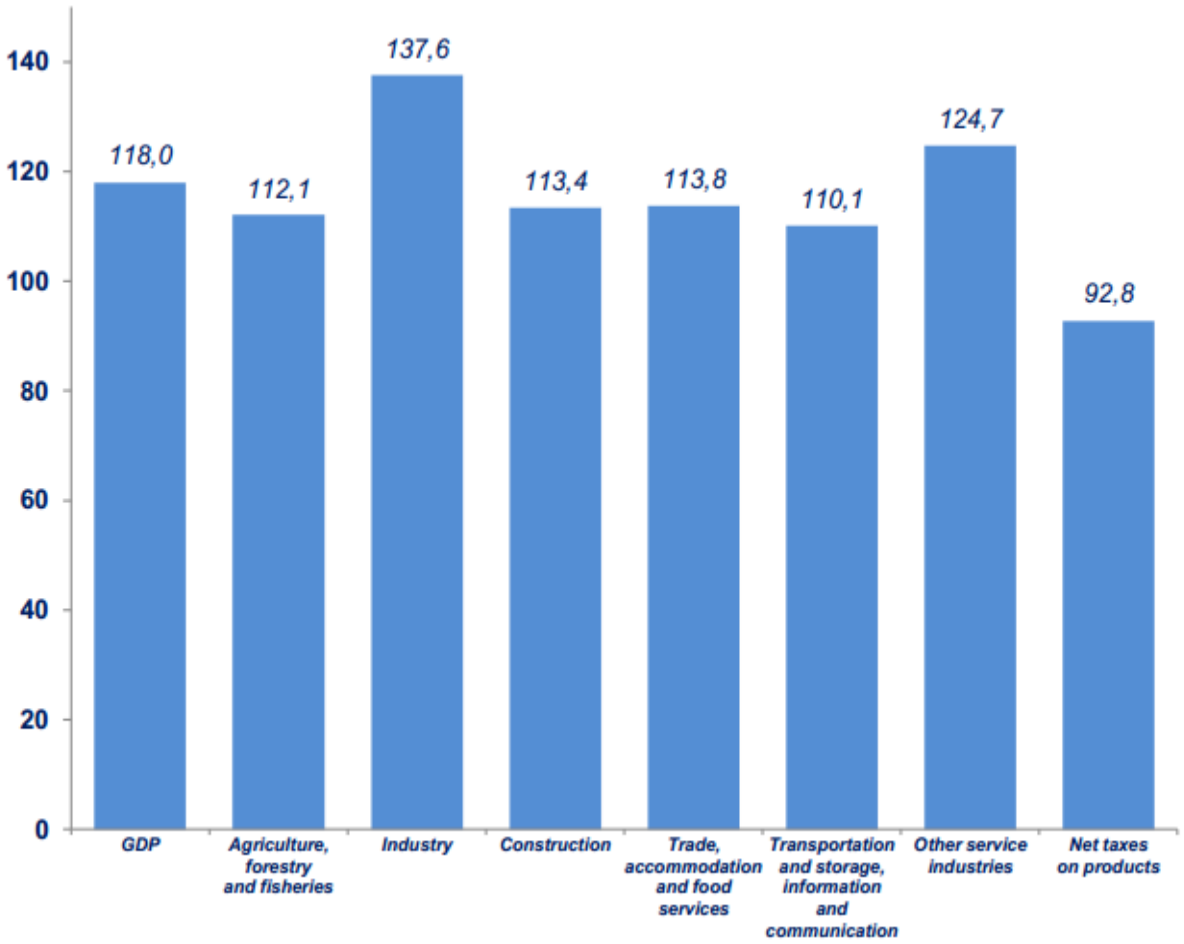

Figure 2 -Indices - GDP deflators by type of economic activity in January - September 2019 (% of January - September 2018)

Conclusion

Uzbekistan uses foreign best practice in forecasting and planning, standards of international organizations as: International Monetary Fund, World Bank, European Bank for Reconstruction and Development, Asian Development Bank, SNA standards. Various methods are used in budget forecasting: mathematical modeling method; index; standard; expert estimates; balance and others [16]. The method of mathematical modeling, based on the application of the economic and mathematical model, allows to take into account many mutual linking factors affecting budgetary indicators, and to choose from several versions of the draft budget the most appropriate, corresponding to the accepted concept of social and economic development of the country and the budget policy. Work is being projected with the IMF technical assistance mission to bring the standard reporting forms into line with the new standards as required by the latest IMF Monetary and Financial Statistics Manual. Budget planning in Uzbekistan is carried out by State authorities. It includes the theory and methodology of State budgeting, the formation of a legal and regulatory framework, and an organizational framework [17].

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QR – Issue QR – Article

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SOME DIFFERENT DIFFICULTIES IN SPORTS EXERCISES

Abstract: *This article discusses the role of terminology in linguistics, lexical-semantic aspects of sporting terms, and the importance of sports in the development of personality. The article also explores the etymology of active terminology in the Uzbek language. The first information about the struggle can be found in monuments, rocks and caves, reflecting the fine arts found in Surkhon and Zarafshan oasis, Ferghana Valley and Sarmishsai gorges.*

Key words: *terminology, category, concept, ethnolinguistics, psycholinguistics, neurolinguistics, linguopragmatics, cognitive linguistics, communicative linguistics, gender linguistics.*

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Introduction

Despite the fact that our country has many studies devoted to the study of various terminological systems of the Uzbek language, there is not enough work done on comparative study of other languages. We can include the thesis of A.A. Abdullaeva's dissertation on comparative study in the Russian and Uzbek languages.

During the great commander Amir Temur's struggle was one of the main ways to improve the military and physical training of soldiers.

Such wrestlers as Pahlavon Mahmud, Jaloliddin Manguberdi, Darveshmuhammad have made the world famous. ”

Literature Review.

Theoretical data from lexicographic scholars, including G.Funakosi, A.Shukin and N.Samokhov were used to highlight the peculiarities of sporting terms. The accuracy and breadth of the key features in the terms are analyzed in detail.

According to calculations of B.N. Golovin and R.J. Kobrin, only in the eighties of the last century, more than 2000 studies on terminology were published. However, scientists do not agree on the term. Danilenko cites 19 different definitions of the term “term” and states that this list can be continued.

Kurash is not only a sport, but it has been respected for centuries as an embodiment of courage, dedication, nobility and honesty. It is an integral part of our lives, which shows courage, strong will, honesty and respect for the opponent.

It is worth noting that achievements in the fast-paced world linguistics, a number of studies, concepts, terminology, categories, concepts and theories, such as cognitive linguistics, communicative linguistics, gender linguistics, ethnolinguistics, psycholinguistics, neurocultural communication, neurology, and linguistics It promotes research in modern linguistics.

Analysis.

“As the human mind grows, so does its outlook, thinking, and thinking. As every science develops, linguistics is evolving day by day, causing new trends, trends, new scientific theories.”

In addition, there is a certain tendency in each science. “… Some streams fall out of the science scene because they are not able to objectively reflect reality, and some say they remain“ lifelong ”because they can accurately reflect many aspects of reality.

The emergence of interdisciplinary cognitive linguistics, linguoculturology, and theories of interpersonal communication further broadens the tasks of interdisciplinary linguistics and sets new tasks for interdisciplinary linguistics: As the reality is multifaceted, new currents will emerge to deepen the unexplored or learned aspects of its reality".

The term “Greek” comes from the Greek word “terminos,” meaning a check, a border. The term terminology and the field that studies these terms is called "terminology." In recent years the term has been used instead of the term. Such an application is a mistake. Because the meaning of the term is broader than the meaning of the term, it is understood as the name of all things, and the term is a formal word used in a particular field.

Therefore, it is appropriate to refer to the term terminology as a unit of vocabulary with the scientific and official meaning that is included in the term.

Sport has always had a number of important tasks in front of society, and if it is a short-term individual sporting activity, it is in a broad sense that special athletic activity is based on that particular activity and its norms and achievements.

“Kurash is a symbol of nobility, bravery and honesty from ancient times, it is a part of the national cultural heritage of our people for thousands of years.

The first information about the struggle can be found in monuments, rocks and caves, reflecting the fine arts found in Surkhon and Zarafshan oasis, Ferghana Valley and Sarmishsai gorges.

During the great commander Amir Temur's struggle was one of the main ways to improve the military and physical training of soldiers.

Such wrestlers as Pahlavon Mahmud, Jaloliddin Manguberdi, Darveshmuhammad have made the world famous. ”.

Kurash is not only a sport, but it has been respected for centuries as an embodiment of courage, dedication, nobility and honesty. It is an integral part of our lives, which shows courage, strong will, honesty and respect for the opponent.

As a result of direct support of our state, Kurash is widely recognized as an international sport took place.

The football game, which became known in Egypt and the East, and later in Europe, was developed by the teachers of Cambridge University in 1848, and was used in English. with the team.

Taekwondo is derived from the Korean word "tae" - foot, "kwon" is a hand, "do" is a type of sports wrestling. We know that both men and women compete individually and collectively for a single-leg or shot-to-action showdown on their respective weight categories and demonstrate their ability to perform special exercises.

"Chess", chess as "chess" from Persian, is a sport "king". The aim of the game is to mock the opponent's king. It is played on 64 equal-sized planks in two different colors (white and black) in 16 different colors (one for king and pharynx, 2 for zinc, elephant and horse, 8 for foot). Boxing, as you know, means boxing, punching. The history of boxing goes back to the history of boxing in Egypt and Babylon in the BC. There were similar competitions in the ancient Olympic Games in Greece. The modern boxing country is England.

Japanese karate - hand-to-hand - is a form of sports-based wrestling that is based on self-defense without arms and bumps with the hands or feet on sensitive areas of the human body. The current rules of karate were based on the improvement of Japanese jiujitsu martial arts in the early 20th century. Its first methods and rules were developed by the Japanese scientist G.Funakosi, who lived in 1869-1957.

Discussion.

Freestyle skiing is a freestyle, English style. There are 3 types of freestyle: mogul, ski ballet, and acrobatics. Freestyle in Uzbekistan began to be popular in the early 1990s. Vasila Semenchuk was the world champion in 1991. Judo - Japanese "judo" - soft, "do" - road - martial arts. In 1882 the Japanese professor Dzigoro Kano was founded. He has taken Japanese jiu-jitsu techniques that are not harmful to human health and has shaped Judo as a sport that promotes physical development. The judoists will be wearing a kimono and compete on a tatami (carpet) on bare feet.

When standing up, competitors try to score each other using methods such as playing, flicking, kicking, and so on. When lying down, using the techniques of twisting, pain, and stroke are allowed to cope with the opponent's shoulders for over 30 seconds. Depending on the methods, wrestlers will be awarded "koko", "yuko", "vasari" and "ippon" awards ("ippon" is a pure victory, two "vassari" are victories, and "yuko" and "koko"). is considered).

Handball is a German hand - hand, ball is a ball, a handball is a sports game. This sport originated in Europe in the late 19th century. Invented by Danish Halger Nielson (1898).

Greek acrobats are acrobats, which means walking up and down. It is a kind of gymnastics. Skiing is one of a number of special types of sports that can be performed with or without the help of sports equipment.

Sambo Russian - unarmed self-defense is a sport. It is based on the most effective methods of national wrestling. Sambo is allowed to remove his opponent's arms and legs, and to move with his feet and legs, hands and body.

Biathlon (bi and Greek athlete - race) is a winter sport, skiing and shooting at certain races, that is, racing twice (ski racing and shooting).

Basketball - English Basketball - Basket, Ball - Ball) is a sports game, hand-held ball game in a basket hoop at a height of 3.05 meters.

Basketball has been playing in Uzbekistan since 1921. R. Salimova from Uzbekistan was twice world and Olympic champion.

Volleyball is an English game of volleyball, volleyball is a hit and ball is a team game. Bodybuilding, Culturism - English BodyBuilding - Body Structure - Sports. Body muscles like dumbbells, sleds, stones and so on. It is a system of exercises that aim to develop and make it beautiful and invigorating, which was initially given great attention in Greece and ancient Rome. At the end of the 19th century Great Britain developed the basics of modern culture - French culturisme and English physical culture - physical culture.

Conclusion.

In short, a person receives, collects, processes, regulates, and perceives information about reality and reality through language. Through language, a person communicates with other nationalities and learns a different culture, and language is not only a means of communication, but also a means of formulating and expressing culture. In addition, the successes of world linguistics, the creation of a number of studies, is a joy, and the evidence of the development of modern linguistics.

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QR – Issue QR – Article

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THEORETICAL VIEW POINTS OF LINGUISTS ON TERMINOLOGY

Abstract: *This article analyses terminology, origin of terminology and its features, place of this branch in linguistics. Besides there is shown some scholars` theoretical views on this theme. On the scientific and technical level, terminology is today at the confluence of all disciplines related to communication: translation, technical writing, but also information technology and automated language processing.*

Key words: *term, terminology, conceptual, translation, publication, dictionary, branch, neologism.*
Language: *English*
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Introduction

A language is not a fixed entity, fixed once and for all: words constantly disappear, die, new words appear, the world changes, and the lexicon evolves.

In world linguistics, the study of the cultural and spiritual wealth of the peoples of the world has scientific and practical value; mutual comparison allows you to appreciate it deeply.

The terminology means "set of terms". Terminology has only recently had a truly recognized meaning. Thus Littré indicates in his dictionary: "This pretended science is only a vain terminology" (1873). In fact, the word terminology, whose creation in European languages dates back to the end of the 18th century, did not come into use with a positive meaning until the middle of the 20th century. This process of naming objects and phenomena has a long history.

Literature Review.

The first collections of terms - from which writing originates - are mainly inventories: accounts of jewelry, precious stones, tools, etc., and concern in particular Egypt, Mesopotamia, India, Minoan civilization. The reflection on the relationship between the name and the thing is deepened by the Greek philosophers, in particular Plato (Cratyle) and Aristotle (Organon). It is one of the constants of philosophical trends, from the Stoics to the medievalists, up to the modern and contemporary era.

We say "terminological unit" or "term" and not simply "word". And everyone intuitively understands what a word is, but it is quite difficult to give a precise definition. We speak of "lexical unit", the smallest unit of meaning, we speak of a unit of first articulation (but these are rather morphemes and not words), that is to say of a unit composed of phonemes, isolated character sequence between two delimiters.

Today, terminology is at the heart of several disciplines, notably documentary disciplines.

Analysis.

Terminology is only interested in terms, simple or complex words belonging to a specialized language, it analyzes the networks of concepts to which they refer but it also studies their meaning and behavior. In each language the terminology where the terms play a big role of the formation, the structure etc.

Terminology is far from being a new discipline. We can even trace its origins to Greek antiquity. But one can date its development from the beginning of this century, where, in 1906, the international electro technical commission begins the development of its vocabulary.

The word terminology also designates an activity, the art of locating, analyzing and, if necessary, creating vocabulary for a given technique, in a concrete operating situation, so as to meet the expression needs of the 'user' to produce terms and

definitions to designate the concepts and realities of a domain.

The terminology relates primarily to the vocabulary of specialty languages (specialized vocabulary); it is also science which studies, on the one hand, the concepts and their denominations within the framework of specialized vocabularies (theoretical study) and, on the other hand, the methods specific to terminological work.

Terminology is the set of theoretical and practical activities relating to systems of concepts and their designations by means of names organized into systems.

There are lexical words, grammatical words, simple words, compound words, words which one wonders if they are compounds or not .... Words of the current language and words which belong to a specialized vocabulary. Words which seem to belong to everyday language but which have a particular meaning in a specialized field.

According to Felber, terminology all the methods of collecting and classifying terms, neological creation, standardization of terms, dissemination of terms. Terminology all methods of collecting and classifying terms, neological creation, standardization of terms, dissemination of terms.

According to the definition of Terme in the Petit Robert, we essentially retain the idea of limit, delimitation.

A term defines a concept in a specialized field. In linguistic terms, a term is the designation of a concept.

Term, designation using a linguistic unit of a concept defined in a specialty language.

A term can consist of one or more units:

Lexicology studies the words of the language, whether simple or complex, it analyzes their meaning and meaning, their behavior in speech.

Terminology is the set of theoretical and practical activities relating to systems of concepts and their designations by means of names organized into systems.

Terminology is the systematic study of terms used to denote classes of objects and concepts; the general principles which govern this study. (Rey, 79); Terminology is the art of locating, analyzing and, if necessary, creating vocabulary for a given technique, in a concrete operating situation so as to meet the needs of the user. Terminology is the set of terms in a field or discipline.

The terminologist's job is to identify, analyze and, if necessary, create terms to meet the user's need for expression. His word creation work is semantic and etymological in nature. In contrast, nomenclature is the codification of a set of words specific to a specific (generally scientific) field. This codification is then done more, according to syntactic and pragmatism criteria.

Terminology work now presupposes the use of IT tools and in particular database software. Information on terms is referenced in a terminology sheet, of which there are several forms. In general, we find the same types of information in this one: featured term, grammatical information (word class and category, eg masculine noun), definition, source, etc. Terminology work is meticulous work which presupposes absolute compliance with formal data entry instructions.

Before even speaking of terminology, we must speak of a specialty language. Indeed, in each area of knowledge we use very specific terms, which refer to realities well defined in these areas, and which cannot be confused with the same words or well homonyms used in other areas.

Discussion.

Terminology is a discipline which has as its object the theoretical study of the names of objects or concepts used by a particular field of knowledge, the functioning in the language of terminological units, as well as the problems of translation, classification and documentation. that arise about them. We also call terminology the set of terms, rigorously defined, which are specific to a science, a technique, a particular field of human activity. Terminology is the art of identifying, analyzing and, if necessary, creating vocabulary for a given technique, in a concrete operating situation so as to meet the needs of the user.

Terminology and ontology share the same fundamental notion: that of concept. In terminology, a term is the inseparable combination of a name (linguistic expression representing a business word) and a concept (sometimes called notion) which represents its meaning.

This notion (or terminography) applies to specialized languages such as lexicography relates to general language. A notion, a definition, a term: this is the principle behind the development of all terminology; each new notion must be precisely defined and designated by a term, the most suitable, the most meaningful, the clearest possible. It is close to translation, relying on the meaning of a concept to give equivalent terms from one language to another.

Terminology work now presupposes the use of IT tools and in particular database software. Information on terms is referenced in a terminology sheet, of which there are several forms. In general, we find the same types of information in this one: featured term, grammatical information (word class and category, eg masculine noun), definition, source, etc. Terminology work is meticulous work which presupposes absolute compliance with formal data entry instructions.

In the context of lexicology and terminology, as constituted sciences lexie is a memorized unit of functioning (or behavior). First, we can distinguish four main categories of lexies:

a) Simple lexes: a single autonomous lexical element, without affix perceived as such: dog, table, landscape.

b) Derivative lexes

The derivations with affix: a single autonomous lexical element and one or more affixes perceived as such that is to say without lexical autonomy: incredible, amoral, open up, resume, hum, jump, gently, unsuspected ...

c) Compound lexes: formed from at least two independent lexical elements. The whole behaves like a new unit:

hummingbird, housing savings, round table, pentagon, stopwatch, hydrotherapy, oil rig, wage freeze, dishwasher, criminal law, surface technician, prudential rule, hospital center, museum center, autonomy of will.

d) Complex lexis:

Lexicalized sentences, proverbs, certain quotes:

what will they say, save who can, willy-nilly, people's opium, valiant heart nothing is impossible, never two without three, etc.

Set of terms specific to an author, a thinker, a current of thought. We thus speak of Kantian, Sulpician, Marxist, or other terminology. It is then linked to dialectics. Set of terms, expressions specific to a region, to a social group (this is the case with popular terminology).

Complex lexes constitute what is called the phraseology of a language. This phraseology (we also say: phraseologies) is the set of complex memorized units that any speaker of a language spontaneously uses.

Before being a phraseology, a complex memorized unit is a simple collocation, that is to say the frequent appearance of certain words together, in a text. The study of collocations is the study of living terminology, in the process of being formed.

Conclusion.

We will examine the phraseologies and collocations in more detail later.

So terminology is the discipline that deals with scientific or technical vocabularies. Its aim is to study the way in which science and technology designate objects and phenomena. Terminology also refers to the identification, formatting and management of terms, especially in the form of dictionaries and databases.

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RESEARCHING THE SCOPE OF PROFESSIONAL COMPETENCE WITHIN ACTIVITIES

Abstract: *The article explores the interrelationship of professional competence and personality traits (communicativeness) and professional activities that affect the professional competence of educators.*

Key words: *continuous education, preschool education, professional activity, subject, emotional and willpower, curiosity, social, social intelligence, partnership activities.*

Language: *English*

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Introduction

Professional competence - analysis and interpretation of how and how learning is learned in the context of professional activity as a social psychological problem is important today. Because without the proper assessment of the scope of theoretical, scientific and practical-methodological researches on social intelligence, it is impossible to think about the improvement and development of the social intellectuals of preschool teachers operating in the system of continuous education. "The high level of responsibility for preschool teachers depends on the social intelligence."[1] This level allows educators of preschool education to identify themselves as subjects of social information, as well as social media entities. Formation of social intellectuals of preschoolers helps to correct students' defects in psychological development of emotional and willpower, intensifies cognitive activity, formation of knowledge, skills and abilities, corrects social identity and social interaction in social environment.

It is clear that in the psychological study of the importance of social intelligence in the professional activities of preschool teachers, it is important to explain the psychological aspects mentioned above.

Literature Review.

However, although the basic theoretical approaches to the assessment of professional competence in psychology are not sufficiently described, it is important to consider the work of Russian psychologists (A.I.Sccher-Bakov, I.M.Yusupov, E.I.Rogov, A.D.Goneev, N.I.Lifintseva, N.V.Yalpaeva).[2]

The problem of professional competence has also been studied in a number of areas of psychology: in social psychology - G.M.Andreeva, E.A.Abulkhanova-Slavskaya, A.J. Yujaninova, D.Mayers, V.A.Labunskaya, E.S.Mikhaylova,

[1]Выготский Л.С. Избранные психологические исследования – Москва: АПН, 2010. – 148 с.

[2]Гайнутдинов Р.З. Психология личности учителя узбекской национальной школы и ее формирование в системе непрерывного образования: Автореф. дис. … докт. психол. наук. – СПб.: 1992. –34 с.

V.P.Bederkhanova, A.A.Bodalev, in general and age psychology S.L.Rubinstein, D.A.Leontev, A.V.Petrovsky.[3]

In recent years, the study of social intelligence in psychology has focused on professional activities (V.A.Slastenin, O.A.Abdulina, G.G. Kit, N.M.Nazarova, I.M.Isaev, V.N.Kelaseva).

The problem of professional competence of preschool teachers has also been studied in terms of the combination of activities and personalities (C.J. Rubinstein, B.G.Ananev, A.A.Bodalev, A.N.Leontev, A. Maslow, A.G.Asmolov) , G. Olport). Many studies carried out in the Republic are also devoted to the personality of the teacher, his / her interaction with students, and its role in the management of learning activities (M.G.Davletshin, E.G.Gaziev, R.Z.Gaynutdinov, Z. Klichova, L.S. Beknazarova, S. Jalilova and others).

Analysis.

Professional competence has been the focus of a number of researchers in relation to the individual's professional activities and educational process. One of the latest research in this area was Russian scientist I.B. Conducted by Kudinova. She devoted her research to the study of the psychological conditions of professional competence in high school students and students.

The study explored interpersonal communication and curiosity as a prerequisite for the development of personal competence.

Professional competence has been studied not only as a pedagogical process, but also as a subject and object of research in all areas of society. In this direction we can say that O.E. Boyko studied the importance of social intelligence in management. He has learned in his research that professional competence is one of the key competencies of the management field. This research work differs from other research activities by examining the role of professional competence in the management field.

It is worth noting that the problem of professional competence and its aspects of professional activity were also studied by representatives of psychology in our country. However, although the problem has not been given the status of professional competence, its key components have been exploring interpersonal relations, the ability to communicate, understanding and understanding, and pedagogical cooperation and activity management. If we turn to the general description of these studies carried out in our Republic, then Professor E.G. Ghaziev and his students are important in communicating the role of the individual in managing the learning activities, communicating the activities of the individual.

E.G. Gaziyev[4] developed a taxonomy of key stages of collaboration, through which he systematized the mechanism for coherent teaching and learning partnerships. In his research, M.G. Davletshin focused on the psychology of modern day preschool teachers. He notes that the personal and professional qualities of modern preschool teachers are the most important factor in establishing the standards of student-teacher interaction with preschool teachers, and that modern preschool teachers may not be social psychologists and can therefore interact with students, suggests that children need to be aware of the use of psychosocial mechanisms in their community.

V.M. Ms Karimova's research concludes that preschoolers should think independently and freely in order to ensure effective interaction with preschool teachers. In turn, it is necessary to make drastic changes in the interaction of pupils, students and professors of preschool educational institutions, in the formation of cooperation activities, students' independent thinking skills and perceptions of students as active subjects of the educational process.

Kadyrov's research in this area is in-depth study of individual-psychological capabilities of students and the organization of educational process; selecting and changing appropriate and convenient ways for preschool teachers to interact with and engage with students; scientific guidelines for adapting educational and educational processes to the levels and attitudes of students' mental development, and assisting education entities to create the necessary conditions for the manifestation and development of personal and professional expectations of students.

G.B. Shoumarov's research is devoted to the establishment and development of ways and methods of psychological services in educational institutions to optimize the interaction and interaction of preschool teachers - pupils of preschool educational institutions.

Discussion.

Also, a number of studies have investigated the impact and interactions of preschool educators on collaborative activities and interactions of preschool teachers: Study of socio-psychological and national-cultural factors influencing the process of education and upbringing, psychosocial and ethnic characteristics of preschool teachers of the Uzbek school, national-psychological factors of student-teacher cooperation(A.M.Jabborov, 2000); An important psychological factor of the “preschoolers-pupils” interaction is to ensure the interrelation of

[3]Петровская Л.А. Компетентность в общении. – М.: Аспект-Пресс, 1990. – 216 с.

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individual thinking, collaboration and individual cognitive activities in communicating with students (Z.T.Nishonova, 2005); the importance of interpersonal relations and pedagogical styles in educated students with impaired mental development (G. Berdiev, 2000); age features and dynamics of the behavior (E. Azamkhodjaeva, 2002); the issues of formation of individual approach to adolescents(E. Ganieva, 2002); pupil interactions with preschool teachers and the educational impact of the teacher on them (A.I.Rasulov, 2001); Relationship system "Teacher - Student" (Sh. Eshmetov).[5] Scientists of the Republic Usmanova explored the possibilities of interconnecting common intellect and social intelligence in the process of professional development of students.

Professional competence does not mean the acquisition of individual knowledge and skills by a specialist, but rather the integration of integrative knowledge and actions in each independent field. Competence also requires continual enrichment of specialist knowledge, new information, understanding important social requirements, the ability to search for new information, process it and apply it in its activities. Professional competence is manifest in the following cases: Expert with professional competence:

consistently enriches his knowledge;

- acquires new information;
- understands the requirements of the time;
- seeks new knowledge;
- They are processed and effectively used in their practical activities
- In complex processes;
- when performing uncertain tasks;
- in the use of conflicting information;
- to have a plan of action in case of unforeseen circumstances

However, it is observed that psychologists of the country do not yet fully understand their professional competence for specific professional activities or, in particular, pre-school teachers. This requires, as an example of the activities of today's preschool teachers, a clear definition of the scope of his or her social intelligence. Thus, the analysis of the above-mentioned areas of research allows, firstly, to assess the scientific theoretical social intelligence, and secondly, it serves as a scientific and theoretical basis for developing and applying professional competence criteria for research purposes.

It is possible to say that all theoretical and methodological bases allow to make relevant scientific clarifications in order to form relevant perceptions about the professional competence of educators of pre-school education institutions operating in the system of continuous education.

Thus, from the foregoing considerations, the process of professional competence is comprehensive in its purpose and essence, and it is important to examine it in every activity.[6]

At the same time, the study of the extent of professional competence of preschool teachers in their professional activity is unquestionably the key to academic opportunities that enhance the effectiveness of education.In this regard, the following scientific and practical tasks should be considered in the study of professional competence within the framework of professional activity:

1. Identify and analyze the possibilities of social psychosocial harmony between professional competence and professional competence.
2. Identify and investigate the social and psychological factors that influence the performance of professional competence indicators in the case of preschool teachers operating at different stages of the continuing education system.
3. Analysis of the relationship between personality traits and professional competence in preschool teachers.
4. Empirical analysis of correlation relationships between factors that ensure the harmonization of social intelligence and professional competence of preschool teachers, with a focus on drawing appropriate conclusions.
5. Development of professional competence development program for preschool teachers operating in the system of continuous education and taking them seriously.

Conclusion.

Thus, summarizing these scientific considerations, we can once again acknowledge that the study and study of professional competence within professional activities is one of the most important areas of social psychology. Solutions to this urgent problem are reflected in the object and objectives of the study.

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